



SUSTAINABLE *Living*



**Annual Registration Statements/
Annual Report 2023**
(Form 56-1 One Report)
PTT Global Chemical Public Company Limited



UP
TO
YOU

“ What we design
is not just fashion
collections but also
the future
of this planet.”

Bordin Aphimarn
Creative Director
Greyhound Original Co., Ltd.



GC
YOUให้รู้



“ In Map Ta Phut Industrial Estate,
there is just as much waste
as there are people.
**We've turned a crisis
into an opportunity by sorting waste,
generating value from it,
and creating jobs for the community.**”

Napapat Ucharoen
Chairman of Watchaklukya Community
Enterprise's Recycling Waste Sorting Bank



“ If we only exploit forests,
they will eventually be
depleted and die.
But if we conserve them,
they'll be lasting sources
of livelihood,
**water, and fresh air
for generations to come.**”

Kornkarn Dongdang
The Konrakpa -
Chaklukya and Huai Mahad Club



“ Thanks to a green
alternative like
compostable cup,
we can enjoy our beverage
in an **eco-friendly** way.”

Poomchai Panitpongpun
Photographer
Eureka Studio



Sharing Inspiration for Sustainability

Let's pass on ideas and inspiration to create an eco-conscious society, achieve endless resource circulation and sustainable living, and ultimately pass on a better world to the next generations.

“ Mangrove forests are superheroes because they can absorb and store massive amounts of carbon. Let's grow mangrove forests to increase their number. ”

Jareerat Petsom
Miss Earth 2021
Environmental



“ We've designed the bag to clearly communicate that it's made from 30 PET bottles, turning sustainability into something actionable by everyone. ”

Natchayar Porwongsawang
Project Manager and Designer
TA.THA.TA





GC strives to develop innovative plastics and chemicals to offer new alternatives for every lifestyle in society. We also seek to address megatrends and sustainability issues of the world by fostering participation across all sectors and play an active role in advancing a low-carbon society and the goal of Net Zero emissions in order to maintain the world's ecological balance and pass on a sustainable future to the next generations.



GC actively enhances energy efficiency, reduces energy consumption and increasing its renewable energy consumption in production. In 2023, a total of **194 projects** were carried out, **resulting in a decrease of 1.85 million gigajoules in energy consumption, 607 million baht in expenses and equivalent to 138,090 tCO₂e in avoided emissions** (Scopes 1 and 2).

In part of **renewable energy** consumption by installing solar rooftops and floating solar farms. In 2023, it utilized **9,895 MWh** of solar-based electricity.



The 4th Upcycling Upstyling Project transformed used plastics into stunning eco-friendly fashion, with 8 partners and 12 designers coming together to produce 15 fashion collections for GC Sustainable Living Symposium 2023. **A total of 992 plastic bottles were used in place of virgin resin, reducing over 17.4 kgCO₂e of greenhouse gas emissions.**



Innovative plastics and chemicals for automobiles of the future have been developed in pursuit of the Net Zero goal, featuring a lightweight automotive innovation composed of over **1,000 components** made from engineering plastics, eco-friendly production process and coated with a **zero-waste technology**, allowing for **100% excess coating to be reutilized.**



GC has carried out an upcycled walkway development project in collaboration with the Ministry of Natural Resources and Environment to create an eco-friendly public space.

The use of post-consumer plastics in place of virgin resin reduced the amount of landfilling by 4,500 kg and contributed 4,700 kgCO₂e in avoided emissions, equivalent to planting 495 trees.



ENVICCO, a manufacturer of high-quality food-grade PCR PET and PCR HDPE for packaging, reduced over 22,000 tons of Waste in Thailand in 2023 by using it as raw materials in place of virgin resin and contributed **46,900 tCO₂e* in avoided emissions, equivalent to planting forests covering an area of 49,370 rai**.**



* Including GHG Scope 3 (Upstream)
** Clean Forest Development Mechanism Project Handbook, TGO, 2011

In 2023, GC YOUTURN Platform, in collaboration with partners, collected over **352 tons** of used plastic bottles, which were recycled and upcycled into **creative products**, used in place of virgin resin.

The initiative contributed over **404 tCO₂e in avoided emissions, equivalent to the amount of carbon sequestered by 42,500 trees** in one year.**



"Plant More Trees, The Better It Will Be" Project planted **mangrove forests** over an **area of 3,457 rai** for carbon absorption across four provinces, namely Rayong, Trat, Chanthaburi, and Phetchaburi. The green spaces created are expected to **reduce 23,700 tCO₂e per year.**



GC strives to its goal of achieving Net Zero GHG emissions by **2050** to pass on **a better world for all.**



SUSTAINABLE *Living* Home

Sustainable living... begins at home. Start each day with plastic and chemical products that make your life easier, more convenient, and more eco-friendly, designed for each age group with the concept "Better for You, Better for Our World."

Bio-based phone and computer cases made from corn can make every tap and click eco-friendly.

Maximize resource efficiency with a diverse range of home and living products and clothing featuring upcycled fabrics made from used plastics.

Compostable diapers answer the needs of an aging society and offers an eco-friendly option.

Compostable coffee capsules are safe for users and the environment. They are bio-based and 100% compostable to be H₂O, CO₂ and soil nutrient.

Suitable for children of all ages, high-safety toys enhance learning experience and safely promote the development of your loved ones.

Natural fatty alcohols, produced from plant-based feedstocks, are used as a surfactant in skin care and cleansing products.

SUSTAINABLE *Living* Community

Regardless of lifestyles, you can foster sustainability in your everyday life with products that not only meet the demands of modern society but also create endless value so that everyone can contribute to a sustainable society.

Eco-friendly FDA-certified PCR PET water bottles are not only safe for consumers but also help reduce plastic waste and restore an ecological balance.

GC Compostable packaging offers an eco-friendly alternative as it is plant-based and 100% compostable.

Electric Vehicles (EVs) help reduce the emission of greenhouse gases - contributors to global warming - as they are powered by 100% electricity, thus offering an opportunity to use an alternative energy source, reduce greenhouse gas emissions and landfilling, and minimize environmental impacts.

Waste separation benefits the planet because every step of waste management generates greenhouse gases. By separating materials that are still useful like glass, paper, plastics, and metals, for recycling, we not only gain substitutes for traditional-grade plastics but also reduce greenhouse gas emissions and landfilling, effectively minimizing environmental impacts.



Five years reigning as the leader of the world

Thank you to all the collaborative efforts that have nurtured and enhanced our world to make it a better place.

Persisting steadfastly in our collective stride towards nurturing our world. Together, we pave the path for a better tomorrow. Better for You, Better for Our World.

GC, the Only Company in the World, ranked **Number One** in the Dow Jones Sustainability Indices (DJSI) (World Index) in the Chemicals Sector for **5 consecutive years** by the S&P Global Corporate Sustainability Assessment (CSA).



GC is the only company in Thailand to receive the **highest leadership rating** in the Carbon Disclosure Project (CDP) assessment for climate change and water security management for **4 consecutive years**, reflecting its commitment as a world-class sustainable organization that actively works to address urgent global challenges.

GC rallied GEN S (Sustainability) people to tackle "Global Boiling" at the **"GC Sustainable Living Symposium 2023"** and invited people of all nationalities and linguistic backgrounds to join it in solving urgent global problems by providing inspiration for sustainable living through an international symposium featuring diverse sustainability activities. The event was organized on October 27-28, 2023, at Siam Paragon, with **3,510** attendees and over **500,000** live viewers from **125** countries worldwide.

GC reaffirmed its stance and commitment to reducing greenhouse gas emissions to achieve Net Zero by 2050 at COP28, hosted in Dubai, the United Arab Emirates. At the event, GC also presented a strategic plan for becoming a low-carbon organization, presented its progress, exchanged visions on climate actions, and consolidated cooperation with international partner networks.



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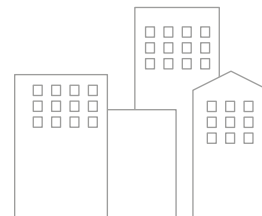
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Corporate Strategies, Vision, and Mission

Vision



**To be a Leading Global
Chemical Company
for Better Living**



This means:

Leading Global

refers to GC Group as a world-class chemical company.

Chemical Company

refers to GC Group as a producer of petrochemicals and chemicals across the integrated value chain that grows businesses through domestic and international investments, with a focus on high value-added products.

Better Living

refers to GC Group as a producer that strives to deliver value and elevate the quality of life through chemical products that meet consumer needs that is guided by social and environmental responsibility and seeks to contribute to the mitigation of global warming.

Shareholder

We deliver fair and sustainable returns for shareholders through excellent and trustworthy performance management.

Employee

We build an adaptable organization that promotes learning through a happy work environment and actively develop its employees' capabilities so as to equip them for new challenges, foster their dedication to and engagement with the organization, and achieve professional excellence.

Mission

Business Partner

We provide the best solutions to business partners through innovative products and services.

Society

We integrate social and environmental responsibility into our business practices to achieve sustainable development.

Objectives and Goals



PTT Global Chemical Public Company Limited, GC systematically reviews its corporate vision, mission, and direction annually to ensure alignment with the circumstances as well as short-term and long-term trends in pursuit of its aspiration to become an international leader, as detailed below.

Business Growth

GC strives to become a world-class petrochemical and chemical manufacturer with an integrated value chain, foster growth, and generate profit in a sustainable and uninterrupted manner, with emphasis on growing investment in performance and specialty chemicals, low-carbon businesses, and international investments.

Sustainability

GC strives to operate its businesses under the framework of sustainability and has earned international recognition thanks to its consistent sustainability actions. GC has also announced its goal to achieve net-zero emissions of Scopes 1 and 2 greenhouse gases (GHG) by 2050, reinforcing its commitment to becoming a world-class model organization of sustainability practices.

Corporate Strategies

The year 2023 was marked by considerable uncertainty due to external factors, including geopolitical conflicts and the global economic recession. As a result of persistent high inflation and policy interest rates, coupled with the sluggish recovery of the Chinese economy, the demand for petrochemical products experienced a slowdown. Meanwhile, China's self-sufficiency policy triggered the largest expansion of new production capacities during the 2022-2023 period. These factors combined caused a downturn in the operating rate of the industry in 2023, which was indicative of an oversupplied market and caused the prices and spreads to decline. In addition, an energy transition was accelerated by a surge in environmental consciousness and the climate policies implemented by various countries across the globe, impacting the competitiveness of the industry in the long-term. GC has been closely monitoring these trends and analyzing short-term impacts in order to promptly adjust its operation plans in line with the challenging business condition while also advancing

its long-term plan to achieve sustainable growth and respond to megatrends. As a result, GC has been able to accomplish its goals in different areas as planned and maintain its sustainability leadership, as demonstrated by its being ranked as the number one company in the petrochemical industry by the Dow Jones Sustainability Indices (DJSI), making it the only chemical company in Thailand and Asia to occupy the top spot for five consecutive years and placed in the top 10 for 11 consecutive years.

GC has realigned its business directions and strategic plans with the evolving landscape, focusing on building and maintaining competitiveness, sustainable business growth, and preparedness in various aspects in support of future growth. GC uses these directions and strategic plans as frameworks for business operations and regularly monitor outcomes to accomplish short-term and long-term corporate goals, with emphasis on the following five strategic focuses:

1 Step Change

GC actively enhances its business competitiveness, operations, and resilience to ensuring its ability to operate in the face of challenges, with emphasis placed on maintaining competitive costs and developing high value products. The key strategies are detailed below:

- Competitiveness Enhancement:** GC implements strategies to achieve feedstock competitiveness alongside plant optimization to reduce production costs. In addition, there is synergy within GC Group to move towards the enhancement of product value. In response to the economic recession, GC undertaken a thorough review of its investment plans to align them with its investment capacity and studies alternatives in the market to ensure its preparedness for investment in the future as well as its ability to achieve the desired returns on investment for projects and the Company's overall portfolio.
- Market-Focused Business:** GC enhances the value of its High Value Products (HVPs) by applying innovation and by developing customers and marketing alongside product development. In addition, GC has initiated a Market-Focused Business Transformation (MFBT) to elevate its market- and customer-focused business capabilities, focusing primarily on selling application- and solution-based products to meet market and customer needs. Additionally, GC actively seeks business opportunities to access new technologies and expand its market network through collaborations with partners for forward
- integration as well as create value-added products on a non-competition basis against its current customers. Furthermore, GC places emphasis on customer solution marketing by fostering collaborations with brand owners to develop products that address market trends, using a customer-centric approach.

2 Step Out

GC operates and fosters growth in high-value and low-carbon businesses that accommodate megatrends through three key strategies, as detailed below:

- Seeking Opportunities in Bio & Circularity Business:** GC seeks opportunities in the Bio & Circularity Business, which will play a vital role in enabling it to successfully transition to a low-carbon eco-business according to its business direction. For the recycling business, GC currently operates mechanical recycling through ENVICCO Co., Ltd., which has a domestic recycling capacity of 45,000 tons per year, with plans to expand its markets not only within Thailand but also in Southeast Asian countries and the United States. Furthermore, GC operates a compostable plastics business through NatureWorks
- LLC (NatureWorks), the world's leading polylactic acid (PLA) producer with a capacity of 150,000 tons per year, who has begun the construction of a second plant in Thailand to establish an Asia hub for its regional customers. In addition, GC is currently studying and seeking additional business opportunities in the biofuel/oleochemicals and drop-in biopolymers sectors, with the goal of creating growth and added value for each product.
- High Value Business (HVB):** GC has joined forces with allnex to promote value creation and synergy within GC Group
- and exchange knowledge in various areas to enhance efficiency, strengthen the business operation, and elevate long-term competitiveness.
- Second Home Base:** GC is seeking business opportunities in the United States to enhance its long-term competitiveness through advantages in raw material costs, markets, and fundamental factors as well as investment promotion policies and incentives, especially in relation to the environment, from government agencies in the U.S.

3 Step Up

- Efficiency-driven:** GC seeks to optimize the production process, transition to alternative energy, as well as develop and introduce new low-carbon technologies to production or enhance decarbonization efficiency.
- Portfolio-driven:** GC carries out projects as prioritized to reflect the current situation and align with GC's strategies to move towards low-carbon businesses. Key initiatives include studying business restructuring, studying investment in High Value Businesses (HVBs) through allnex's business expansion, and investing in Bio & Circularity businesses. In addition, GC is advancing its circularity businesses, with plans to develop a sustainable

GC has announced its intent to achieve internationally recognized leadership in the area of sustainability by integrating circular economy principles and an Environmental, Social, and Governance (ESG) framework into its business operations. GC has also declared its goal to reduce emissions of Scopes 1 and 2 GHG to zero by 2050, placing emphasis on projects that yield returns on investment alongside GHG emission reduction. To this end, it seeks to translate its established plans to practical actions through four strategies:

product portfolio with the goal of expanding the domestic Post-Consumer Recycled (PCR) market. Additionally, GC has developed a sustainable product growth plan and is expanding its waste management business to achieve nationwide coverage through the YOUTURN Platform, while also studying the feasibility of new waste management businesses.

Compensation-driven: GC is studying the feasibility of vital projects, such as PTT Group CCS Hub, with cooperation plans within PTT Group and with other private entities to accelerate the advancement of policies in collaboration with the government sector. In addition, GC is

planning to implement nature-based solutions through reforestation and mangrove forest restoration projects and is in the process of studying carbon credit trading through overseas platforms.

- Leadership:** GC seeks to achieve leadership in sustainability by adopting international sustainability practices in key aspects, such as Environmental, Social, and Governance (ESG), in a balanced manner with emphasis on contributing value to society sustainably and expanding sustainability practices to all companies in GC Group in accordance with the Decarbonization Roadmap in order to serve as a model for the petrochemical and other related industries.

4 Necessity and Opportunity in New Landscape

In responding to the evolving industrial landscape, GC recognizes the significance of maintaining its advantages and creating long-term business opportunities through business portfolio restructuring in collaboration with its partners as well as the importance of seeking opportunities to leverage its strengths and expertise to develop new businesses as well as create differentiations and business returns in the future as part of the hydrogen and carbon business integration strategy, which aligns with the world's sustainability-focused energy trends.

5 Enablers for Transformation

- Center of Excellence:** GC seeks to optimize operational efficiency by improving and enhancing production efficiency and reducing processes that do not generate added value to GC's core businesses through an organization-wide efficiency optimization project (Max), Maptaphut Integration (MTPI), Digital Transformation (dEX), and FiT. Furthermore, GC strives to foster operational excellence among its subsidiaries and overseas joint ventures and maximize benefits through synergy by establishing the International

Center of Excellence, which is tasked with cultivating operational excellence among domestic and overseas companies within GC Group.

- Innovation Growth Platform & CVC:** GC undertakes innovation initiatives by establishing a strategic technology platform and developing three major groups of technologies, namely (1) Renewable and Circularity Innovation, (2) Net Zero Innovation, and (3) Advanced Materials Innovation. The goal is to accelerate growth in high-value and

low-carbon businesses and drive the achievement of GC's Net Zero emissions target in accordance with its business direction.

- People & Organization Transformation:** To ensure adaptability to uncertainties and robust business growth in the future, GC optimizes its human resource management to match the efficiency of other companies in the same industry and gain international recognition for its commitment to employee well-being.

GC also strives to strengthen supporting units and lay down the foundation for effective Governance, Risk management and internal control, and Compliance (GRC), so as to assure GC's stakeholders of its transparency, accountability, and corporate governance.



Background and Significant Developments

PTT Global Chemical Public Company Limited (GC)

was founded through the amalgamation of PTT Chemical Public Company Limited (PTTCH) and PTT Aromatics and Refining Public Company Limited (PTTAR). It was registered on October 19, 2011 to be PTT Group's Chemical Flagship. GC's registered and paid-up capital is Baht 45,088,491,170 comprising 4,508,849,117 ordinary shares at a par value of Baht 10 per share.

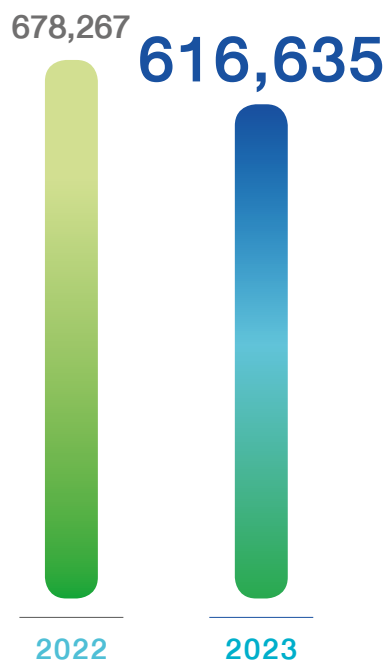


GC's registered and paid-up capital is Baht **45,088,491,170** _____
_____ comprising **4,508,849,117** ordinary shares
_____ at a par value of Baht **10** per share.

Financial Highlights

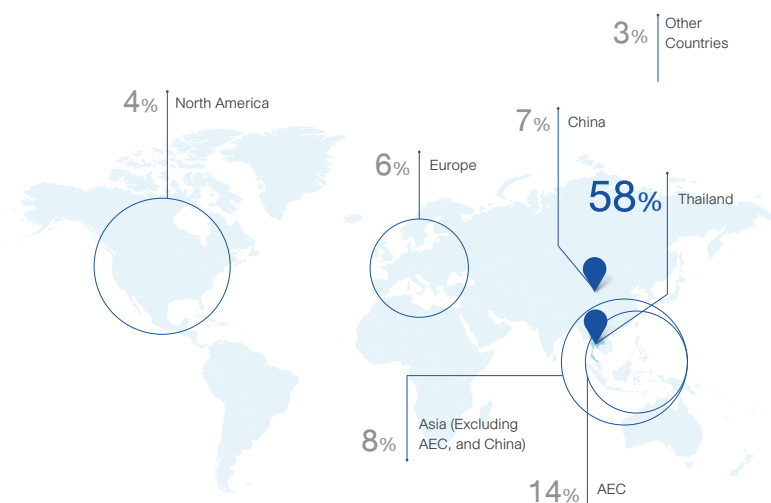
Sales Revenues

Unit: Baht Million



Sales Revenues

Breakdown by Geography
Year 2023

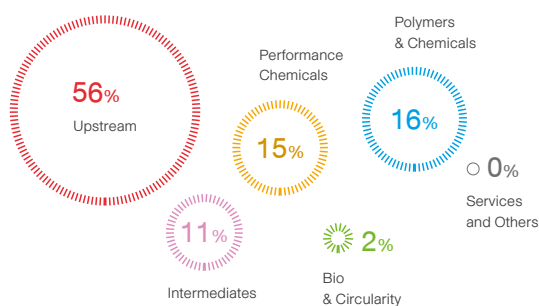


Remark: Represent the sales revenue based on the geographical location of customers

Sales Revenues

Breakdown by Business group

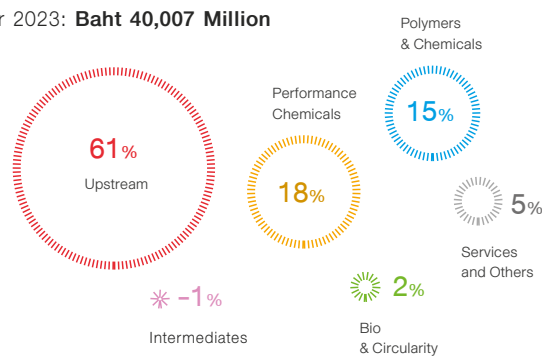
Year 2023: **Baht 616,635 Million**



Adjusted EBITDA*

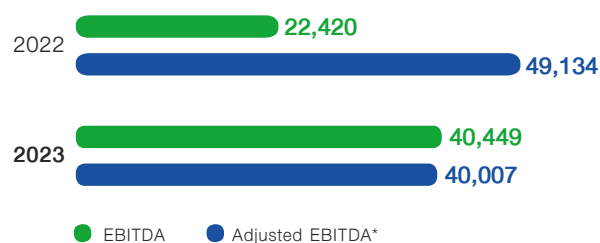
Breakdown by Business group

Year 2023: **Baht 40,007 Million**

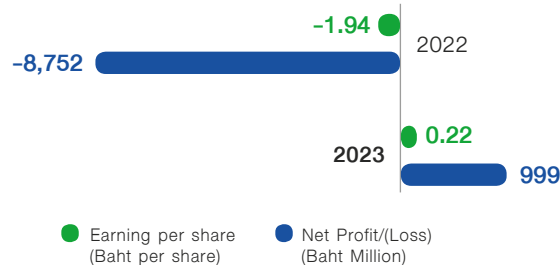


EBITDA & Adjusted EBITDA*

Unit: Baht Million



Net Profit/(Loss)



Remark: * Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss), NRV, Gain/(loss) from commodity hedging, and Extra item.

Statements of Financial Position (Baht Million)	2021	2022	2023
Total Assets	747,481	719,965	719,005
Cash and Cash Equivalents + Current Investments in Financial Assets	74,994	31,963	46,249
Other Current Assets	134,098	140,046	140,625
Property, Plant and Equipment	301,042	296,321	285,860
Non-Current Assets	237,347	251,635	246,272
Total Liabilities	419,878	421,138	422,824
Interest Bearing Debt (IBD)	275,375	301,854	290,103
Other Liabilities	144,503	119,284	132,721
Total Equity	327,603	298,828	296,181
Key Financial Ratios	2021	2022	2023
Current Ratio (Times)	1.42	1.65	1.48
EBITDA to Sales Revenues (%)	13.14	3.31	6.56
Net Profit on Sales Revenues (%)	9.67	-1.29	0.16
Return on Total Assets (%)	9.50	-0.01	1.94
Return on Equity (%)	15.01	-2.87	0.34
Interest Bearing Debt to Equity (Times)	0.84	1.01	0.98
Net Interest Bearing Debt to Equity (Times)	0.61	0.90	0.82
Interest Bearing Debt to EBITDA (Times)	4.50	13.46	7.17
Net Interest Bearing Debt to EBITDA (Times)	3.28	12.04	6.03
Dividend payment (Baht/share)	2021	2022	2023*
1 st Half	2.00	0.75	0.00
2 nd Half	1.75	0.25	0.75
Full year	3.75	1.00	0.75
Earning per Share (Baht/Share)	10.01	-1.94	0.22
Dividend Payout Ratio (%)	37%	N/A	>200%

Remark:

- * At the Board of Directors' meeting held on 12 February 2024, the Board approved to submit for approval at the Annual General Meeting of the Shareholders, a full year 2023 dividend payment at the rate of Baht 0.75 per share, amounting to Baht 3,382 million to the shareholders entitled to receive dividends. This dividend payment is subject to the approval of the Shareholders at the Annual General Meeting to be held on 9 April 2024.

Awards and Recognitions

Confirmation of company's performance excellence in economic, social and environmental aspects in 2023 can be demonstrated by being recognized both national and international level.

International Level



Member of

Dow Jones Sustainability Indices

Powered by the S&P Global CSA



Dow Jones Sustainability Indices (DJSI)

GC has been ranked 1st in the 2023 Dow Jones Sustainability Indices (DJSI) in the Chemicals Sector for the five consecutive year and positioned among the Top 10 companies in the DJSI World and Emerging Markets Index for the eleventh consecutive year. GC has been included in the Sustainability Yearbook 2023 with Top 1% S&P Global ESG Scores.

Carbon Disclosure Project

GC has been included in CDP's "A List" (Leadership Level) for Climate Change and Water Security. The "A List" is the highest level evaluation from CDP.

Ecovadis Sustainability Rating

GC has achieved a Platinum Medal from EcoVadis. GC scored an Advanced level in the Labor & Human Rights, Ethics and Sustainable Procurement Dimensions and scored an Outstanding in the Environment Dimension, which places the company in the top 1% globally.



FTSE4Good Index Series

GC has been selected as a member of the FTSE4Good Index Series "Top 5" and the FTSE4Good Index Series for the eighth consecutive year (2016 - 2023). This is a testament of GC's awareness of Environmental, Social and Governance (ESG) factors in our business operations.



MSCI ESG Rating

GC received "A" rating the Commodity Chemicals sector by MSCI. The assessment provides assurance for investors that GC's operations are in accordance with environmental, social and governance principles.



AIBP ASEAN (Thailand) Innovation Award

GC has won the AIBP ASEAN (Thailand) Innovation Award 2023 from the ASEAN Innovation Business Platform (AIBP) for the GC Digital Transformation Pathway "From Good to Great", which demonstrates GC's focus on implementing digital technology to efficiently enhance performance potential.



Asian Excellence Award

GC proudly received five outstanding awards at the 13th Asian Excellence Award in 2023, presented by Corporate Governance Asia magazine. This outstanding achievement highlights GC's exceptional leadership and excellence in business operations under excellent corporate governance.

National Level



SET Sustainability Awards of Honor

GC has been presented with the SET Sustainability Award of Honor under the SET Sustainability Excellence category, for the sixth consecutive year, at the SET Awards 2023 held by the Stock Exchange of Thailand (SET). This reflects the remarkable alignment of our business operations with sustainable development practices as well as the comprehensive and transparent disclosures on our operations.



SET ESG Rating 2023

GC has obtained 'AAA' level assessment from the SET ESG Ratings 2023 and maintained our position on the Thailand Sustainability Investment (THSI) list for the ninth consecutive year (2015-2023). This validates the company's endeavors to broadly create benefits for both internal and external stakeholders in the environmental, social, and corporate governance aspects while operating in compliance with international standards.



NACC Integrity Awards

GC was awarded a consolation prize for the 11th NACC Integrity Awards by Office of the National Anti-corruption Commission (NACC) as recognition for its business operations with transparency, anti-corruption, and corporate social responsibility under good corporate governance principles as well as for its emphasis on human rights and compliance with the international ethics standard.



CAC Award CAC Change Agent Award

GC has been certified as a member of the Thai Private Sector Collective Action Against Corruption (CAC) for the third consecutive time on June 30, 2023. Accordingly, GC also emphasizes the expansion of transparent business networks, ensuring zero tolerance for corruption across supply chain, including business partners. This commitment aims to elevate the standards of business conduct with good corporate governance principles, aligning with the organization's goal of sustainable development. Consequently, the company has received the CAC Change Agent Award for the second consecutive year.



Creative Excellence Awards

GC received Creative Excellence Awards under the Creative Business Awards category for Sustainable Project (For Large Organization), which was held by the Creative Economy Agency (Public Organization), or CEA, through the "Enjoy Rayong's Local Dishes with Community Chef" project, which has positively impacted the economic, social, and environmental aspects, contributing to the country's sustainable growth.



Outstanding Ethics Award, Thai Chamber of Commerce

GC has attained the Outstanding Ethics Award from the Thai Chamber of Commerce, which attests to the company's commitment to corporate governance, integrity, and fairness in business operations as well as awareness of resource efficiency, which is truly a sustainable success for the organization.



IAA Awards for Listed Companies 2022-2023

The IAA Awards for Listed Companies 2022-2023 was organized by the Investment Analysts Association (IAA) to honor knowledgeable and capable executives of listed companies who have steered their companies towards success and sustainable growth. GC has obtained three awards, including Outstanding CEO, Outstanding CFO, and Best IR in the Industrial Products category.



CSR-DIW Continuous Award

19 plants under GC Group have received the CSR-DIW Continuous Award for the 16th consecutive year.



Sustainability Disclosure Award

GC has received the Sustainability Disclosure Award from Thaipat Institute, reflecting the company's disclosure of beneficial sustainability information to stakeholders and our response to the Sustainable Development Goals (SDGs).



Outstanding Award in Anti-corruption in 2023

The company received the Anti-corruption Award 2023. This award honors organizations that demonstrate outstanding anti-corruption efforts, evident to society, and adhere to management values based on principles of good governance. Committed to ethics, morality, and integrity, serving as role models and contributing to social welfare.



The Prime Minister's Industry Award

GC has won the Prime Minister's Industry Award in two categories, namely Safety Management and Energy Management. The Prime Minister's Industry Award is held by the Ministry of Industry to support, promote and develop entrepreneurs in the Thai industrial sector to meet standard quality while strengthening their readiness for competition in the international arena.

Major Events and Activities in 2023

Competitiveness Enhancing Strategies

April 5, 2023

Kuraray joins forces with GC and Sumitomo to launch a performance and specialty chemicals plant and develop Thai industries in the EEC

GC, along with Mr. Hitoshi Kawahara, CEO of Kuraray, Mr. Yoshiyuki Sakamoto, Senior Managing Executive Officer of Sumitomo Corporation, and Acting Sub-Lieutenant Pirun Hemarak, Deputy Governor of Rayong, joined the inauguration ceremony of Kuraray GC Advanced Materials Company Limited and Kuraray Advanced Chemicals (Thailand) Company Limited at the WHA Eastern Industrial Estate in Map Ta Phut Sub-district, Muang District, Rayong.

Kuraray GC Advanced Materials Co., Ltd. is a joint venture between three companies with advanced technology and special expertise, namely Kuraray Co., Ltd. GC, and Sumitomo Corporation, which is a leading company from Japan. The joint venture produces and distributes advanced engineering plastic products, Genestar-branded super engineering plastic polyamide 9T (PA9T) and Septon-branded Hydrogenated Styrenic Block Co-polymer (HSBC). The products are in alignment with GC's business direction of expanding into high-grade petrochemicals to meet the demands of the automotive and Electrical and Electronic (E&E) industries, which are seeing increasing demand and growth rates.



April 24, 2023

GC inaugurates New CCB Building and launches Olefins 2 Modification for Propane Feedstock (OMP) Project

GC inaugurated New CCB Building and commenced the commercial operation of the Olefins 2 Modification for Propane Feedstock (OMP) Project. The project was part of GC Group's Step Change strategy to improve feedstock flexibility and increase the ability to use propane, reduce reliance on the dwindling amount of ethane from the Gule of Thailand, contribute added value to downstream businesses, and enhance GC Group's competitiveness.



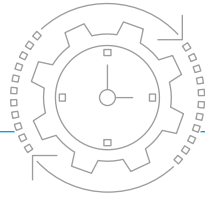
April 24, 2023

GC joins the inauguration of Matrix Polymers Thai Co., Ltd.

GC attended the opening ceremony of Matrix Polymers Thai Co., Ltd. a manufacturer of colored compounded powder, which is a raw material for rotomolded products, such as large water tanks, plastic playground equipment, and kayaks. With an output of 10,000 tons per year in Phase 1, the company represented an expansion of Revolve Group Limited's (RGL) production capacity in Asia, aimed at meeting the growing demand in the Asia Pacific region.



MPT is owned 99.998% by RGL, which is a joint venture between GC (49% shareholding) and Martin Coles (51% shareholding). RGL is a leading UK-based company that manufactures and sources feedstock for rotomolded products. Currently, it operates six production facilities in the United Kingdom, Poland, New Zealand, Australia, Malaysia, and most recently in Thailand, with the goal of becoming a premier global expert in materials for rotomolding through innovation and collaboration across various regions.



July 26, 2023

GC becomes Thailand's first company to trade plastic resin through the Thai-Cambodian railway route, enhancing business efficiency

Through thorough studies and planning, GC initiated the transportation of plastic resin by rail, which could help reduce transportation and warehouse rental costs for customers, facilitate timely and expedited transportation, and minimize the risk of product damage or delivery errors. GC became the first company to trade plastic resin through the railway to Cambodia. This involves a transaction with UST Plastic Bottle Manufacturer, which

was GC's client and a major packaging manufacturer for bottled water in Phnom Penh, Cambodia. Additionally, GC plans to trade plastic resin to Laos as its next destination.

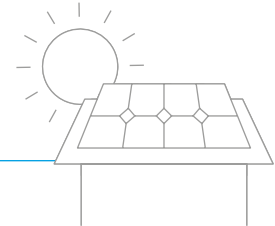
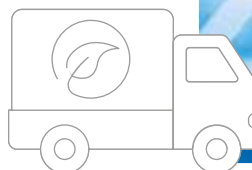


December 20, 2023

WHA joins hands with GC to strengthen logistics capabilities, bring together expertise, and expand business

WHA Venture Holding Company Limited (WHAHV), a subsidiary of WHA Corporation Public Company Limited, entered into a joint venture agreement to enhance logistics capabilities and competitiveness in providing logistics services to GC Group, merge the strengths of both companies, and expand opportunities for future business expansion. WHA is slated to acquire a 50% stake in GC Logistics Solutions Co., Ltd. (GCL), worth approximately 2,640 million baht.

The collaboration between GC and WHA, a leader in warehousing and distribution centers with high-level logistics capabilities, will propel GCL towards becoming an integrated logistics company with a comprehensive business network as well as enhance GCL's capabilities and elevate its service standards for customers, ensuring accurate and speedy product delivery at competitive costs.



September 14, 2023

GC and TotalEnergies ENEOS launch a solar rooftop project towards Net Zero Goal

GC partnered with TotalEnergies ENEOS to initiate a solar rooftop project aimed at addressing climate change. Under this initiative, more than 11,000 solar panels were installed on the rooftops of five production facilities under GC, creating a 6.7-megawatt peak (MWp) solar energy system. This system generates approximately 9,500 megawatt-hours (MWh) of renewable energy per year, resulting in cost savings on energy expenses. It is also estimated to reduce carbon dioxide emissions by approximately 4,300 tCO₂ per year, equivalent to planting over 64,500 trees throughout the agreement duration. The initiative aligns with GC's business approach, which seeks to drive robust growth alongside customer care under the concept "Together to Net Zero," with a medium-term target to reduce GHG emissions by 20% by 2030 and achieve Net Zero by 2050.



Driving Strategies to Seek New Opportunities to Foster Growth in New and Overseas Businesses

January 27, 2023

GC hosts a meeting to welcome the French Minister of Foreign Trade

As the Chairperson of the France-Thailand Business Forum: (FTBF), GC's CEO hosted a meeting to welcome H.E. Mr. Olivier Becht, the French Minister in charge of Foreign Trade, Attractiveness, and French Nationals Abroad, and H.E. Mr. Thierry Mathou, Ambassador of France to Thailand, along with the delegates. The objective was to strengthen the bilateral Thai-French relations through economic collaborations and promote investment opportunities and partnerships in the private sector.

The FTBF played a crucial role in supporting the French government's efforts to promote and attract investment through France's 2030 policy framework, under which the French government had put in place measures to promote decarbonization-related projects along with budgetary support. The year 2023 was also designated as an important year for Thai-French cooperation in innovation under the theme "2023 Thailand-France Year of Innovation".



August 8, 2023

GC and Kawasaki study and develop a hydrogen turbine generator project to achieve Net Zero by 2050

GC and Kawasaki signed a Memorandum of Understanding (MOU) to study and develop a hydrogen turbine generator project to mitigate and slow down global warming in pursuit of Net Zero by 2050 at Chan Meeting Hall, 3rd Floor, Classic Kameo Hotel.

The project was aimed at studying and developing the utilization of hydrogen turbine generators to produce low-carbon electricity from excess hydrogen in production across GC Group in place of natural gas. The project would be a tangible step towards decarbonization and transforms the production process into a low-carbon one.



April 24, 2023

GC Congratulates allnex's successful production line construction in a production hub in Dushan Port, Jiaxiang, PRC

GC extended its congratulations to allnex, a leader in sustainability and innovative plastic resin for industrial coatings, represented by Mr. Miguel Mantas, CEO of allnex, and Mr. Ruben Mannien, Senior Executive Vice President - Asia Pacific, for its successful production line construction for its production hub in Dushan Port.

Located in Dushan Port Economic Development Zone in Pingchu in the province of Jinxiang, the People's Republic of China, allnex's new 100,000 sq.m. production hub includes 15 production lines that accommodate the manufacturing of eco-friendly High-performance resins, thus promoting green innovations and catering to the demand of China and the global market for plastic resins, coatings, and additives. Operating in strict compliance with international environmental protection standards, the production hub began its commercial operation in Q4/2023



and will help bolster allnex's presence in the Chinese market, enabling it to double its target by 2026 and achieve No. 1 position in the global industrial coating business.

November 28, 2023

GC collaborates with MHI to explore the utilization of hydrogen, ammonia, and CCS technology to develop a large-scale petrochemical plant to achieve Net Zero

GC signed a Memorandum of Understanding (MOU) with Mitsubishi Heavy Industries Asia Pacific Pte. Ltd. (MHI-AP) to jointly study the technologies required to develop a large-scale petrochemical complex in support of GC's plan to drive robust and sustainable growth alongside its partner under the concept "Together to Net Zero," where GC seeks to reduce GHG emissions by 20% by 2030 and achieve Net Zero by 2050.

The MOU spans a duration of four years and includes two main objectives, which were 1) to conduct research to compare the feasibility of using hydrogen and ammonia as fuels for gas turbines as well as of using CCS technologies to reduce carbon dioxide emissions from power generators; and 2) to research how CCS technologies can best be applied and optimized for the Steam-Methane Reforming (SMR) process.



Business Sustainability Enhancement Strategies and Circularity-driven Low-carbon Industry Development Projects

January 31, 2023

GC and OR join forces to step up business cooperation and sustainable development initiatives

GC signed a Memorandum of Understanding (MOU) on business cooperation and sustainable development with PTT Oil and Retail Public Company Limited, with Mr. Auttapol Rerkpiboon, PTT's CEO, presiding over the MOU signing ceremony, which was held at CSC Energy Complex and attended by senior executives of both companies.

The MOU covers four major areas: sustainability knowledge development, energy security fostering, sustainable business operations across the value chain, and business development, and will enable both GC and OR to jointly generate added value for their businesses while also demonstrating environmental and social stewardship to achieve sustainable mutual growth.



August 30, 2023

GC awards prizes and scholarships worth 660,000 baht in total at the 8th Amazing Petrochemical Art Contest themed “Hero to Zero”

GC organized the 8th Amazing Petrochemical Art Contest, which was aimed at raising awareness among children and youth about the importance of addressing the global warming crisis, fostering a sense of shared environmental responsibility, and promoting an understanding of the benefits and value of the petrochemical industry that incorporates circular and Net Zero practices in line with GC's goal. The contest encouraged young individuals to showcase their abilities through creative imagination and innovative thinking and integrate their general knowledge into artworks, including sculpture designs and paintings.”

The theme for the year 2023 was “Hero to Zero” Through lines, colors, and prototype sculptures, every piece of art creatively presented and reflected not only environmental conservation efforts to protect our planet but also an understanding of the significance of collaboration in addressing the global warming crisis as well as the importance of a shift towards eco-consciousness and resource efficiency in today's world.

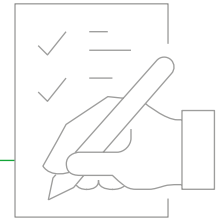


March 20, 2023

GC signs an MOU to join PTT Group's 2 million-rai reforestation project

GC joined the Memorandum of Understanding (MOU) signing ceremony for PTT Group's 2 million-rai reforestation project. The ceremony was chaired by Mr. Jatuporn Buruspat, Permanent Secretary of the Ministry of Natural Resources and Environment and attended by executives from various government agencies, including the Department of Forestry and the Department of Marine and Coastal Resources, as well as executives from eight companies under PTT Group, comprising PTTEP, Thaioil, IRPC, GC, GPSC, OR, and PTTLNG, where they jointly signed the declaration of intent to plant forests to advance the Net Zero goals of PTT and PTT Group. The ceremony was held at PTT Head Office.

PTT Group's 2 million-rai reforestation project will serve as another initiative to offset carbon by creating high-quality carbon credits through nature-based solutions.



October 2, 2023

GC joins Sustainability Expo 2023 with an exhibition themed “Good Balance, Better World”

GC attended the opening ceremony of the Sustainability Expo 2023 (SX2023), the fourth edition of the event, held from October 2 to 8, 2023 with the theme “Sufficiency for Sustainability” at Queen Sirikit National Convention Center. GC presented an exhibition themed “Good Balance, Better World,” showcasing green innovations developed to cater to megatrends for a better quality of life for all, advance high-value and low-carbon businesses, and foster growth alongside decarbonization efforts to achieve Net Zero by 2050.

The highlight of GC’s exhibition was “Plastic Funtastic,” a machine that breathed a second life into used plastics and turned water bottle caps into chic key chains, fostering awareness of recovering and repurposing used plastics to give them added value. The machine drew large crowds, including young children, students, and the general public, all through the duration of the event, which was held on G Floor of Queen Sirikit National Convention Center.



ENVICCO's InnoEco PCR PET and PCR HDPE are gained trust from brand owners for beverage packaging and household items

March 30, 2023

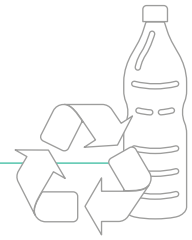
The Food and Drug Administration under the Ministry of Public Health certified PCR PET, the InnoEco brand by ENVICCO, a company under GC, making it the first PCR in Thailand to be FDA-certified. This certification assures its safety for use in food-grade packaging and containers. This newly certified resin is also used in PepsiCo's revamped bottles, which are made 100% from the PCR PET. The certification of ENVICCO's PCR PET, which was previously certified by the U.S. Food and Drug Administration (US FDA), underscores its quality and offers assurance to all consumers that it is hygienic, free of contaminants and chemical residues, and thus safe for use.



April 5, 2023



Suntory PepsiCo Beverage (Thailand) Company Limited partnered with the Property Management of Chulalongkorn University (PMCU) and ENVICCO to hold an official press conference for “Pepsi Recycled PET Bottle Campaign” to announce their readiness in being the first company in the carbonated beverage market to utilize bottles made from 100% recycled plastics (100% rPET bottles), which were launched in April 2023 under the campaign “Samnuek Saa Glaa Plien Puea Loke” (Fizzy Conscience-Daring to Change for the World). The initiative affirmed the company's status as the leading carbonated drink brand that continuously sets new trends for consumers and at the same time promoted its image as a popular brand among younger environmentally conscious generations.



July 14, 2023

GC participated in the launch of Minere's new eco-friendly water bottles, which were also the first in Thailand's drinking water market, and collaborated with Nestle in the "Bottles Made From Bottles" Project, where Minere drop-off boxes were installed to collect used PET plastic bottles from consumers. The bottles will be forwarded to ENVICCO's plant for cleaning, shredding, and melting into PCR PET pellets, certified for quality, safety, and cleanliness by the Food and Drug Administration (FDA) of Thailand. These pellets are then molded into Minere's eco-friendly bottles, safe, clean, and free from contaminants, creating a closed-loop for plastic bottles and enabling them to be reused as new packaging. Everyone can participate in this initiative and contribute to the sustainability of the world by dropping off used plastic bottles at the Minere bins located at 50 branches of 7-Eleven across Bangkok.



October 18, 2023

ENVICCO, a company under GC Group and a leader in the high-quality and safe PCR industry, partnered with Coca-Cola (Thailand) to introduce packaging made from 100% recycled plastic, excluding labels and bottle caps. The first packaging rolled out was the 1-liter bottles for Coke Original and Coke Zero Sugar. To produce these bottles, post-consumer recycled PET bottles collected from partner groups and processed through various processes into high-quality recycled plastic pellets, with properties comparable to new virgin plastic resin, under the InnoEco brand. This is achieved through modern recycling technologies and state-of-the-art manufacturing processes from Europe, making it possible to 100% trace the origin of used plastic. Additionally, the PCR Pet meets international safety standards of the USFDA, EFSA Europe, and the Thai FDA, making it Thailand's first PCR to be certified safe for food contact. GC takes great pride in being part of the solution to Thailand's waste management challenge through sustainable resource management.



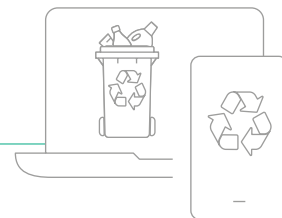
December 6, 2023

GC, in collaboration with I.P. ONE and Alpla, joined the launch of "Vixol: Transformative Innovation for Sustainable World." For the first time ever in Thailand, discarded colored plastics from households were recycled into bottles for Vixol products, beginning with "VIXOL POWER Black," thus creating a closed loop system for sustainable plastic packaging production, with over 20 million bottles produced per year.

VIXOL is a brand under I.P. One. The company partnered with ENVICCO and Alpla Packaging (Thailand) Co., Ltd., to develop innovations to enable the reuse of VIXOL bottles, which are colored HDPE ones. The bottles collected from households are sorted, recycled into post-consumer recycled HDPE (PCR HDPE), and remolded into bottles, thus preventing them from becoming waste and leaking into the ecosystem.



Collaborations with Public and Private Partners



April 3, 2023

GC partners with AIS to launch the Green University Project and offer scholarships and prizes to eco-friendly universities

As strategic partners that utilize digital technology to elevate and create sustainable business models driven by a commitment to the environment, society, and governance (ESG), GC and AIS extended their collaboration to foster participation in university networks through green technology solutions and launched the Green University Project. In this initiative, students and staff from 11 leading universities in Bangkok and vicinity areas were invited to join a waste collection competition via the E-Waste+ application for electronic waste and used plastics from the YOUTURN Platform a plastic waste management platform designed to address plastic waste issues. As rewards for the ultimate green university, the program offered scholarships and upcycled trophies made from used plastics and E-Waste.

GC-AIS raise awareness of waste management through the Green University Project, with over 600,000 pieces of electronic waste collected



October 27, 2023

GC awarded prizes for contestants in the Green University Project, which was joined by 11 leading universities, thus contributing to the proper recovery of used plastics and electronic waste into the recycling process. The objective of the project was to foster environmental consciousness and promote participation among faculty members, students, and staff within the universities, enabling them to incorporate circular economy concepts into their daily lives in a tangible way.

Through this initiative, GC was able to divert over 598,043 clear PET bottles from landfills and reduce greenhouse gas emissions by over 12.33 tCO₂e, equivalent to planting 1,298 trees. Additionally, 5,796 pieces of electronic waste were collected for further processing. Thammasat University succeeded in collecting the highest amount of used plastics and electronic waste, thus securing scholarships and the Upcycling trophy made from recycled plastics.



April 26, 2023

GC collaborates with P&G to deliver the "Upcycling Plastic House"

GC teamed up with partners, including Sansiri, Lotus's, and Habitat Group, to manage and create added value for used plastic in the "Upcycling Plastic House for Sustainability and Equality" Project. Through publicity and campaigns, the companies encouraged the public to bring their used plastic shampoo bottles and refill pouches to donation boxes located at 35 Lotus's branches to be recycled through the 'YOUTURN Platform,' which took part in constructing houses from recycled materials, which were then delivered to the Association for the Promotion of the Status of Women under the Ministry of Social Development and Human Security.



May 10, 2023



GC becomes a pioneer in Thailand's petrochemical industry by signing a sustainability-linked swap deal with SCB to advance its Net Zero initiative

GC became Thailand's first petrochemical industry to sign a sustainability linked swap agreement, reinforcing its commitment to sustainable practices. This agreement represents an expansion of the comprehensive range of sustainable financial services following the success of the sustainability-linked loan (SLL) agreement in December 2022.

There are also plans to introduce sustainable funding to support sustainability goals. This agreement will enable GC to reduce financial costs and manage resources efficiently.

NET
ZERO

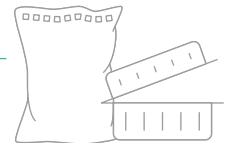
June 1, 2023

GC strengthens its position as a sustainable organization with ESG-linked financial management in partnership with KTB, reinforcing its commitment to 'Together to Net Zero'

GC and Krungthai Bank Public Company Limited joined forces to use financial instruments to support GC's sustainable investment. More specifically, GC opted for ESG investing for liquidity management purposes and chose to manage its financial risks through ESG-linked derivatives, which are considered ESG for ESG solutions, where ESG performance is a criterion of transaction cost reduction and the benefits are passed on to ESG investing. This was the first time that the ESG agenda was integrated into liquidity and risk management, marking a crucial step that would support and enable both organizations to achieve their sustainability goals and Net Zero goals together.



June 23, 2023



GC partners with PFG to jointly develop sustainable products and promote sustainable business operations

GC signed a Memorandum of Understanding (MOU) with Pattaya Food Industries Co., Ltd. (PFG) to jointly develop products and foster business sustainability. The objective of the MOU was to share information and business know-how and to collaboratively develop sustainable materials and packaging. Driven by a commitment to sustainable business practices, this collaboration sought to achieve a balance among the environment, society, and governance (ESG) to improve the quality of life for all and to utilize cutting-edge green innovations in product development in order to pass on a better world for all.

The scope of this collaboration also includes the utilization of plastics, alternative materials, and substitute materials from GC Group, such as polyethylene (PE), polypropylene (PP), polystyrene (PS), as well as bioplastics and post-consumer recycled (PCR) resin in prototyping, with plans to scale up the initiative across the value chain. As a success from the first phase of the collaboration, PFG utilized GC's plastic resins to produce recycled plastic packaging for household products for domestic distribution, such as shrink films, stretch films, packaging tubes, and plastic boxes.

August 9, 2023



GC joins hands with the Ministry of Natural Resources and Environment to develop upcycled paving material, reducing over 4,500 kg of used plastics and promoting sustainable environmental conservation

GC, in collaboration with the Ministry of Natural Resources and Environment, hosted a handover ceremony of an upcycled pathway, chaired by Mr. Varawut Silpa-archa, Minister of Natural Resources and Environment. The project served as a prototype for government-private partnerships in utilizing renewable resources to benefit communities and preserve environmental integrity. Also present at the ceremony were Mr. Jatuporn Buruspat, Permanent Secretary of the Ministry of Natural Resources and Environment, and Mr. Pinsak Suraswadi, Director-General of the Pollution Control Department.



August 11, 2023



GC delivers rubber flooring and upcycled furniture to the ice skating rink at the Figure and Speed Skating Association of Thailand to advance environmental conservation

GC developed and delivered rubber flooring and upcycled furniture to the Figure and Speed Skating Association of Thailand in the handover ceremony for the Upcycled Rubber Floor and Furniture Development for the Ice Rink Project, presided over by General Prayut Chan-o-cha, Prime Minister. Also present at the ceremony were Mr. Varawut Silpa-archa, Minister of Natural Resources and Environment, Dr. Kongkrapan Intarajang, Chief Executive Officer and President of GC, Dr. Srihasak Arirachakaran, President of the Figure and Speed Skating Association of Thailand, and Dr. Suwanna Silpa-archa, Commissioner of the International Ice-Skating Federation at the ice rink. The ceremony was held at Ivis International Training Center, Imperial World Samrong Shopping Center, Samut Prakan.



August 29, 2023

DMCR and GC join hands with Rayong communities to mitigate global warming impact through “The More You Plant, the Better” mangrove reforestation project

GC, together with Rayong governor Mr. Traiphob Wongtrairat and Mr. Apichai Ekwanakul, Acting Director General of the Department of Marine and Coastal Resources (DMCR), participated in a mangrove reforestation activity and a release of Meder's mangrove crabs at Rak Samae Bridge, Noen Kho Sub-district, Klaeng District, Rayong as part of “The More You Plant, the Better” Project. The activity was also joined by employee volunteers from GC.

“The More You Plant, the Better” Project is a collaboration between GC, DMCR, and the communities of Noen Kho and Thang Kwian Sub-districts. The objective is to collaboratively plant trees to restore degraded forests and expand mangrove forests, with plans to scale up the project to areas in Chanthaburi, Trat, and Phetchaburi, totaling over 3,400 acres. This initiative is expected to reduce carbon emissions by approximately 23,700 tons of carbon dioxide equivalent (CO₂eq) per year, supporting the goal of achieving Net Zero by the year 2050. Upon completion, the project will enhance mangrove biodiversity, support livelihoods, and strengthen the local economy, thus contributing to a better world for future generations.



October 21, 2023

BMA and GC develop pet playground equipment from upcycled plastics as part of the Circular Pet Zone by GC YOUTURN Project

GC, in collaboration with the Bangkok Metropolitan Administration, organized a handover ceremony for pet playground equipment, benches, and an upcycled pathway for the pet zone in the Vachirabenjatas Park (State Railway Public Park) as part of the “Circular Pet Zone by GC YOUTURN: For the Happiness of Your Pets” Project. Thanks to this project, 1,478 kilograms of used plastics otherwise destined for landfills were transformed into useful items, reducing greenhouse gas emissions by over 1,523 kgCO₂e, equivalent to planting 169 trees, and contributing to a public space for pet lovers.

The partnership between the Bangkok Metropolitan Administration and GC was a dedicated effort to raise awareness about proper plastic waste separation and recycling. The playground equipment for pets, park benches, and an upcycled pathway developed under this partnership were produced from discarded stretch plastics and hard-to-recycle multi-layer packaging bags collected through GC YOUTURN, a plastic waste management platform. The project has led to creation of a tangible closed-loop economy and breathed a new life into used plastics, transforming them into facilities that benefit and bring happiness to visitors to the State Railway Public Park and their pets.



GC teams up with all sectors to promote sustainable living and combat global boiling

October 27–28, 2023

December 13, 2023



KBank provides 10 billion baht in sustainability-linked loan to GC to support its sustainability goals

Dr. Kongkrapan Intarajang, CEO of GC, and Ms. Kattiya Indaravijaya, CEO of KASIKORNBANK Public Company Limited, signed an agreement to offer a 10 billion baht sustainability-linked loan to GC in support of its sustainability operations towards the goal of Net Zero greenhouse gas emissions by 2050. The signing ceremony was held at KBank Headquarters.



GC organized GC Sustainable Living Symposium 2023: We are GEN S: Standing for Sustainability, which was presided over by H.E. Mr. Jyri Järviäho, the Ambassador of Finland to Thailand. The event was attended by over 40 Thai and international experts and eco-influencers, who shared their ideas and practical solutions to provide inspiration on how to tackle the ongoing global warming, which was developing into global boiling, and create a better world for all. The symposium was held at the Royal Paragon Hall, Siam Paragon.

With over 3,000 attendees participating online from over 125 countries worldwide, this event reinforced GC's position as a sustainability thought leader through the “GEN S: Standing for Sustainability” concept. It also highlighted the strong relationships between GC, its customers, partners, and government agencies as sustainability allies and supported GC's business expansion towards becoming a low-carbon organization in collaboration with new partners.

Message of the Chairman



We will continue to adhere to sustainable business practices and equip ourselves for challenges and changes as we foster growth in pursuit of leadership in the international chemical industry with a steadfast commitment to transparency, accountability, and fair and equitable treatment of shareholders.

Dear Shareholders,

In 2023, the world continued to face a series of challenges. These included geopolitical tensions, which were hard to predict and cause energy and feedstock prices to soar, high levels of inflation and policy rates, global economic recession, the slow-than-expected economic recovery of China, as well as climate change, which remained a major global issue. In addition, new petrochemical capacities emerged over the past few years from countries with feedstock advantages, while China implemented a self-sufficiency policy, transforming it from an importer to a significant petrochemical producer and increasing the supplies in the market. This, when coupled with subdued demand and higher feedstock and utility prices, led to a historic decrease in the spreads of petrochemical products.

However, PTT Global Chemical Public Company, or GC, has been closely monitoring all external factors and uncertainties and has established directions, strategies, and response plans in both short and long terms to ensure its ability to adapt and overcome all challenges.

For the short term, we have formulated response plans, focusing on what is within our control. Over the past four years, we have actively been implementing proactive measures to strengthen our business internally, including enhancing enterprise-wide operational efficiency, tightening control over operational expenses to improve efficiency, and investing cautiously and selecting projects with high returns and quick payback periods. In addition, GC Recession Playbook has been formulated to restore profitability. We have also taken measures to maintain its financial strength, efficiently manage working capital and liquidity, and maximize asset utilization. Thanks to these measures, we have been able to significantly mitigate impacts on the operating results and maintain our liquidity, outperforming most chemical producers in different regions.

For the long-term operational plan, we believe that our 3 Step Plus strategy is a step in the right direction but requires review, adjustment, and reprioritization to stay aligned with the current situation, taking into account the change in the industry landscape and making preparations for growth. Progress and achievements under the 3 Step Plus strategy are as follows:

1) Step Change: We enhance our competitiveness by reducing costs, optimizing operational efficiency through digital technology, adjusting production processes to enhance feedstock flexibility, expanding our customer base, and creating added value to our products. In 2023, we successfully restructured our logistics business under GC Logistics Solutions Co., Ltd. (GCL). By collaborating with WHA Venture Holding Company, GCL has bolstered its competitiveness in the logistics industry towards becoming an integrated logistics company with a comprehensive business network.

2) Step Out: We strive to foster growth in high-value and low-carbon businesses, which yield good returns, while also actively decarbonizing our three product groups. Specialty & Performance Chemicals: In 2023, our effort was focused on creating value and synergy with allnex across all dimensions. allnex was able to expand the coating business in Asia through the China Hub project and by co-establishing the Thailand Innovation Hub. In addition, Kuraray GC Advanced Materials Co., Ltd., commenced the commercial operation of its advanced engineering plastic production plant. Bio-based: We grew the PLA (polylactic acid) business through NatureWorks, which is currently constructing the second PLA plant at the Nakhon Sawan Biocomplex, Thailand's first bio-hub. The new plant will help create jobs, generate income for farmers and workers in the area, as well as support the government's policy. Circularity & Recycling: We scaled up the YOUTURN Platform nationwide to expand our integrated waste management and produced PCR through ENVICCO Co., Ltd. The high-quality food-grade PCR produced by ENVICCO has been certified by the US Food and Drug Administration (USFDA) and the European Food Safety Authority (EFSA) and is the first in Thailand to obtain certification from Thailand's Food and Drug Administration.

3) Step Up: We seek to integrate sustainability into the foundation of our business operations and maintain our international leadership in sustainability, with the goal of achieving Net Zero Scope 1 and Scope 2 emissions by 2050 through clear action plans. In 2023, we exceeded our GHG reduction targets by optimizing efficiency and improving production processes, adopting energy-saving technologies, transitioning to renewable, low-carbon, or clean energy, and restructuring the portfolio towards high-value and low-carbon businesses to maintain profitability. Additionally, we undertook reforestation projects to offset carbon emissions through nature-based solutions and conducted research into Carbon Capture, Utilization, and Storage (CCUS) technologies.

Thanks to our steadfast commitment to a sustainability-driven business approach that prioritizes an environmental, social, and economic balance alongside good corporate governance (ESG), GC has garnered recognition and various accolades both nationally and internationally, as detailed below.

Sustainability: GC is the only company in the world to have been ranked number one in the Dow Jones Sustainability (DJSI) World Index in the chemicals sector with the highest score for five consecutive years by S&P Global Corporate Sustainability Assessment (CSA), making GC the first company to successfully maintain sustainability leadership for five consecutive years. GC also received the Platinum Medal for supply chain sustainability from EcoVadis, being ranked in the top 1% of the world's basic chemical industry. In addition, GC is the first and only company in Thailand to make the Disclosure Insight Action (CDP)'s Double A List for climate change and water security leadership and has been recognized a UN Global Compact LEAD company for being a world-class model organization in sustainability at the highest level. Furthermore, we place greater emphasis on sustainable living and strive to translate it to common practice among Gen S (Generation Sustainability) in the hopes that everyone will take part in addressing global issues in collaboration with government agencies, private businesses, leading organizations, and the general public in order to make a real impact on lifestyles and contribute to the sustainability of the world.

Governance: We prioritize and continue to integrate our corporate Governance, Risk Management, Internal Control, and Compliance (GRC) activities to strengthen our operations and enable the organization to achieve the business goals with efficiency, transparency, and accountability while also reducing potential risks on the business. Thanks to our evident commitment to ethical business conduct and ongoing anti-corruption efforts, GC has been recognized with various certificates and accolades from various institutions. Examples include a consolation prize at the 11th NACC Integrity Awards from the National Anti-Corruption Commission (NACC), an Anti-Corruption Award 2023 from the Anti-Corruption Foundation, and a plaque of honor from the Thai Chamber of Commerce. GC has also been successfully recertified as member of the Thai Private Sector Collective Action Against Corruption (CAC) by Thai Institute of Directors Association (IOD) for the third consecutive time, achieved an "Excellent" rating on the Corporate Governance Report of the Thai Listed Companies (CGR) of IOD for a 12th consecutive year, and received the "Excellent" score of 100 on the AGM checklist from the Thai Investors Association (TIA) for a 12th consecutive year.

On behalf of the Board of Directors, executives, and all employees, I would like to express my sincerest gratitude to all shareholders, suppliers, business partners, public and private institutions and agencies, as well as stakeholders for the unwavering trust and support towards GC's operations. I would also like to assure you that we will continue to adhere to sustainable business practices and equip ourselves for challenges and changes as we foster growth in pursuit of leadership in the international chemical industry with a steadfast commitment to transparency, accountability, and fair and equitable treatment of shareholders.



(Mr. Predee Daochai)
Chairman

1

Business Operation and Performance

GC strives to develop innovative plastics and chemicals to meet the demand of the modern world and lifestyles, promote **sustainable living** for a more sustainable world, and enable everyone to enjoy convenience in an eco-conscious way.

GC...Chemistry for Better Living





Business Structure and Operation

Policy and Business Overview

Business Overview

PTT Global Chemical Public Company Limited (GC) has a combined chemical and petrochemical capacity of approximately **14.34 million tons per year** and a combined crude oil and condensate distillation capacity of **280,000 barrels per day**.



Upstream



Intermediates



Polymers and
Chemicals

It is considered Thailand's largest integrated petrochemical and refining company, a leader in Asia-Pacific in terms of size and product variety. Its portfolio ranges from petrochemicals to bio-plastics, which sustainably contribute to the mitigation of global warming and greenhouse gas emissions in line with circular economy principles and pave the way for businesses in performance chemicals, which not only boast high value and high growth rates but also lend themselves to diverse downstream industries. This is in alignment with GC's strategic plans and business direction in strengthening its competitiveness as a premier international chemicals business as well as helps to shield GC from the intense competition in the petrochemical industry. Additionally, aware of the business

landscape in the short and long term, GC continues to align its operations with global megatrends by fostering synergy to generate maximum value from its businesses, markets, and technology, leveraging its strength and expertise to further enhance operational efficiency, and developing High Value Products (HVPs), which will enable it to efficiently manufacture and develop products according to the market demand. GC consists of five core business groups:

1. Upstream
2. Intermediates
3. Polymers and Chemicals
4. Bio and Circularity
5. Performance Chemicals



Bio and
Circularity

Performance
Chemicals

Business Structure

In 2023, GC, as a Chemical Flagship of PTT Group with a combined chemical and petrochemical capacity of 14.34 million tons per year and crude oil and condensate distillation capacity of 280,000 barrels per day. GC consists of 5 business groups and has other businesses and services which GC invested for supporting, summarized in the diagram as follows:



Upstream

Refinery and Shared Facilities

- Liquefied Petroleum Gas
- Light Naphtha
- Reformate
- Jet Fuel
- Diesel
- Fuel Oil

Aromatics

- Benzene
- Toluene**
- Paraxylene
- Orthoxylene
- Mixed Xylene**
- Cyclohexane

Olefins

- Ethylene
- Propylene
- Butadiene
- Butene-1

Important product

Capacity*

Crude Oil Distillation
145,000
Barrels/Day

Condensate Distillation
135,000
Barrels/Day

Aromatics
2,419
KTA

Ethylene/Propylene
3,729
KTA

Butadiene/Butene-1
100
KTA

Intermediates

Ethylene Oxide and Derivatives

- Mono Ethylene Glycol

Phenols

- Phenol
- Bisphenol A
- Acetone

Others Intermediates

- Purified Terephthalic Acid
- Propylene Oxide
- Acrylonitrile
- Methyl Methacrylate

Important product

Capacity*

423
KTA

954
KTA

1,408
KTA

Services and Others

- **Marketing and Sales of Products and Packaging Market Development**
Sales of Products across the region Operated by Dealers authorized by GCM

Plastic Packaging Market Development Operated by SPIG, TPBIMS
Upcycling Product Operated by SUN
Development & Sales

- **Logistics, Jetty, Utilities, and Infrastructure**

Logistics Services Operated by GCL
Jetty and Chemical Tank Farm Operated by TTT
Pipeline Infrastructure Services Operated by EFT
Utility Business Operated by GPSC
Land and Property Management Operated by GCEC
Information and Communication Operated by PTT Digital
Technology Services

- **Technical, Engineering, Plant Maintenance, Safety, Occupational Health, Environmental, and Security Businesses**

Plant Management and Operated by GCME

Engineering Design Service

Quality Safety, Occupational Health, Environmental, and Security Services Operated by NPC and NPCSG

- **Social Enterprise**

Management Consultancy

Operated by PRS Rayong

Social Enterprise

Operated by SPSE

- **Others**

GC Group's Liquidity Management

Operated by GCTC

and Financing Vehicle Service

Corporate Venture Capital

Operated by GCV and GCVa

Investment (CVC)

Outsourcing Service

Operated by BSA



Polymers and Chemicals

Polymers

Chemicals

Important product

- High-Density Polyethylene
 - Linear Low-Density Polyethylene
 - Low-Density Polyethylene
 - Polypropylene
 - Polyvinyl Chloride
 - Polyethylene Terephthalate
 - Polystyrene
 - Rotomolding compound
 - Polypropylene compound
- (Hexene-1 is for internal use as feedstock with a capacity of 34 thousand tons per year)

- Ethanolamine
- Polyether Polyols
- Polymer Polyols
- Premix Polyols

Capacity*

2,855
KTA

198
KTA

Bio and Circularity

Bioplastics and Biochemicals

Post-Consumer Recycled

Value Added Oleochemicals

Important product

- Polylactic Acid
- Polybutylene Succinate

- Post-Consumer Recycled PET
- Post-Consumer Recycled HDPE

- Methyl Ester
- Fatty Alcohol
- Fatty Alcohol Ethoxylate
- Glycerin
- Oleochemicals

Capacity*

824
KTA

Performance Chemicals

Performance Chemicals

Important product

- Coating Resins and Additives
- Hexamethylene Diisocyanate (HDI) and HDI Derivatives
- Super Engineering Plastic Polyamide (PA9T) and Hydrogenated Styrenic Block Co-polymers (HSBC)

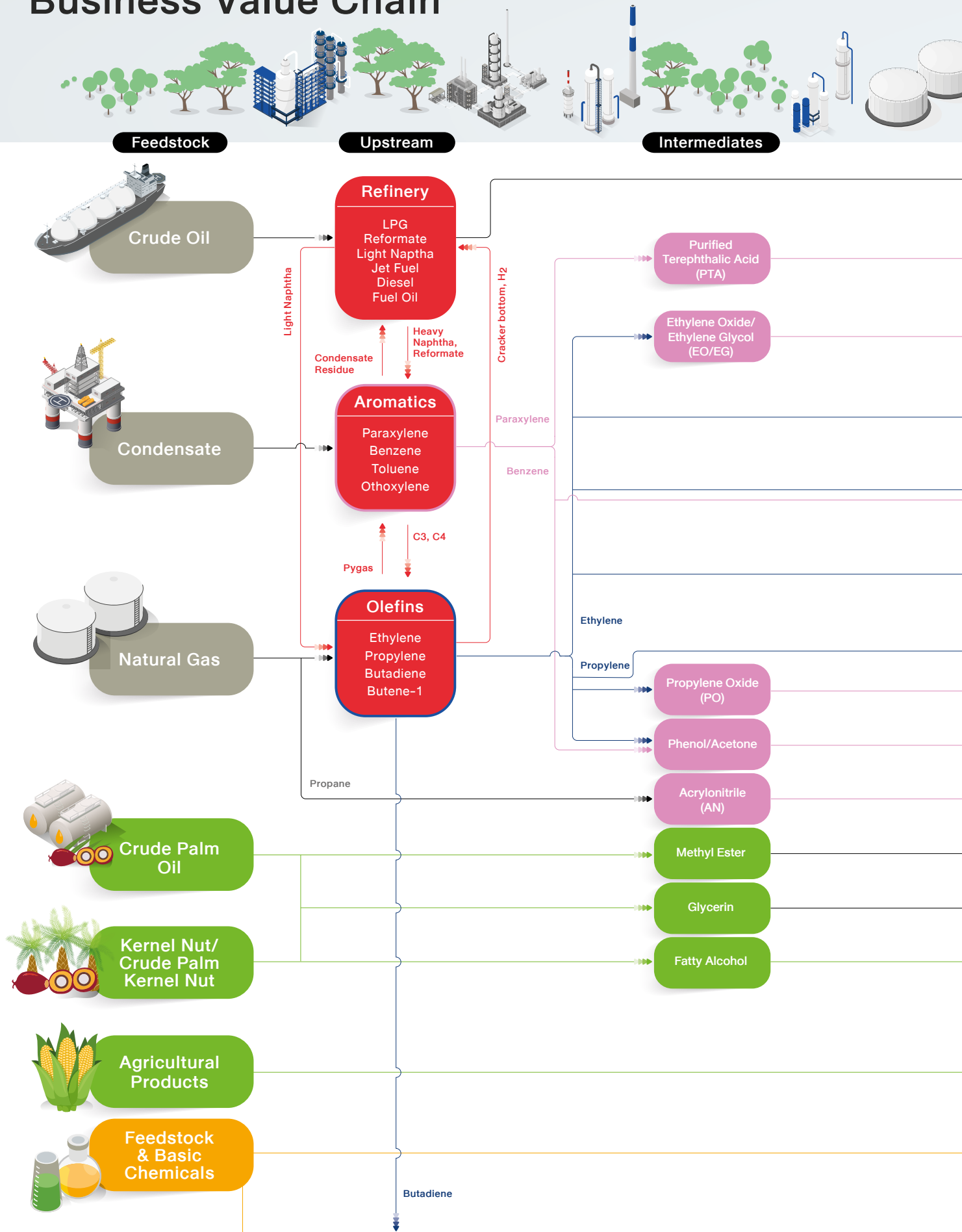
Capacity*

1,434
KTA

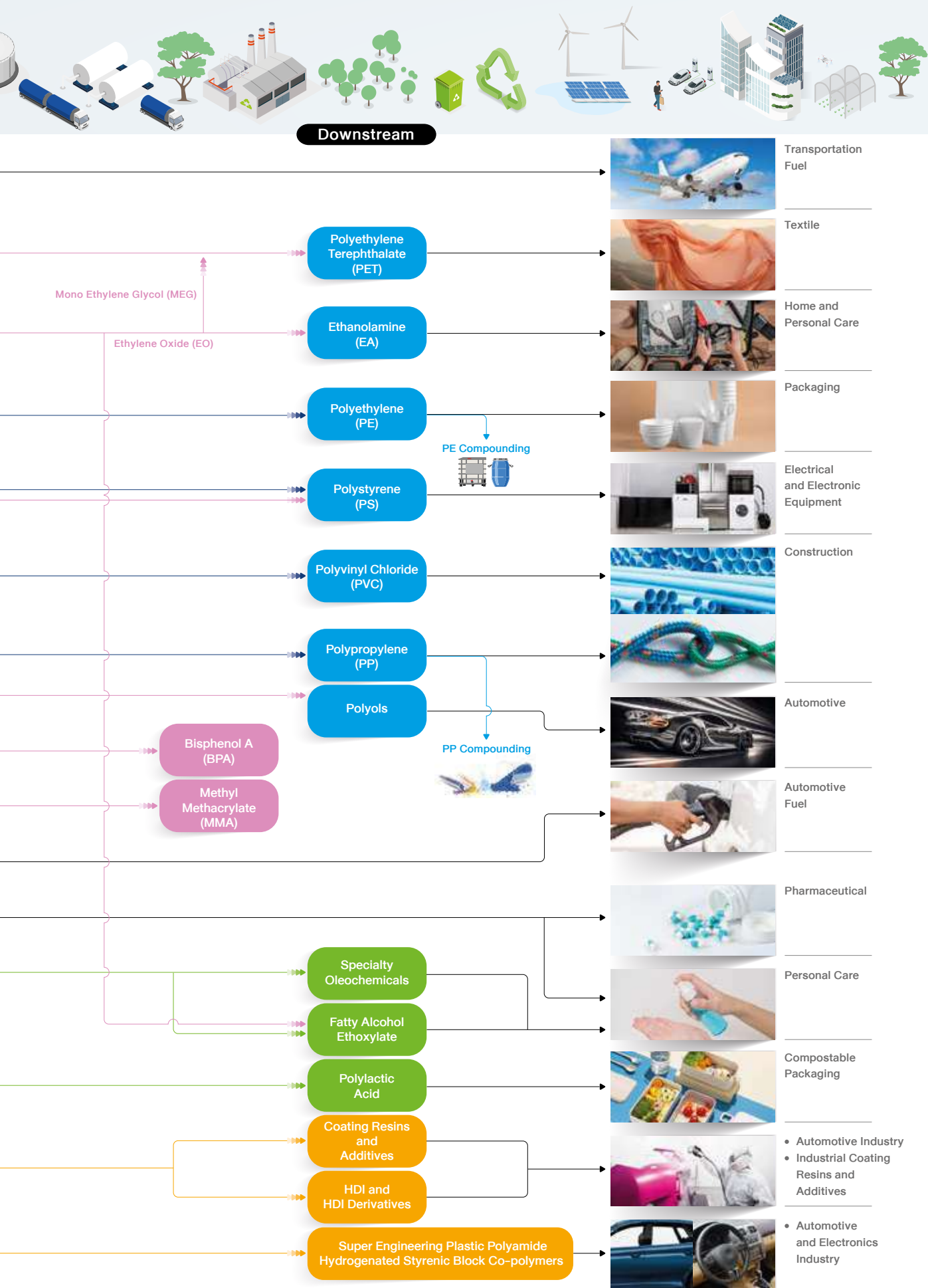
* Only capacity that GC hold equal to or more than 25% share and calculate proportion by percent share.

** For internal use

Business Value Chain



● Upstream ● Intermediates ● Polymers & Chemicals ● Bio & Circularity ● Performance Chemicals



Company Information

Name

PTT Global Chemical Public Company Limited

Initial

PTTGC

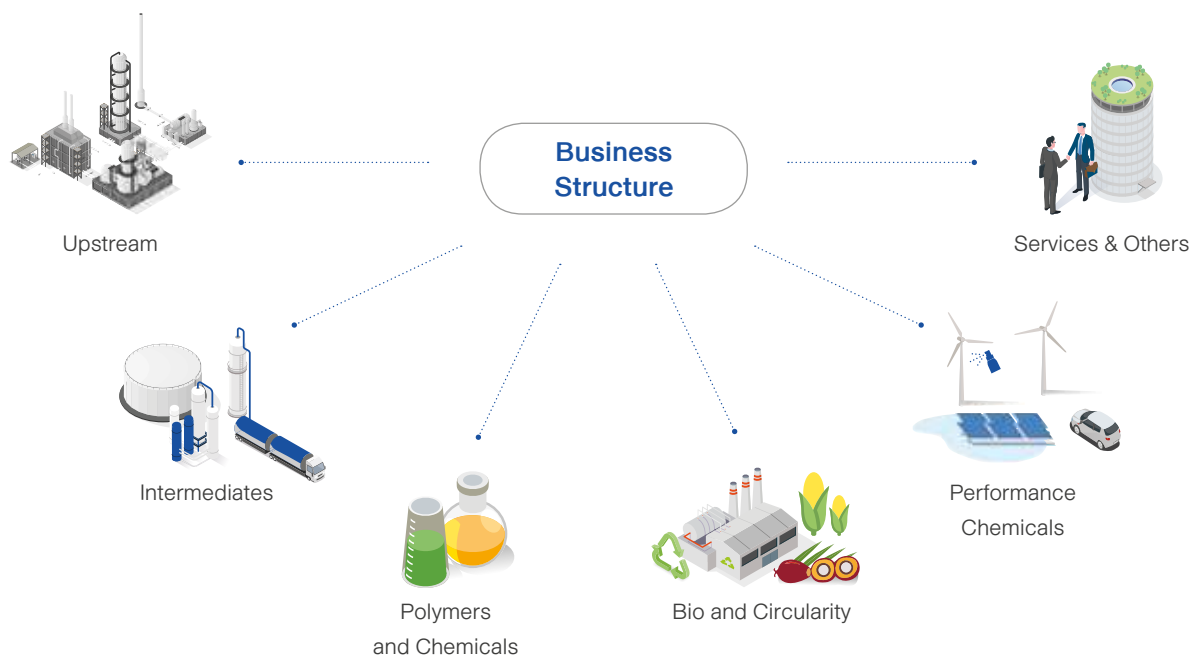
Website: www.pttgcgroup.com

Registered Number: 0107554000267

Registered Capital : As at December 31, 2023, the Company's registered share capital was of Baht 45,088,491,170 comprising of 4,508,849,117 common shares at a par value of Baht 10 per share.
Paid-up capital was Baht 45,088,491,170

Establishment: October 19, 2011

First Day Trade On The Set: October 21, 2011



Number Of Employees: 11,202 as of December 31, 2023

Contact

Investor Relation Department

Tel: + 66 (0) 2265 8400
ext. 8670, 8665, 8533, 8534
e-Mail: ir@pttgcgroup.com

Corporate Governance Department

Tel: +66 (0) 2265-8400 ext. 3
e-Mail: cg@pttgcgroup.com

Head Office

555/1 Energy Complex, Building A,
18th Floor Vibhavadi Rangsit Road,
Chatuchak Sub-District,
Chatuchak District, Bangkok 10900
Tel: +66 (0) 2265-8400
Fax: +66 (0) 2265-8500

Branch 1 Rayong Office

59 Rat Niyom Road, Noen Phra
Sub-District, Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3899-4000
Fax: +66 (0) 3899-4111

Branch 2 Olefins 1

14 I-1 Road, Map Ta Phut Industrial
Estate, Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3899-4000
Fax: +66 (0) 3899-4111

Branch 3 Olefins 2

9 I-4 Road, Map Ta Phut Industrial
Estate, Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3899-4000
Fax: +66 (0) 3899-4111

Branch 4 Aromatics 1

4 I-2 Road, Map Ta Phut Industrial
Estate, Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3897-1000
Fax: +66 (0) 3899-4111

Branch 5 Aromatics 2

98/9 Rayong Highway Road 3191,
RIL Industrial Estate, Map Ta Phut
Sub-District, Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3897-1000
Fax: +66 (0) 3899-4111

Branch 6 Refinery

8 I-8 Road, Map Ta Phut Industrial
Estate, Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3897-1000
Fax: +66 (0) 3899-4111

Branch 7 Jetty And Buffer Tank Farm

19 Rong Pui Road, Map Ta Phut
Industrial Estate, Map Ta Phut
Sub-District, Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3899-4000
Fax: +66 (0) 3899-4111

Branch 8 Aromatics Tank Farm

11 I-4 Road, Map Ta Phut Industrial
Estate, Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3897-1000
Fax: +66 (0) 3899-4111

Branch 9 Lab Service Center Branch

24/9 Pakorn Songkrohraj Road,
Map Ta Phut Sub-District, Mueang
Rayong District, Rayong Province
21150
Tel: +66 (0) 3899-4000
Fax: +66 (0) 3899-4111

Branch 10 Customer Solution Center

555/1 Energy Complex, Building A,
1st, 9th, 14th, 16th-17th Floor Vibhavadi
Rangsit Road, Chatuchak Sub-District,
Chatuchak District, Bangkok 10900
Tel: +66 (0) 2265-8400
Fax: +66 (0) 2265-8500

Branch 11 Olefins 3

8 Pa Daeng Road, Map Ta Phut
Sub-District, Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3899-4000
Fax: +66 (0) 3897-6205

Branch 12 Polyethylene

8 I-10 Road, Map Ta Phut Industrial
Estate, Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3899-4000
Fax: +66 (0) 3897-6977

Branch 13 Innoplus Solution Center

83/9-10 Village No. 5, Tup Ma
Sub-District, Mueang Rayong District,
Rayong Province 21000
Tel: +66 (0) 3899-4526
Fax: +66 (0) 3899-4452

Branch 14 LLDPE Maintenance Office

32 Rong Pui Road, Map Ta Phut
Sub-District, Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3897-5000
Fax: +66 (0) 3899-4111

Branch 15 GC Thai Petrochemical Learning Center

66 Highway 363 Noen-Phra
Sub-District, Mueang Rayong District,
Rayong Province 21150
Tel: + 66 (0) 3899-0000
Fax: -

Branch 16 Glycol Plant

9-9/1 Soi G12,
Pakorn Songkrohraj Road,
Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: + 66 (0) 3899-7000
Fax: -

Branch 17 Polystyrene Plant

7 I-1 Road, Map Ta Phut Industrial
Estate, Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: + 66 (0) 3897-6000
Fax: -

Branch 18 Phenol Plant

9 Soi G9 Pakorn Songkrohraj Road,
Map Ta Phut Sub-District, Mueang
Rayong District, Rayong Province
21150
Tel: + 66 (0) 3864-3000
Fax: -

Branch 19 Oxirane Plant

12 Soi G4 Pakorn Songkrohraj Road,
Huai Pong Sub-District, Mueang
Rayong District, Rayong Province
21150
Tel: + 66 (0) 3899-4000
Fax: -

Nature of Business



Revenue Structure of GC and Subsidiaries Categorized by Business Unit

Business Group	2021		2022		2023	
	Revenue (Baht Million)	%	Revenue (Baht Million)	%	Revenue (Baht Million)	%
Upstream						
Total	242,472	51.7	340,162	49.7	343,844	55.3
Intermediates						
Total	86,336	18.4	87,861	12.8	68,263	11.0
Polymers and Chemicals						
Total	103,451	22.1	111,542	16.3	95,800	15.4
Bio and Circularity						
Total	18,982	4.0	22,250	3.3	15,049	2.4
Performance Chemicals						
Total	15,178	3.2	118,201	17.3	94,703	15.2
Services and Others						
Total	2,534	0.5	3,939	0.6	3,972	0.6
Net Total after deduction from connected transaction	468,953	100.0	683,954	100.0	621,631	100.0

UPSTREAM

The Upstream Business Unit consists of three subcategories: Refinery and Shared Facilities, Aromatics, Olefins.

Refinery and Shared Facilities

As Thailand's leading refiner and distributor of petroleum products, GC owns and operates a modern complex refinery equipped with hydrocracker and visbreaker units, capable of converting low-value fuel oil to more valuable middle-distillate products. GC's average refining capacity stands at 145,000 barrels per day of crude and 135,000 barrels per day of condensate. Additionally, GC's refining process is flexible, ready to be adjusted to accommodate customer demand and volatility in the market. Below is a summary of GC's refined products and their usage:



Petroleum Product		Usage
Light Distillate	Liquefied Petroleum Gas (LPG)	<ul style="list-style-type: none"> – Fuel – Petrochemical feedstock (Olefins plants)
	Light Naphtha	<ul style="list-style-type: none"> – Gasoline blending component – Petrochemical feedstock (Olefins plants)
	Reformate	<ul style="list-style-type: none"> – Gasoline blending component – Petrochemical feedstock (Aromatics plants)
Middle Distillate	Jet Fuel	– Aviation fuel
	Diesel	– Fuel for industrial and transport sectors
Heavy Distillate	Fuel Oil	– Fuel for industrial sector and maritime transport

Policy and Marketing

GC's strategy is to source low-cost feedstock from domestic and overseas sources, prioritizing domestic crude oil due to maximum cost benefits and new overseas sources that yield high economic returns, such as Brazil, Indonesia, and Vietnam. Petroleum products are sold primarily domestically and to high-value markets, such as the CLMV countries, which consist of Cambodia, Laos, Myanmar, and Vietnam. GC is also the first company in Thailand equipped to produce and distribute EURO 5 diesel, which meets the quality standards to be enforced by the government starting from 2024 onwards. In addition, GC collaborates with PTT Group to seek opportunities to source crude oil to enhance its competitiveness and to distribute petroleum products at higher prices to satisfy the market demand.

In 2023, GC sold approximately 62 million barrels of petroleum products from its refinery, which increased from 2022, driven by the absence of turnarounds. The primary product was diesel, almost 100% of which was sold domestically, accounting for a 24% market share of the domestic sales. GC's main customer was PTT Oil and Retail Business Public Company Limited (OR), which has long-term purchase agreements with the Company. GC has plans to increase the domestic sales of distillates to accommodate rising demand and increase exports to CLMV to grow its marketing base continuously in the future.



Aromatics

GC produces and distributes aromatics products, namely benzene, toluene, paraxylene, orthoxylene, mixed xylene, and cyclohexane. The majority of these products are used as feedstock in various industrial processes domestically.

Aside from these products, GC's aromatics plants yield multiple by-products, including liquefied petroleum gas (LPG), light naphtha, heavy aromatics, and condensate residue. LPG and light naphtha are used as feedstock in GC's olefins plants, while heavy aromatics and condensate residue are used as feedstock in the refinery to produce jet fuel, diesel, and fuel oil. GC currently operates two aromatics plants with a combined capacity of 2,419 thousand tons per year. The table below details the nameplate capacity of each product:

Company	Product	Nameplate Capacity (thousand tons per year)
GC	Benzene	697
	Toluene*	50
	Paraxylene	1,310
	Orthoxylene	86
	Mixed xylene*	76
	Cyclohexane	200

Remark: * Toluene and mixed xylene are currently used as feedstock at both aromatics plants.

Policy and Marketing

In sourcing feedstock for its aromatics plants, GC's strategy focuses primarily on procuring domestic condensates, which are the most cost-effective, as well as condensates from new sources in the global market as alternatives in order to reduce production costs, such as from Indonesia and New Zealand. As for its distribution strategies, GC sells its aromatics chiefly to domestic customers, with the majority located in the Map Ta Phut Industrial Estate, while also fostering cooperation within PTT Group to boost global exports and promote collaboration, such as shared sales and transportation.

In 2023, approximately 77% of GC's aromatic products were sold to domestic customers, most of whom were customers with long-term and short-term agreements, accounting for around a 64% market share of total domestic sales. The remaining 23% aromatic products were exported primarily to customers in Asia.

Olefins

Olefins products obtained from GC's olefins plants consist of ethylene, propylene, butadiene, and butene-1. Thanks to their feedstock flexibility, GC's olefins plants can make use of ethane, Propane LPG, and NGL, all of which are natural gas products, as well as LPG and light naphtha from refineries and aromatics plants.

The olefins plants also yield various by-products, such as pyrolysis gasoline, mixed C4, cracker bottom, and hydrogen. GC enriches the values of these by-products with the refinery and aromatics plants. For example, pyrolysis gasoline is turned into aromatics products; or hydrogen is used in the refinery as a substitute for hydrogen produced by the Hydrogen Manufacturing Unit (HMU), which otherwise requires a higher production cost; and mixed C4 is turned into butadiene and butene-1 at the by-product value-added plant.

GC also produces utilities (352 MW of electricity, 1,100 tons/hour of steam, and 3,240 cubic meters/hour of industrial water) for its own use, which reduce production costs and enhance competitiveness. Surplus volumes of the utilities are sold to Electricity Generating Authority of Thailand (EGAT) (30 MW for a duration of 25 years) as well as neighboring petrochemical plants.

GC has five olefins plants, with the Olefins 2 Modification Project (OMP) commencing commercial operation to enhance flexibility in utilizing propane as feedstock, generate added value for downstream businesses, and enhance competitiveness. The total nameplate installed capacity stands at 3,829 thousand tons per year, with the details shown in the table below:

Company	Product	Nameplate Capacity (thousand tons per year)
GC	Ethylene	2,827
	Propylene	902
	Butadiene	75
	Butene-1	25

Policy and Marketing

GC's policy is to build its competitiveness on par with international standards by using diverse feedstocks, controlling costs to a competitive level, and increasing business opportunities from upstream to downstream businesses to give GC stability and management options. GC's domestic and international competitive capabilities have allowed for more agile marketing policies and increased options in selling its products, especially during times of high volatility. In addition, GC seeks to foster cooperation with companies in PTT Group, such as by sourcing quality feedstock at competitive prices and exchanging knowledge to jointly develop best practices.

To give them added value, olefin products are primarily used to produce downstream petrochemical products, while the rest is sold to companies within PTT Group and domestic customers, such as HMC Polymers Co., Ltd. (HMC), AGC Vinythai Plc. (AVT), and other companies in Map Ta Phut Industrial Estate. GC's domestic market shares for ethylene and propylene are 18% and 28% respectively. The remaining products are exported. New opportunities are also sought through collaboration within PTT Group to boost global exports.

INTERMEDIATES

This business unit consists of Ethylene oxide and Derivatives, Phenols,

Other intermediate products, namely

- Purified Terephthalic Acid (PTA),
- Propylene Oxide (PO),
- Acrylonitrile (AN),
- Methyl Methacrylate (MMA).

Ethylene Oxide (EO) and Derivatives

To supplement value to current olefins products and satisfy rising demand of the industrial sector and general consumers, GC recognizes the need to produce high-value products not yet manufactured in Thailand, not only to replace imports but also to raise Thailand's petrochemical competitiveness. To this end, GC has expanded its businesses towards ethylene oxide products and derivatives.



As a downstream product of ethylene, ethylene Oxide (EO) is used as feedstock for ethylene glycol (EG) and other downstream products, namely mono ethylene glycol (MEG), diethylene glycol (DEG), triethylene glycol (TEG), and polyethylene glycol (PEG). Among these products, MEG is the main feedstock and is used in combination with purified terephthalic acid (PTA) for the production of polyester textile or PET bottles.

In 2023, for the production of ethylene oxide (EO) and derivatives, GC commercially operated one plant located in WHA Eastern Industrial Estate, Rayong. The production capacity is detailed in the table below:

Company	Product	Nameplate Capacity (thousand tons per year)
GC	Mono Ethylene Glycol (MEG)	423

Policy and Marketing

For ethylene oxide and downstream products, the policy is to sell its products to domestic business owners at prices and under trade conditions that are competitive with other manufacturers. As Thailand's first and only producer, GC uses its strengths and business advantages in marketing, such as its position as a domestic producer of high-purity products, and the ability to deliver products continuously from its storage tanks. In 2023, approximately 95% of the ethylene glycol produced was sold domestically, accounting for a 58% domestic market share, while the remaining amount was sold in international markets where it would yield maximum benefits, such as ASEAN and Australia.

Phenols

Phenol is used as feedstock for the production of other downstream products, such as engineering plastics. These products are in high demand in high-growth industries, including automotive, electrical appliance and electronics, and construction. The key products are listed below:

Phenol

Phenol, an intermediate petrochemical derived from benzene and propylene, is a key feedstock for bisphenol A (BPA), phenolic resin, and various derivatives for the plastic, pharmaceuticals, and chemical industries.

Acetone

Acetone, a by-product from phenol production, is a very common solvent in various industries, such as chemical, cosmetics, and medical industries. Acetone is also used as feedstock for bisphenol A and methyl methacrylate, used in plastics and coating industries, among others.

Bisphenol A

Bisphenol A is an intermediate petrochemical and feedstock for polycarbonate (PC), an engineering plastic used in various industries, such as the automotive industry, electrical appliance and electronics industry, and construction industry. BPA is also a key feedstock for epoxy resin, which is used in composite materials, coatings, and the paint industry.

In 2023, GC operated three commercial plants located in WHA Eastern Industrial Estate, Rayong. The nameplate capacities are as detailed in the following table:

Company	Product	Nameplate Capacity (thousand tons per year)
GC	Phenol	492
	Acetone	304
	Bisphenol A	158

Policy and Marketing

For phenols, GC's policy is to sell products to both domestic and overseas customers, focusing on boosting the sale of phenol, acetone, and bisphenol A in the domestic market and maintaining the domestic market share leveraging its strengths and business advantages, such as its high-quality products, trade partners with marketing networks across every region, stable sources of feedstock, and consistent customer relations activities.

In 2023, the domestic market accounted for approximately 45% of the total sales volume, equivalent to a domestic market share of around 70%. The remaining volume was exported to China, India, South Korea, Taiwan, and other countries in Southeast Asia.

Other Intermediates

Purified Terephthalic Acid (PTA)

PTA is an intermediate petroleum product used as the primary feedstock for the manufacturing of polyester fibers for textiles and clothing as well as PET (polyethylene terephthalate) resin for the forming of packaging such as water bottles, gallon bottles, and clear plastic boxes for food storage. In addition, PTA is employed as an auxiliary material in the production of powder colors for coating in the automotive and electronic appliance industries as well as in oil colors for use in the construction industry.

PTA is produced by GC-M PTA Co., Ltd. (GC-M PTA), located in WHA Eastern Industrial Estate in Rayong, with the nameplate capacity as shown in the table.

Company	Product	Nameplate Capacity (thousand tons per year)
GC-M PTA	Purified Terephthalic Acid (PTA)	1,440

Policy and Marketing

GC-M PTA Co., Ltd. has been manufacturing and distributing PTA for over 23 years and has benefitted from technology transfer from its joint venture partner Mitsui Chemicals, Inc. in Japan. It has continued to enhance the quality of its products to meet the needs of domestic and international customers at a competitive cost.

With respect to marketing and sales, the products are sold both directly to customers and through agents who have been its business partners since its

establishment. The current sales volume is split into 50% domestic and 50% international. For exports, emphasis is placed on markets where it enjoys geographical advantages, including Southeast Asian countries such as Vietnam, as well as Japan and India and other countries in the Middle East and Africa with demand. Prices are negotiated based on market prices, which are subject to change in accordance with production volumes and regional demand at each specific period of time.

Propylene Oxide (PO)

PO is an intermediate petrochemical used as feedstock primarily used in the production of polyols, followed by the production of propylene glycol. GC's plant is located in WHA Eastern Industrial Estate, with the nameplate capacity as shown in the table below.

Company	Product	Nameplate Capacity (thousand tons per year)
GC	Propylene Oxide (PO)	200

Policy and Marketing

As a policy, PO is manufactured and distributed primarily to GC Polyols Co., Ltd. to generate added value for propylene products as well as to other domestic customers. Thus far, GC has strengths and competitive advantages in product delivery. In 2023, approximately 67% of the product was distributed domestically, accounting for a 24% domestic market share, while the remaining volume was exported to China, India, South Korea, Taiwan, and ASEAN.

Acrylonitrile (AN) and Methyl Methacrylate (MMA)

AN is an intermediate petrochemical widely used as primary feedstock for the production of the following derivatives. (1) Acrylonitrile-butadiene-styrene (ABS) is popular in electrical appliance and electronic device industries and is generally molded into exterior shells of electrical appliances thanks to its strength and resistance to scratch and customizability. (2) Acrylic fibers and other synthetic fibers are used as components in the production of garments, carpets, and other fibers. (3) Acrylamide is used in wastewater treatment and petroleum drilling industries. (4) Nylon 6,6 is widely used in the automotive industry to produce car parts

due to its well-balanced hardness and toughness as well as good shape retention, which give the material superior resistance to impact, friction, heat, chemicals to regular plastics. (5) Nitrile Butadiene Latex (NBL) is synthetic rubber used in the manufacturing of medical gloves. (6) Carbon fiber compounds are lightweight high-strength material used in the aviation and sports industries and are playing an increasingly significant role in the automotive industry.

MMA is an intermediate petrochemical and the main feedstock for polymethyl methacrylate (PMMA) and PMMA acrylic sheets, which are components of furniture, commercial light boxes, smartphone screens, television screens, and computer screens. They are also an ingredient for emulsion and paint, commonly used in the construction industry as MMA helps improve adhesion and durability and prolong product life.

GC produces AN and MMA through PTT Asahi Chemical Co., Ltd. (PTTAC), which operates a plant in WHA Eastern Industrial Estate, Rayong, with the nameplate capacity as shown in the table below.

Company	Product	Nameplate Capacity (thousand tons per year)
PTTAC	Acrylonitrile (AN)	200
	Methyl Methacrylate (MMA)	85

Policy and Marketing

PTTAC Co., Ltd. is the only AN producer in Southeast Asia and the world's first manufacturing plant to use propane as feedstock for AN production in place of propylene. It also employs acetone cyanohydrin (ACH),

which is a by-product from the AN plant, as the primary feedstock in the production of MMA. AN and MMA are sold both domestically and internationally, such as Indonesia and Malaysia, among other countries.

POLYMERS & CHEMICALS

This business unit comprises Polyethylene (PE), Polypropylene (PP), Polyvinyl chloride (PVC), Polyethylene terephthalate (PET), Polystyrene (PS), Rotomolding compound, PP Compound, Ethanolamine (EA), Polyols.

Polymers

Polymers are downstream petrochemicals primarily used as feedstock for the production of components in other downstream industries, such as construction, packaging, agriculture, automotive, and electrical appliances. GC's key polymer products are as follows:

- High-density polyethylene (HDPE)
- Linear low-density polyethylene (LLDPE)
- Low-density polyethylene (LDPE)
- Polypropylene (PP)
- Polyvinyl chloride (PVC)
- Polyethylene terephthalate (PET)
- Polystyrene (PS)
- Rotomolding compound
- PP compound



GC Group currently operates 20 commercial polymer plants in Map Ta Phut Industrial Estate, Pha Daeng Industrial Estate, and WHA Industrial Estate (Map Ta Phut) Rayong. Rotomolding compound plants operate in the UK, Poland, Australia, New Zealand, Malaysia, and Thailand. The PP compounding plant is located

in the Amata Industrial Estate, Chonburi. GC Group produces and sells its polymers under trademarks through its subsidiaries and joint ventures. The capacities of major polymer products are shown in the table below:

Company	Product	Trademark	Nameplate Capacity (thousand tons per year)
PTT Global Chemical Public Company Limited (GC)	High-density polyethylene (HDPE)	InnoPlus	850
	Linear low-density polyethylene (LLDPE)		800
	Low-density polyethylene (LDPE)		300
	Polystyrene (PS)	DIAREX	90
HMC Polymers Company Limited (HMC)	Polypropylene (PP)	Moplen, Purell, Clyrell, Adstif, Adsyl	1,060
AGC Vinythai Company Limited (AVT)	Polyvinyl chloride (PVC)	Siamvic	450
Thai PET Resin Company Limited (TPRC)	Polyethylene terephthalate (PET)	InnoPlus	210
Revolve Group Limited (RGL) ⁽¹⁾	Rotomolding compound	Revolve	76
DynaChisso Thai Company Limited (DYCT)	PP compound	Polypro	30

Remarks: Hexene-1 is for internal use as feedstock for LLDPE (metallocene), with a capacity of 34 thousand tons per year.

⁽¹⁾ Including the expanded production in Thailand under Matrix Polymers Thai Co., Ltd. ("MTP") with a capacity of 12 thousand tons per year.

Policy and Marketing

The Polymers Business Unit operates an integrated production, marketing, distribution, and customer service business. GC enjoys a competitive advantage due to lower costs per unit and high-quality products thanks to effective production control as well as consistent technology transfer from and knowledge exchange with technology proprietors as well as continuous production technology research and development. GC also develops its products consistently to meet the needs of its customers and end markets so as to ensure its production efficiency and efficacy.

With respect to marketing, GC implements integrated marketing under a market-focused business policy, under which market and customer needs are analyzed to determine the future market direction and develop new products that cater to customer needs and the evolving downstream markets through strategic marketing plans. GC also conducts analyses on competitors and customers, market growth, market trends, assesses and analyzes market drivers, and revises marketing competitiveness enhancement plans and comprehensive marketing strategies. GC also

seeks collaboration for the development of new technologies so as to be able to develop products in line with its marketing strategies and ensure it can market the products in accordance with the needs of customers and downstream markets. With respect to services, to successfully deliver value to customers through products and services in accordance with customer expectations, GC has put in place voice-of-customer-and-market systems and processes to receive suggestions, requests, and complaints on its products and sales and delivery services in order to further improve product and service quality, satisfy customer needs continuously and efficiently, and closely monitor changes in market trends and demand. Additionally, GC has authorized dealers both in Thailand and across every region of the world who distribute products and provide services to customers. It also carries out sales and marketing through GC Marketing Solutions Company Limited (GCM), which has five subsidiaries in (1) Ho Chi Minh City, Vietnam; (2) Jakarta, Indonesia, (3) Yangon, Myanmar, (4) Shanghai, China, and (5) Dubai, the United Arab Emirates, whose business is undergoing a transfer to GC; as well as a dealership office in Guangzhou China. The management under GCM is aimed at enabling GC to adequately cater to the demand for GC's products and services both domestically and internationally and maximize its trade opportunity, which will in turn elevate its competitiveness, in an integrated and efficient manner. In terms of warehousing and transportation, GC has assigned GC Logistics Solutions Company Limited (GCL), a subsidiary of GC Group, to handle warehouse, storage, inventory, and transportation management for all its polymer products to ensure agility in the integrated logistics management as well as to enable GC to manage distribution and transportation costs to competitive levels and efficiently distribute its products to over 1,000 plastic forming manufacturers nationwide and overseas customers in over 80 countries across the world.

In 2023, approximately 57% of PE products and 37% of PS products were exported. The focus was on markets in countries where GC enjoyed geographical advantages, such as Cambodia, Laos, Myanmar, Vietnam and Indonesia. GC also sought to develop markets for high value products (HVPs) in each market-focused business, namely flexible packaging, rigid packaging, construction products, and emerging products, as well as to improve and develop commodity products to retain its domestic and overseas customer bases and expand towards new customer bases according to its marketing strategies.

The prices of polymers and by-products are based on market prices. Domestic prices are based on the announced prices in Thailand, while prices for products sold in Southeast Asia are based on the reference market prices in Southeast Asia under the international CFR Southeast Asia trade conditions, which vary according to economic and political circumstances as well as demand and supply within the region. On the other hand, overseas prices for other countries are based on the reference market prices of each specific region or country.

GC has also built upon and add value to its linear low density polyethylene (LLDPE) by developing rotomolding compounds through the UK's Revolve Group Limited (RGL), a rotomolding compound producer with production bases in the UK, Poland, Australia, New Zealand, and Malaysia. In 2023, GC established its sixth production base in Thailand in Rayong under the name Matrix Polymers Thai Co., Ltd. (MTP), which has a nameplate capacity of 12,000 tons per year, to develop products in close collaboration with customers, including rotomolders and end-users, in order to meet specialized needs and promptly troubleshoot technical problems for customers, in line with GC's marketing strategy to enhance its products to deliver to more value to customers and markets. GC also develops PP compounds to create added value for products and PP customers, thus enabling an expansion towards the automotive, electrical appliance, and electronic industries, while also seeking to foster business growth through marketing in downstream industries to accommodate expansion in four major target industries: packaging, construction, agriculture, and automotive.

Chemicals

Ethanolamine (EA)

Derived from EO, EA primarily comes in the form of either monoethanolamine (MEA), diethanolamine (DEA), or triethanolamine (TEA). EA products are used as ingredients for the production of shampoos, hair conditioners, fabric softeners, and cosmetic products,

as well as in pharmaceutical and cement industries, among others. GC's EA plant is located in WHA Eastern Industrial Estate in Rayong. The nameplate capacity is as shown in the table below.

Company	Product	Nameplate Capacity (thousand tons per year)
GC	Ethanolamine (EA)	50

Policy and Marketing

For EA, the policy is to sell its products primarily to domestic business owners at prices and under trade conditions that are competitive with other manufacturers, focusing on creating maximum added value from EO products. In 2023, approximately 50% of the EA products were sold domestically, accounting for around a 34% share in the domestic market. The remaining volume was exported to markets in countries yielding maximum benefits in each region, such as Southeast Asia and Australia.

Polyols

Polyols are downstream petrochemicals used as feedstock for the production of polyurethane (PU). They are sold both in the form of feedstock and as Premix Polyols – a mixture of various polyols and additives co-developed with customers to achieve desired properties, such as the softness of PU foam during molding. GC produces polyols through GC Polyols Co., Ltd. (GCP), a joint venture between GC, Sanyo Chemical Industries, and Toyota Tsusho Corporation Thailand. The main strategy is to become an integrated manufacturer of feedstock for PU and cater to the rising demand in the market.

In 2023, GC commercially operated a plant located in WHA Eastern Industrial Estate, Rayong. The nameplate capacity is shown in the table below:

Company	Product	Nameplate Capacity (thousand tons per year)
GCP	Polyether Polyols (PPG)	130
	Polymer Polyols (POP)	30
	Premix Polyols (PM)	20

Policy and Marketing

GCP is a polyol producer that has received production technology and formulation from Sanyo Chemical Industries, a joint venture partner. It seeks to create customer bases both domestically and internationally through the sale of standard-grade products and high-grade R&D products. GC has exported its polyols to

19 countries worldwide, namely India, Vietnam, Indonesia, Malaysia, China, Peru, Brazil, Bangladesh, the Philippines, Türkiye, Singapore, Sri Lanka, Nepal, Pakistan, Taiwan, Nigeria, Japan, Australia, and the United Arab Emirates.

BIO & CIRCULARITY

The Bio & Circularity Business Unit consists of products manufactured from natural feedstocks such as palm oil, palm kernel oil, vegetable oil, animal fat, corn, sugar made from sugarcane, and cassava. These products can be used in various downstream industries, such as personal care, pharmaceuticals, food, biochemicals, and bioplastics industries. These products are divided into three key categories as follows:

Bioplastics and Biochemicals

Bioplastics and biochemicals are derived from natural feedstock, including sugar from sugarcane, cassava, and field corn. The feedstock is fermented to produce chemicals, such as lactic and succinic acids. These two chemicals are used in the production of bioplastics, such as polylactic acid (PLA), and polyesters, such as polybutylene succinate (PBS), respectively.



GC operates its PLA business through NatureWorks LLC (NatureWorks), a joint venture between GC's GC International Corporation ("GCI") and Cargill, Incorporated ("Cargill") of the U.S., and the proprietor of the polylactic acid (PLA) production technology with a commercial capacity of 150,000 tons per year. To expand its production capacity, NatureWorks has decided to construct a second plant in Nakhon Sawan Biocomplex in Thailand, which will be an integrated lactic acid, lactide, and polylactic acid (PLA) manufacturing plant with a capacity of 75,000 tons per

year. The engineering design of the plant has been completed, and the construction has begun, with the commencement of commercial operation scheduled for 2025. As for PBS, GC operates its business through PTTMCC Biochem Co., Ltd., which is the world's sole producer of bio-PBS and a joint venture with Mitsubishi Chemical Corporation (MCC), established for the production and distribution of bioPBS, an environment-friendly product composable in ambient temperature. PTTMCC operates a plant in Rayong with a capacity of 20,000 tons per year.

Company	Product	Nameplate Capacity (thousand tons per year)
NatureWorks	Polylactic acid (PLA)	150
PTTMCC	Polybutylene succinate (PBS)	20

Policy and Marketing

Bioplastic and biochemical markets have seen significant growth in line with a surge in environmental conservation, plastic ban and reduction measures, and public awareness of plastic waste issues, and there has been a significant rise in global demand for compostable plastics for as substitutes for single-use plastics. NatureWorks' Ingeo™ branded PLA can be used to produce food-grade products, such as cold drink cups, spoons, forks, coffee capsules, rigid and flexible food packaging, and tea bags. It is also used to manufacture products in the computer industry, such as 3D printing filaments and powders. With respect to sales and marketing strategies, NatureWorks focuses on catering to specialized needs by researching and developing products in collaboration with major international manufacturers with production bases and customers in various regions whose policy is to use bioplastics in their products. As such, NatureWorks has been successful in responding to specific needs and adding value to products. In addition, NatureWorks collaborates with other proprietors of bioplastic production technology to enhance the quality of its products, grow customer bases, expand the range of applications, and accommodate the steady growth of global bioplastic demand, such as through product development research in which PLA is combined with polyhydroxyalkanoate (PHA) to enhance the product's degradability and texture.

On the other hand, PBS is mixed with PLA or other bioplastics in the current market to enhance the properties and functionalities for use in the production of coffee capsules, packaging, food-grade cling films, bioplastic carry bags, and mulch films and as a coating in paper food containers or cups for hot and cold drinks. PBS is sold directly to customers and through dealers, with the major markets being mostly in Europe, the U.S. and China.



Post-Consumer Recycled (PCR)

PCR resin is produced from used plastic packaging from households that has been recycled with cutting-edge technology. The properties and functional safety of GC's high-quality PCR are on par with virgin resin, allowing it to be formed into products for food-contact applications as well as into packaging for home and personal care products. GC operates its PCR business through ENVICCO Co., Ltd. (ENVICCO), offering two types of products:

PCR PET

This food-grade resin has mechanical properties comparable to virgin PET. and has been certified to international safety standards for food and drink packaging. It has been certified to meet international safety standards, such as the European Food Safety Authority (EFSA) and the U.S. Food and Drug Administration (USFDA) and approved by the Thai Food and Drug Administration for use in the production of food-contact containers, making it suitable for being molded into food and beverage packaging.

PCR HDPE

This packaging-grade resin has mechanical properties comparable to virgin HDPE. Thanks to its strength and durability, it is well-suited for molding into containers of home and personal care products, such as washing detergent, shampoo, soap bottles, and lubricant bottles.

Company	Product	Nameplate Capacity (thousand tons per year)
ENVICCO	PCR PET	30
	PCR HDPE	15

Policy and Marketing

GC conducts its business with environmental stewardship in adherence to circular economy principles, with the goal of serving as a role model of resource efficiency by developing products with recyclability in mind and through sustainable plastic waste management. To achieve this, GC has implemented projects to raise awareness, such as the "ThinkCycle Bank," a school initiative promoting circular waste management. Under this project, students are educated on waste separation and encouraged to deposit recyclables at the school's waste bank to convert them into savings. In 2023, 28 schools in Rayong and Chonburi participated in the program. GC has also taken part in collaborative projects with customers, suppliers, and business partners. This includes the collection of used plastics through the GC YOUTURN Platform. For this project, over 170 drop-off points are set up nationwide in partnership

with various partners, such as PTT Oil and Retail Public Company Limited (OR), Advanced Info Service Public Company Limited (AIS), and Kasikornbank. Other activities include Green University, a program aimed at raising awareness among students from 11 universities where used plastics are given a new life through GC's advanced recycling technology and transformed into versatile new products, with a particular focus on bottle-to-bottle recycling.

With respect to PCR marketing, PCR adoption and demand development in Southeast Asia is only in the initial phase. The primary market is manufacturers of commodity goods with sustainability policies and targets. It is expected that the global market for it will expand significantly in the next 2-7 years in accordance with the sustainability targets of manufacturers and national targets. In terms of sales and marketing, its

PCR are distributed through dealers and partly directly to ALPLA for the production of plastic packaging within its own business group. Its main strategy is to drive market demand through major domestic and international manufacturers in the food and beverage and household product industries that have sustainability policies and clear targets to increase the use of PCR. PCR products are also exported to countries where manufacturers are required to use PCR, such as those in the European Unions and the U.S.

Value Added Oleochemicals (VAO)

Methyl Ester

Methyl ester is a basic oleochemical. Also known as B100, it can be blended into diesel to make biodiesel that meets EN 14214 European standards for diesel engines. Methyl ester helps augment the efficiency of diesel, for both lubrication and combustion. It also increases an engine's lifespan and, more importantly, minimizes pollution and environmental impacts by reducing PM2.5 emissions.

Fatty Alcohol

Fatty alcohol is a basic oleochemical used as a feedstock in a number of different processes in the personal care industry. It is also used as an ingredient or a component of many other products, including surfactants, plasticizers, solvents, aroma compounds for perfumes, detergents, foam stabilizers, lubricants, cosmetics, plastic intermediates, shampoos, as well as paints and coating products. They are also found in leatherwear and ink.

Fatty Alcohol Ethoxylate

Derived from fatty alcohol and EO, fatty alcohol ethoxylate is used as feedstock for personal care, and home care products. In textiles, it is used as a scouring agent, which is part of the preparation process, and as a softener, which is the last step in fiber preparation.

Glycerin

Glycerin, a by-product of methyl ester and fatty alcohol production, is used in pharmaceuticals, food, personal care and other industries.

Fatty Acid

Fatty acid is a basic oleochemical product used for personal care production, such as soap and cosmetics, also used as a feedstock in specialty oleochemicals downstream production.

Specialty Oleochemicals

Specialty oleochemicals are derived from chemical processes that involve value-adding to basic oleochemicals such as fatty acids, fatty alcohols and glycerin. These specialty products imparts performance characteristics in applications across multiple industries, including home and personal care, plastics processing, construction chemicals, lubricants, oil & gas, lawncare, etc.



GC produces VAO through Global Green Chemical Public Company Limited (GGC) and EMERY Oleochemicals UK Limited (EOUK). A joint venture between PTTGC International Private Limited (GC Inter), which is a subsidiary of GC, and Sime Darby Plantation Bhd. (SDP), Malaysia, EOUK is headquartered in Britain and operates plants in two countries, namely Germany and

the United States. EMERY is a world-class producer and distributor of oleochemicals with a sales and distribution network present in all key geographical regions. The nameplate capacities of the domestic and overseas commercial plants for each product are as shown in the table below.

Company	Product	Nameplate Capacity (thousand tons per year)
GGC	Methyl Ester	500
	Fatty Alcohol	100
	Fatty Alcohol Ethoxylate	124
	Glycerin	51
EMERY	Basic Oleochemicals in US	291
	Specialty Oleochemicals in US	48
	Specialty Oleochemicals in EU	46

Policy and Marketing

The demand for eco-friendly products has been rising thanks to greater environmental awareness and campaigns. In addition, it is expected that green technologies and chemicals will replace current ones in the sphere of health and personal care products. As a result, many countries are actively seeking alternative energy, reducing the use of synthetic chemicals, and looking for substitutes that consist of or are made of natural ingredients, while customer demand across the world for commodity goods featuring or produced from renewable natural feedstock has shown an upward trend. GC recognizes the significance of the value addition to agricultural products and the sustainable growth of the green chemical industry and strives to become a world-class green chemical operator that stands out in every market it operates in.

GGC's main product is methyl ester, almost all of which is sold to domestic high-speed diesel manufacturers and blenders. Methyl ester is sold directly to customers

through purchase agreements with clearly specified terms. Fatty alcohol is sold both domestically and internationally, with primary customers being commodity product manufacturers, oleochemical operators, as well as traders and distributors who subsequently sell fatty alcohol to their customers. The principal domestic customer is Thai Ethoxylate Co., Ltd. (TEX), while international customers are based on various countries in Asia, Europe, South Africa, and South America. Glycerin is sold to manufacturers and distributors of health and personal care products and in other industries both domestically and internationally both via distributors and direct sale. Customers include multinational corporations (MNC) in the domestic medical supply and hygiene industry and large pharmaceutical companies in South Asia.

Products manufactured by EMERY, which has sales offices and production bases in various countries, are distributed both by its national sales offices directly to customers and through its channel partners.

PERFORMANCE CHEMICALS

Performance chemicals are major components in burgeoning downstream industries, such as the automotive, construction, and engineering plastic industries. Products under the business unit consist of the following.

Industrial Coating Resins and Additives

These are polymers that bind all the other components of the coating to a surface into a film with desired properties. Various additives can also be added to give the film specific properties, such as erosion resistance and UV resistance, while crosslinking agents can be introduced to enhance the strength of the network between the resin molecules to strengthen the film. Utilized in various downstream industries, such as automotive, packaging, printing ink, electronic devices, industrial wood, metal production, construction, as well as ship and aircraft, these products impart different



properties, such as durability, flexibility, color retention, resistance to scratches, chemical corrosion, water, and sunlight, and aesthetic quality. Production is carried out through allnex Holding GmbH (“allnex”), a wholly owned subsidiary of PTTGC International (Netherlands) B.V. The products in this group can be divided into four major categories: 1) liquid resins and additives (LRA), 2) radcure (RAD), 3) crosslinkers (XLR), and 4) powder coating resins (PCR). allnex has 34 production bases across 18 countries worldwide.

Hexamethylene Diisocyanate (HDI) and HDI Derivatives

HDI is an intermediate petrochemical used in the production of PU coating, which plays a prominent role in construction and automotive industries. PU coating can also be applied to wood, metals, plastics, furniture, and vehicles to enhance their glossy and scratch-resistant properties. GC produces HDI and HDI derivatives through Vencorex Holding SAS (Vencorex), which is wholly owned by PTTGC International (Netherlands) B.V.

Super Engineering Plastic Polyamide (PA9T) and Hydrogenated Styrenic Block Co-polymers (HSBC)

PA9T and HSBC are produced through the joint venture Kuraray GC Advanced Materials Co., Ltd. (KGC), which has a production base in Thailand. GC has a 33.4% shareholding in the company, and the other 66.6% is held by a joint venture between Kuraray Company Limited (Kuraray) and Sumitomo Corporation.

PA9T is considered super engineering plastic and has outstanding physical properties, including superior strength, toughness, heat resistance, and chemical resistance compared to other plastics in the same category. It can also be molded into small products with intricate details, in line with the needs of the automotive industry for strong and lightweight materials to achieve fuel efficiency and the electronics industry’s demand for plastic with high heat resistance and moldability. At present, Kuraray’s proprietary production technology is currently the only one in the world capable of producing PA9T.

HSBC’s properties are a blend of those of rubber and thermoplastic. This means it can be molded into a product and reused similar to thermoplastics, while also providing rubber-like softness. Additionally, it boasts resistance to weather conditions and temperatures and is free from harmful additives. HSBC is produced into various end-products, such as household appliances, sports equipment, and automotive parts. The production of HSBC also utilizes Kuraray’s technology.

The nameplate capacities for performance chemicals are as shown in the table below.

Company	Product	Nameplate Capacity (thousand tons per year)
allnex	Coating resins and additives	1,297
Vencorex	Hexamethylene Diisocyanate (HDI) and HDI derivatives	127
KGC	Super Engineering Plastic Polyamide (PA9T)	13
	Hydrogenated Styrenic Block Co-polymers (HSBC)	16

Policy and Marketing

allnex is the world's leading industrial coating producer widely recognized for its development of innovative products and technologies and access to customers and markets worldwide thanks to its 24 research and development centers across the world and over 1,500 patents on coatings. The company is also a technology leader in various areas, such as high-end waterborne, high-solid solventborne, powder coating resins, and UV-curable resins, focusing primarily on industrial coatings and inks resins. allnex's products are manufactured using environmentally friendly technology.

allnex operates 34 plants worldwide across three regions, with 10 plants in Europe, 8 in the Americas, and 16 in Asia-Pacific and the regional production capacities of 548,000, 290,000, and 459,000 tons per year, respectively. The company's customers are distributed across Europe, the U.S., and Asia.

Vencorex is one of a major producers of aliphatic isocyanates. Its policy is to sell its products primarily to its key account customers and dealerships. Vencorex has three production plants in France, the U.S., and Thailand, and has customer bases in every region across the world. Its core marketing strategy is to leverage its strength of having production bases in three regions across the world to access customers and cater to their needs promptly. In addition, Vencorex places importance on customer relations and has a research and development unit that specializes in developing new products and applications. The company also strives to provide technical services that meet customer needs.

Vencorex's main customers are in Europe, Middle East, Africa, and the U.S. However, after the commercial operation of its Thai plant, Vencorex has expanded further to Asian markets in response to the rapidly growing demand in Asia, especially in China, India, and Korea.

KGC, which began commercial operation in 2023, manufactures and distributes PA9T as a neat resin in the initial phase, with plans to develop PA9T compound resins in the future. The primary target customers of PA9T are the automotive and electronics industries, which KGC can access by leveraging the market networks of the two other shareholders, namely Kuraray and Sumitomo Corporation.

For HSBC, the primary target group is global compounders, and there are plans to expand into the US, European, and Asian markets. The HSBC produced with Kuraray's technology has superior strength to those of competitors, and Kuraray can develop products with the existing customer base to enhance the competitiveness in the market.



Feedstock Sourcing for the Five Business Units

GC sources feedstocks according to the nature of the five product categories, focusing on cost benefits, competitiveness, and the creation of added value across the value chain within GC Group to add value to products, increase business opportunities from upstream to downstream industries, and ensure efficient feedstock management.

For the Upstream Business Unit, the primary feedstock is crude oil. In 2023, GC used approximately 55 million barrels of imported crude oil and internally produced feedstock from its aromatics plants, equivalent to 100% of its refining capacity as there were turnarounds throughout the year. The aromatic plants used approximately 4.4 million tons of condensates as the primary feedstock for production of aromatics and by-products. For GC's olefins production, the primary feedstocks were ethane, propane, LPG, and NGL, which are natural gases. In addition to the feedstocks mentioned above, GC also used light naphtha and LPG, which were by-products of GC's refinery and

aromatics plants. GC's feedstock flexibility has enabled it to maintain high production stability and capacity to meet the needs of downstream industries.

For the Intermediates and Polymers & Chemicals Business Units, by-products from GC's aromatics and olefins plants are used as primary feedstocks to add value to products and enhance business capabilities.

As for the Bio & Circularity Business Unit, feedstocks are mainly domestically sourced to promote domestic agriculture and related industries. For the Performance Chemicals Business Unit, allnex sources feedstocks from the market through a global procurement system to enhance its bargaining leverage over feedstock prices, while Vencorex sources feedstocks through short-term and long-term agreements, and KGC sources feedstocks from within GC Group. The feedstock usage of the five business units is summarized in the table below.



Product Group	Feedstock	Sourcing
Upstream		
Refinery and Shared Facilities	Crude oil	Sourced through PTT
Aromatics	Condensates	Sourced through PTT
Olefins	Natural gases	Sourced through PTT
Intermediates		
Ethylene Oxide and Derivatives	Ethylene	GC
Phenols and Derivatives	Benzene and Propylene	GC
Other intermediates		
Purified Terephthalic Acid (PTA)	Paraxylene	GC
Propylene Oxide (PO)	Propylene/Cumene	GC
Acrylonitrile (AN)	Propane	PTT
	Acetone	GC
Methyl Methacrylate (MMA)	Acetone cyanohydrin Methanol/Sulfuric Acid	AN by-product Import
Polymers and Chemicals		
Polyethylene (PE)	Ethylene	GC
Polypropylene (PP)	Propylene	GC/Domestic
Polyvinyl chloride (PVC)	Ethylene	GC
Polyethylene Terephthalate (PET)	Purified Terephthalic Acid Monoethylene Glycol	GC-M PTA GC
Polystyrene (PS)	Styrene monomer	Domestic/Import
Rotomolding compound	Linear Low-Density Polyethylene	GC
PP Compound	Polypropylene	GC
Ethanolamine (EA)	Ethylene Oxide	GC
Polyols	Propylene Oxide/ Ethylene Oxide	GC
Bio & Circularity		
Polylactic Acid (PLA)	Lactic Acid	Cargill
Polybutylene Succinate (PBS)	Bio-Succinic Acid (BSA) and 1, 4 Butanediol (BDO)	Import
Post-Consumer Recycled (PCR)	Used plastic packaging	Domestic
Methyl Ester, Fatty alcohol, and Glycerin	Palm oil and palm kernel oil	Domestic
Basic/Specialty Oleochemicals	Animal fat	Domestic producers and imports
Performance Chemicals		
Coating Resins and Additives	Purified terephthalic acid (PTA), Neopentyl glycol, Methyl methacrylate (MMA), Acrylic acid, Melamine	Producers under purchase agreements
Hexamethylene Diisocyanate (HDI) and HDI Derivatives	Hexamethylenediamine (HMDA)	Producers under purchase agreements
Super Engineering Plastic Polyamide (PA9T) and Hydrogenated Styrenic Block Co-polymers (HSBC)	Butadiene	GC

Services and Others

In addition to the five major groups, GC values businesses and activities that support business stability and the comprehensiveness of the business chain. Its key services are listed below:

Marketing and Sales of Products and Packaging Market Development

GC produces and sells a comprehensive range of products and consistently develops products to meet customer needs, with dealers authorized by GC Marketing Solutions Co., Ltd. (GCM) in many regions to distribute products and provide services to customers. GC also develops plastic packaging markets through S.P. Petpack Inter Group Co., Ltd. (SPIG) and TPBI & Myanmar Star Company Limited (TPBIMS) as well as develops and distributes Upcycling products through Solution Creation Co., Ltd. (SUN).

Logistics, Jetty, Utilities, and Infrastructure

Logistics Services: GC Logistics Solutions Co., Ltd. (GCL) is in charge of providing integrated logistics services for producers of polymers under GC Group.

Jetty and Chemical Tank Farm: Thai Tank Terminal Limited (TTT) provides terminals and liquid chemical storage for industrial customers in Map Ta Phut Industrial Estate as specified by its concession.

Pipeline Infrastructure Services: Eastern Fluid Transport Co., Ltd. (EFT) provides pipeline infrastructure services for petroleum and petrochemical operators in Map Ta Phut Industrial Estate and nearby areas.

Utility Business: GC makes investments in this business through its shareholding in Global Power Synergy Public Company Limited (GPSC). GPSC produces and supplies electricity, steam, and industrial water to companies under PTT Group and other industrial plants.

Land and Property Management: GC Estate Co., Ltd. (GCEC) manages land and other properties, such as pipeline structures, industrial water plants, office buildings, and reforestation areas, to support the Company's investment, strategic joint ventures as well as other partners.

Information and Communication Technology Services: PTT Digital Solutions Co., Ltd. (PTT Digital) provides integrated ICT and communication services, including the design, development, and maintenance of ICT systems as per corporate requirements.

Technical, Engineering, Plant Maintenance, Safety, Occupational Health, Environmental, and Security Businesses

Plant Maintenance and Engineering Services: GC Maintenance and Engineering Co., Ltd. (GCME) provides multiple services, including plant maintenance, turnaround maintenance, equipment inspection, engineering, construction, and project management, to oil and gas, petrochemicals, chemicals, as well as other industries both in Thailand and Asia.

Quality, Safety, Occupational Health, Environmental and Security Services: NPC Safety and Environmental Service Co., Ltd. (NPC) provides integrated services, including the training and development of quality, safety, occupational health, and environmental systems, Law & regulation compliance audit services, certification on environmentally product and corporate carbon footprint assessments, defensive driving training for hazardous goods transportation, providing of safety, occupational health, and the environment products, crisis management center services in Map Ta Phut Industrial Estate, as well as industrial plant security services through NPC S&E Security Guard Co., Ltd. (NPCSG).

Social Enterprises

Management Consultancy: Pracharath Rak Samakkee Rayong (Social Enterprise) Co., Ltd. (PRS RAYONG) offers consultation on business administration in various areas, such as agriculture and trading.

Social Enterprise: Sarn Palang Social Enterprise Co., Ltd. (SPSE), produces, purchases, and sells products and/or provides services that benefit communities, society, and the environment.

Others

GC Group's Liquidity Management and Financing Vehicle Services: GC Treasury Center Co., Ltd. (GCTC) manages financial affairs and fund acquisition for companies under GC Group.

Corporate Venture Capital Investment (CVC): GC Ventures Co., Ltd. (GCV) and GC Ventures America Corporation (GCVA) invest both directly and indirectly in the form of corporate venture capital.

Outsourcing Service: Business Services Alliance Co., Ltd. (BSA) supplies manpower and contractors to PTT Group

Market and Competition

Economic Overview

Overall, the global economy in 2023 experienced a continued slowdown from the previous year. Despite a boost brought on by the recovery of the service sector, the manufacturing sector continued to show a slowdown, in line with the slump in global demand due to concerns over consistently high inflation rates. Additionally, the implementation of tight monetary policies by central banks in various countries to control inflation through interest rate adjustments revealed vulnerabilities in the financial system and led to an increase in costs for the business and households sectors. Meanwhile, the Chinese economy did not recover as the anticipated rate, and the country remained beset by challenges in the real estate sector.

The economic outlook for the year 2024 will likely exhibit a persistent economic slowdown from 2023 due to increased economic challenges, such as China's real estate crisis, declining business and consumer confidence, and tight money, which will affect the demand, leading to economic uncertainties across the world and volatility in commodity goods prices. Furthermore, geopolitical tensions, including the situation in Russia and Ukraine as well as the ongoing Israel-Hamas conflict, will remain a significant risk factor that requires close monitoring. Any violent flare-up can have repercussions on global economic expansion and lead to an increase in inflation rates. As such, the overall global economic growth will remain depressed. In light of all the factors above combined, it is anticipated that the overall growth, which was at 3.5% in 2022 and dropped to 3.0% in 2023, will slide further to 2.9% in 2024 (according to the IMF as of October 2023). However, the overall economy is projected to gradually improve in the latter half of the year, thanks to international economic stimulus measures and the improving trend in the manufacturing sector.

Market Overview – Upstream

Refinery and Shared Facilities

Market Overview in 2023

In 2023, crude oil prices saw a reduction as the Russia-Ukraine conflict grew less violent, which in turn alleviated supply concerns in the energy sector as Russia continued to export its oil to other countries instead of Europe. The global economy, however, continued to be pressured by various factors, including inflation, interest rates, and crises in the banking and real estate sectors. Weak economic indicators, especially in China and Europe, also depressed oil prices and oil demand in 2023, while the economic recovery of China, the world's second largest crude oil consumer after the United States, remained sluggish after its reopening.

With the oil demand affected by economic concerns, OPEC+ (OPEC and allies) announced production cuts to maintain a pricing balance. Saudi Arabia declared a reduction in oil production by 1 million barrels per day from July to the end of 2023, while Russia announced a cut in oil exports by 300,000 barrels per day until the end of 2023, signaling a clear intent to preserve a pricing balance. Additionally, during Q4/2023, in light of instability in the Middle East resulting from the conflict between Israel and Hamas, an armed militant group in Palestine, there were concerns the unrest would spread to other countries in the Middle East, a crucial global crude oil production region. This led to the tightening of the oil market and caused crude oil prices to rise in Q3 and Q4. The average Dubai crude spot price in 2023 dropped to US\$ 82.1 per barrel, a decrease of US\$ 14.2 per barrel compared to 2022.

Petroleum prices and spreads in 2023 saw a decline, primarily attributable to the easing of concerns over a decline in Russia's supply of distillates after import bans were issued by the E.U. and G7 countries, with the U.S. ban coming into effect in March 2022 and the E.U. ban coming into force in February 2023. The United States implemented import restrictions on Russian petroleum products in March 2022. However, Russia's petroleum exports did not decrease to the extent anticipated by the market, as Russia was able to redirect its exports to other third countries, such as the United Arab Emirates, Türkiye, and Brazil.

Furthermore, there were other factors that exerted pressure on the prices, including the interest rate hikes by the U.S. Federal Reserve, which caused the dollar to strengthen to such a degree that the prices of petroleum products traded in dollars rose, thus pressuring demand. Moreover, as La Niña in 2022 gave way to El Niño in 2023, the global temperatures were higher than usual, dampening demand in the electricity sector. This was compounded by the decline in natural gas prices. As the levels of natural gas inventory across the majority of European storage facilities exceeded 90% of the capacity, the natural gas prices slumped to levels lower than crude oil and diesel prices. As a result, crude and diesel demand was not buoyed up by the same gas-to-oil switching demand for electricity production as in 2022. The prices and spreads of each product are detailed below.

The gasoline (ULG 95) - Dubai crude oil spread in 2023 was pressured by a surge in naphtha supply. As naphtha demand from the petrochemical sector saw a decline, especially from olefins production, there was a larger surfeit of naphtha, which was used as an additive in gasoline and thus increased the gasoline supply. The spread was US\$ 16.7 per barrel, a US\$ 2.2 per barrel decline compared to 2022.

The jet/kerosene - Dubai crude oil spread in 2023 was adversely impacted by the global economic slowdown due to inflation and high interest rates. The spread was US\$ 22.5 per barrel, a US\$ 7.8 per barrel drop from 2022.

The diesel 10 PPM - Dubai crude oil spread in 2023 was pressured by Russia's success in diverting its exports to a third country despite the U.S. and E.U. oil

import bans, which alleviated the market's concern over the potential tightening of supply resulting from the sanctions and caused the diesel and Dubai crude oil spread in 2023 to fall by US\$ 14.7 per barrel to US\$ 24.3 per barrel compared to 2022.

The high-sulfur fuel oil - Dubai crude oil spread in 2023 was buoyed up by a decrease in supply after Saudi Arabia and Russia cut crude output further by an additional 1.3 million barrels per day, effectively removing about 0.3-0.4 million barrels of high-sulfur fuel oil per day from the market. As two countries' high-sulfur fuel oil yield from crude oil was approximately 30%, the high-sulfur fuel oil - Dubai crude oil spread in 2023 stood at US\$ -10.3 per barrel, an increase of US\$ 3.8 per barrel from 2022.

The low-sulfur fuel oil - Dubai crude oil spread in 2023 experienced an adverse impact from the commencement of the commercial operation of Kuwait's Al-Zour, a large refinery with a total capacity of 615,000 barrel per day. As it was designed to process as much as 225,000 barrels of low-sulfur fuel oil per day, a large supply flowed into the global market, with a significant portion exported to Singapore, the world's largest fuel oil market. Consequently, the low-sulfur fuel oil - Dubai crude oil spread shrank by US\$ 11.0 per barrel from 2022 to US\$ 11.5 per barrel in 2023.

Market Forecast for 2024

Crude oil prices in 2024 are projected to dip slightly compared to 2023 due to persistent pressure from high inflation and interest rates from the previous year, coupled with uncertainties over China's economic recovery, which will cause concerns over a slowdown in oil demand. The global economy is expected to rally in the second half of 2024 as a result of the economic stimulus measures and economic activities of each country. As for supply, OPEC and allies (OPEC+) will likely retain control over their production to maintain balance in the market. In addition, the existing wars are anticipated to persist and spread to neighboring countries. However, supply tension will likely be supported by the increased production capacity in non-OPEC countries, such as the United States, Brazil, Iran, and Venezuela, causing crude oil prices to remain elevated or drop slightly from 2023.

The prices and spreads of petroleum products in 2024 are expected to trend downward relative to 2023, pressured by economic factors and impacts of high policy interest rates, which influence the strengthening of the dollar and exert pressure on the demand slowdown persisting from 2022 onwards. Meanwhile, the supply of petroleum products is anticipated to grow. It is expected that new refining facilities commencing operation in 2024 will have a combined production capacity of 2.7 million barrels per day, an increase of 0.8 million barrels per day compared to 2023. Consequently, the gross refining margin (GRM) for the year 2024 will likely trend downward compared to 2023.

Aromatics

Market Overview in 2023

Demand for paraxylene and benzene in was pressured and dampened by the economic slowdown. Production in the paraxylene value chain, including among producers of PTA and PET resins, was tightly controlled to maintain the profitability ratio in the face of declining demand in the textile industry. Meanwhile, industries in the benzene value chain, particularly many styrene monomer (SM) plants across Asia and Europe, cut or even halt their production as it was no longer cost-effective, causing benzene demand to fall.

On the supply side, the global paraxylene production capacity in 2023 was 80.2 million tons, increased by 7.5 million tons compared to 2022, while the global production capacity of benzene in 2023 was 78.8 million tons, a 4.2-million-ton increase from 2022. The added capacities were attributable mostly to China, due to its policy to increase domestic production and reduce reliance on imports. In the first half of 2023, the paraxylene market was positively affected as the launch of added capacity in China was postponed, causing the paraxylene-naphtha spread and the benzene-naphtha spread to grow. In addition, in Q3, the paraxylene and benzene market was buoyed by the U.S. gasoline market due to its demand for reformates and mixed-xylene for use as feedstocks for the production of aromatics for gasoline blending. The resulting feedstock shortage, coupled with the emergency shutdown of China's main producer,

positively affected the aromatics market. As a result, the paraxylene-naphtha spread in 2023 was US\$ 389 per ton, a jump of US\$ 70 per ton from 2022, while the benzene-naphtha spread in 2023 was US\$ 248 per ton, a US\$ 4 uptick per ton compared to 2022.

Market Forecast for 2024

For the paraxylene and benzene market in 2024, the supply will likely face continued pressure from the economic slowdown and changing consumer behavior, such as the demand for paraxylene in the downstream product category, impacting the textile industry. On the supply side, the paraxylene market and the benzene market will see an additional capacity of approximately 0.8 million and 1.8 million tons, respectively, a significant decrease from 2023. Nevertheless, it is anticipated that in the latter half of 2024, the global economic situation will start to improve, which, coupled by continued economic stimulus package by the Chinese government, will be a supporting factor in maintaining the overall market at a high level but lower than in 2023. Consequently, the paraxylene-naphtha spread and the benzene-naphtha spread in 2024 are expected to narrow relative to 2023.

Olefins

Market Overview in 2023

The ethylene and propylene market in Q1/2023 was buoyed by the increased supply and prices after China eased its disease control policy. However, in Q2, the market faced pressure from the economic slowdown as well as the slower-than-expected recovery in China's demand. This was accompanied by the expansion of capacity of approximately 2.7 million tons for the ethylene market and 2.4 million tons for the propylene market among Asian manufacturers, contributing to a significant decrease in ethylene and propylene prices by the end of Q2.

In Q3, the ethylene and propylene markets faced continued economic pressure, coupled with the expansion of production capacity of approximately 2 million tons in the propylene market by Asian manufacturers. This led to a decline in prices, especially

in the propylene market, which faced additional pressure due to increased supply as various propane dehydrogenation process (PDH) units in several countries in Asia ramped up production in response to rapidly falling propane prices, expanding supply in Asia.

In Q4, pressure persisted due to a continued slump in demand. This, coupled with high feedstock prices and production costs and the low ethylene/propylene-naphtha spread, prompted producers in Asia to reduce output and control production. However, capacity expansion in Asia continued on in Q4, with approximately 1 million tons added to the ethylene market and 2.8 million tons to the propylene markets, causing the average ethylene and propylene prices in Southeast Asia in 2023 to slide to US\$ 889 and US\$ 858 per ton, respectively, while the ethylene-naphtha and propylene-naphtha spreads dropped to US\$ 240 and US\$ 209 per ton, respectively.

Market Forecast for 2024

As for the ethylene and propylene market in 2024, the demand is projected to see limited recovery in the first half of 2024, dampened by the continued economic slowdown from the previous year. However, the economic outlook is expected to slowly improve in the second half of the year thanks to economic stimulus measures, which may contribute positively to the overall ethylene and propylene market. Meanwhile, pressure from continuous capacity expansion will likely persist. An additional 4.9 million tons per year is expected for ethylene production capacity, consisting of 3 million tons per year from China and 1.9 million tons per year from other countries, while propylene production capacity will be expanded an additional 9.7 million tons per year, consisting of 7.9 million tons per year from China and 1.8 million tons per year. Downstream demand is projected to slowly improve thanks to economic stimulus measures and a global economic recovery. As such, the overall olefins prices will likely increase compared to 2023.

Market Overview – Intermediates

Ethylene Oxide and Derivatives

Market Overview in 2023

The mono ethylene glycol (MEG) in 2023 was negatively affected by the economic slowdown and a slower-than expected recovery in polyester demand, while the capacity saw a further expansion of approximately 5.7 million tons per year, or 11% of the current capacity, compared to the previous year, consisting of a coal production capacity of 1.8 million tons per year. The sluggish demand and the expanded capacity prompted a price decline and the necessity to sustained production control, especially with regard to the coal-based capacity, which was less competitive compared to naphtha- or ethane-based production units. As a result, the reference price in China for MEG in 2023 was US\$ 488 per tons, a decline of US\$ 86 per tons from 2022.

Market Forecast for 2024

The MEG market in 2024 is projected to improve, with the demand gradually rallying, particularly in the latter half of the year as economic pressure begins to subside and supports the utilization of MEG in downstream production. The supply is expected to expand by around 2 million tons per year, or approximately 4% of the total capacity. As the added capacity is smaller than the 11% expansion in 2023. As such, there will be less pressure on the supply, and the MEG price will likely show an upward trend.

Phenols

Market Overview in 2023

In Q1, the phenol and acetone (phenol by-product) market saw the sluggish downstream demand due to the economy, coupled with an additional capacity of 0.6 million tons from China in early 2023. This caused the phenol and acetone supply to increase and led to a dip in prices, prompting many manufacturers to announce production control. In Q3, the market was positively impacted by turnarounds among phenol producers in Asia, shrinking the phenol and acetone supply and driving up the prices. However, in Q4, the additional capacity of 1.3 million tons per year from China pushed up the phenol supply, causing the price to fall again. As a result of these factors combined, the average phenol price in 2023 was US\$ 978 per ton, representing a US\$ 331 per ton decline compared to 2022, while the phenol-benzene spread was US\$ 80 per ton, decreasing by US\$ 201 per ton relative to the year before. The average acetone price in 2023 was US\$ 762 per ton, a surge of US\$ 65 per ton from 2022.

The bisphenol A (BPA) market was likewise pressured due to a drop in demand for polycarbonate and epoxy resin products driven by the economic slowdown, coupled with China's additional production capacity of 1.7 million tons per year. Consequently, BPA prices saw a significant decline, dropping by US\$ 585 per ton to US\$ 1,272 per ton relative to 2022, while the BPA-phenol spread was US\$ 294 per ton, falling by US\$ 254 per ton compared to 2022.

Market Forecast for 2024

For the phenol market in 2024, demand for phenols, acetone, and BPA is expected to remain depressed by the ongoing economic slowdown in the first half of the year and gradually improve in the latter half due to China's economic stimulus package. However, there will continue to be new capacities in China, with an additional 1.1 million tons per year for phenols, 0.7 million tons per year for acetone, and 1.7 million tons per year for BPA, putting pressure on phenols and causing the price spreads for phenol products in 2024 to decline slightly relative to 2023.

Other Intermediates

Market Overview in 2023

The purified terephthalic acid (PTA) market in 2023 saw a recovery rate of under 3%, lower than the expected 4-5% range. This could be attributed to China's economic condition, which experienced a slowdown and fell short of targets. In addition, exports to destination countries in Europe and the United States grew at a reduced rate after policy interest rates were increased to stanch inflation, while new capacities exceeded 10 million tons per year. As a result, the average price of PTA fell US\$ 66 per ton to US\$ 779 per ton, while the price spread slid almost US\$ 200 per ton to US\$ 84 per ton compared to 2022.

The propylene oxide (PO) market in Q1-2/2023 was adversely affected by sluggish demand driven by the economic outlook and capacity expansion, especially in China, which brought on an additional 1 million tons per year in output, or 7% of the world's total capacity. As a result, PO prices fell, while the price spreads remained low, prompting manufacturers in Asia to ramp down production to control output. In Q3-4, the demand level did not show a significant rebound, while a new production capacity of 0.7 million tons per year in total was introduced as commercial operations in China were postponed to Q4. Consequently, the average PO price in Asia in 2023 slipped to US\$ 1,053 per ton.

The acrylonitrile (AN) market in 2023 continued to experience a slump, with the demand standing at approximately 6.2 million tons, showing a 1.1% growth rate, close to the 2022 level. The demand for downstream products, such as acrylonitrile butadiene styrene (ABS), acrylic fiber (AF), and acrylonitrile butadiene rubber latex (NBL), still did not improve due to the ongoing economic slowdown and tight monetary policies designed to control inflation rates. On the other hand, the supply grew to 8.9 million tons, driven by added production capacities, with the majority coming from Chinese manufacturers in response to the government's self-sufficiency policy. As a result of the surplus supply pushed onto the market, the prices were continuously depressed, decreasing profitability among manufacturers in Asia and prompting them to announce production cuts. The average production

capacity in 2023 stood at 70%, a 4% decrease compared to 2022, putting the average AN price in 2023 at US\$ 1,266 per ton, down from 2022.

The methyl methacrylate (MMA) market remained sluggish and saw a global demand of approximately 3.6 million tons, representing a 0.9% decline, as the economic outlook dampened the recovery of MMA demand in downstream industries, such as automotive, electronics, and construction. On the supply side, the MMA supply stood at 6.1 million tons, which indicated an oversupply as with AN. Due to the excess supply, the average MMA production capacity rate was at 58%, a 5% decrease from 2022, while the average price in 2023 stood at US\$ 1,542 per ton, declining from 2022.

Market Forecast for 2024

As for the PTA market in 2024, the demand is projected to rebound gradually from less than 3% in 2023 to 4-5% in 2024, driven by economic activities around the world, especially when trade and tourism, among other areas, bounced back to the usual level, particularly in the second half of the year. The addition of new production capacity for PTA is projected to slow down from over 10 million tons per year in 2023 to 7-8 million tons per year in 2024. As such, the price and spread are predicted to surge beyond US\$ 100 per ton once again.

The PO market in 2024 will likely be supported by an increase in demand of 0.26 million tons per year and the overall economic outlook, which is anticipated to gradually improve in the second half of the year. The oversupply will also slowly subside as the capacity expansion rate drops compared to 2023, with 1.9 million tons per year from China, 0.2 million tons per year from the U.S., and 0.2 million tons per year from other countries. Thanks to the decrease in new capacities, the overall market will likely be elevated relative to 2023.

As for the AN market in 2024, the demand will be at a similar level as in 2023 due to concerns over the economy and inflation. In addition, the Russia-Ukraine conflict will likely impact the recovery of downstream products, such as ABS, AF, and NBL, all of which have AN as a feedstock. On the supply side, the oversupply

may persist. However, if no new capacities are added in 2024, producers will be prompted to increase output compared from 2023. As the oversupply is beginning to abate, AN prices are expected to trend upward.

For the MMA market in 2024, the demand will increase only 0.2 million tons from 2023 to 3.8 million tons. As MMA products in downstream industries, such as PMMA, T-plastic, cast sheet production, paint and emulsion, will not yet see a rebound, manufacturers will be required to maintain a production rate of approximately 56%, a slight dip from 58% in 2023. The market will also be pressured by continued oversupply due to an increase in production capacity from several players in China, which will amount to 0.4 million tons per year combined. As production will likely be maintained at a suitable level to preserve profitability, the MMA price is expected to trend upward.

Market Overview – Polymers & Chemicals

Polymers

Market Overview in 2023

The overall polymer market experienced a reduced impact from the COVID-19 pandemic as the World Health Organization declared it was no longer a global public health emergency and many countries lifted travel restrictions and fully reopened, all of which contributed to polymer demand. In addition, polymer prices were bolstered by a continuous rise in feedstock prices as major oil-producing countries, namely Saudi Arabia and Russia, announce a reduction in crude oil production. However, the market still faced pressure from high inflation rates and an economic recession as well as an oversupply resulting from increased production capacity, especially in Asia.

As a result of these economic factors, the overall polyethylene (PE) market in 2023 weakened slightly from 2022. The global demand saw an increase of 1.7 million tons, or only 1.4% relative to 2022, to 116.6 million tons, with the U.S. demand being the most affected by the economic recession, sliding around 0.4 million tons. The PE production capacity rose 7 million tons to 147.4 million tons, a 4.9% uptick

compared to 2022. As a result of these factors, the spreads between HDPE, LLDPE, LDPE and naphtha in 2023 were US\$ 394, 364, and 392 per ton, weakening by US\$ 24, 59, and 251 per ton from 2022, respectively.

The polypropylene (PP) market faced continued pressure from various geopolitical conflicts, steadily rising inflation rates, and the economic recession, all of which led to crude oil price volatility. This was further compounded by China's self-sufficiency policy, environmental problems, and climate change, causing PE prices in the region to see a significant decline, with the average PP Homo Injection CFR SEA price standing at approximately US\$ 1,000 per ton. In addition, the price of the primary feedstock was driven up by rising crude oil and energy prices. Therefore, the average PP-naphtha spread in Q3/2023 slipped to around US\$ 300 per ton in comparison to US\$ 340 per ton in 2023 and US\$ 400 per ton in 2022.

The polyethylene terephthalate (PET) market in 2023 was adversely impacted by the economic slowdown, as was the demand for commodity goods and for PET products, which served as primary packaging. On the supply side, the market faced pressured from a series of added capacities from China totaling over 5 million tons per year following the easing of the COVID-19 pandemic. As a result, the P2F spread decreased by US\$ 86 per ton to US\$ 88 per ton from 2022, while the average PET price was US\$ 925 per ton, sliding by US\$ 172 per ton compared to 2022.

The polystyrene (PS) market in 2023 slumped further than in 2022. General purpose polystyrene (GPPS), used in food packaging, continued to see steady demand as consumers turned more towards take-home meals and food deliveries. However, demand for high-impact polystyrene (HIPS), used in electrical appliances and electronic devices, experienced a slowdown due to diminishing purchasing power among consumers. Overall, global PS demand slid by 0.3 million tons to 10.69 million tons, or a 2.5% decrease, while PS production capacity surged by 0.9 million tons to 16.6 million tons, or 5.4%. The spread between PS and styrene monomer, its feedstock, in 2023 was US\$ 158 per ton, declining by US\$ 87 per ton. The GPPS price per ton in 2023 stood at US\$ 1,215 per ton, or a US\$ 255 per ton decline, while the HIPS price lowered by US\$ 255 per ton to US\$ 1,311 per ton compared to 2022.

Market Forecast for 2024

The overall polymer demand is expected to see a recovery, driven by economic stimulus packages by different countries, led by large economies like the U.S. and China. At the same time, the market will remain volatile and pressured by the global economic recession, geopolitical risk, and a continuous increase in new capacities.

PE demand in 2023 is expected to increase by 3.5 million tons, or 3%, to 120.2 million tons, driven by the economic stimulus measures of different countries around the world. However, the economic recession and the monetary policies implemented by central banks around the world to manage inflation, as well as geopolitical uncertainties in Europe and the Middle East, will continue to exert pressure on the market. An additional 2.0 million tons of new production capacity is also expected from China, India, and the U.S. However, as the global economy is projected to rebound in the second half in half of 2024, the PE-naphtha spread will likely be driven up compared to 2023.

As for PP, demand is expected to rebound in the latter half of 2024 due to better inflation control as well as economic stimulus packages issued by each country, which will cause the regional PP supply to slowly improve. As such the PP-naphtha spread will likely trend upward in the second half of 2024 compared to late 2023.

Global PET demand is projected to grow by about 1 million tons to 28.6 million tons per year as it is used in the main packaging for commodity goods and the economy is expected to recover. However, as the demand is outstripped by the supply, the market will likely face continued pressure from new capacity in 2023, but will also have a more positive outlook as there will lower added capacity. As a result of these factors, a shift in the price and spread relative to 2023 is expected.

Global PS demand is anticipated to rise by approximately 0.2 million tons to 10.88 million tons per year, while the output is expected to increase primarily due to China to about 1 million tons per year from 16.6 million tons in 2023. As the increased output continue to outstrip the demand, PS prices will be adversely

affected by the economic recession as will PE prices and shift in line with the price of styrene monomer, its feedstock, as they did in 2023. However, as the styrene monomer price is projected to decrease, the spread between general purpose polystyrene (GPPS) and styrene monomer will trend upwards in comparison to 2023.

Chemicals

Market Overview in 2023

The ethanolamine (EA) market faced pressure from economic factors like other petrochemicals, leading to stunted demand, particularly in construction, which was among the main consumer of EA. On the other hand, the supply was negatively impacted by the continuous expansion of production capacity, with 0.35 million tons per year added in 2023 or 12% of the existing capacity. The average reference market price in China for EA in 2023 was US\$ 989 per ton, declining US\$ 220 per ton from 2022.

The polyether polyols (PPG) market in 2023 saw global demand surge from 2022 by approximately 2.4% to 8.6 million tons. Demand for PPG, used in the production of polyurethane for use in downstream industries, such as automotive, construction, and household appliances, slowed down as a result of the global economic condition, prompting PPG producers with lower production costs to direct their products to India and countries in Southeast Asia. The production capacity rose 0.3 million tons per year in total. As a result of these factors, the average PPG price in 2023 was US\$ 1,366 per ton, sliding US\$ 290 per ton compared to 2022.

Market Forecast for 2024

The EA market in 2024 will continue to a capacity expansion of approximately 0.1 million tons, or 3% of the total capacity. While the added capacity in 2024 is lower than its 2023 counterpart, as the market is relatively small and the demand growth is limited by economic factors, it will take some time for the demand to keep pace with the surge in supply between 2023-2024. As such, the EA price in 2024 is projected to dip slightly compared to 2023.

PPG demand in 2024 is projected to face a continued slump in the first half of the year and will gradually rebound in mid to late 2024 thanks to the recovery of the economy, which will drive up the demand in the automotive, bedding, furniture, electrical appliance, and electronics industries. The demand is expected to increase by approximately 315,000 tons from 2023. On the other hand, commercial operations in China scheduled to commence in 2024 will add 130,000 million tons to the production capacity. With these factors combined, the average PPG price in 2024 is expected to increase slightly compared to 2023.

Market Overview – Bio & Circularity

Bioplastics and Biochemicals

Market Overview in 2023

PLA demand saw a decline in 2023 due to the economic slowdown, which affected green packaging consumption in the countries of end-users and prompted some customers to cut their production output in Q1. In addition, the plastic waste management policies of certain countries, such as E.U. countries, remained unclear, causing customers to hesitate to develop bioplastic packaging. Meanwhile, in countries with clear policies supporting the use of bioplastic, such as China, the market saw rapid and steady growth, leading to significant expansion of production capacity in 2023. This resulted in intense competition and short-term price pressures, especially in products used in food packaging and food serviceware.

With regard to production costs, the price of field corn, its feedstock, in the United States increased due to unfavorable weather conditions, leading to lower yields. As a result, the supply of U.S. field corn was lower than anticipated. Additionally, corn exports from Ukraine were halted in Q3, causing the price of corn, a primary feedstock, to rise.

The BioPBS market in 2023 experienced a slowdown due to the economic condition, which prompted brand owners to defer their decision to adopt BioPBS. At the same time, more producers of PBS and other substitute products from China were beginning to market their products among BioPBS customers.

Market Forecast for 2024

The PLA market in 2024 will see feedstock prices, especially for corn, trend downward from the 2023 level as the United States Department of Agriculture has anticipated its corn yields to increase from the previous year, which will have a positive impact on the cost.

The overall bioplastic market is projected to show improvements compared to the previous year, attributable to the expected economic recovery in 2024, coupled with the positive impact of clear packaging policies and the EU Packaging and Packaging Waste Directive, which promote the use of compostable plastics. However, a return to normal market conditions is expected to take 1-2 more years. In addition, with the increasing environmental awareness and consciousness, the global market for these products is anticipated to enjoy a steady growth in the long term, driven particularly by the rising demand from emerging economies and various countries' policies encouraging the use of bioplastics as a substitute for petrochemical-based plastics. Also contributing to this growth will be advancements in bioplastic development, allowing bioplastics to be utilized by a more diverse range of industries to cater to eco-conscious consumers.

Post-Consumer Recycled (PCR)

Market Overview in 2023

The PCR market in 2023 enjoyed a positive impact from increased demand due to the sustainability policies implemented by end-product manufacturers, especially among producers of food and beverages who relied in PCR PET as feedstock, to achieve their 25-30% PCR utilization targets by 2025. However, the economic recession across various regions prompted downstream manufacturers to delay their decision to adopt PCR HDPE for packaging production as it involved higher costs. As a result of these factors, the global PCR PET demand surged by 1 million tons to 9.6 million tons, representing a 12% increase, while the global demand for PCR HDPE rose only by 0.2 million tons to 6 million, or 3.5% from 2022. As such, the overall PCR demand in 2023 grew less than projected.

Market Forecast for 2024

The PCR market in the first half of 2024 will continue to face pressure from the economic slowdown in various regions, particularly in Europe and the United States, affecting the price competition in such regions. For the Southeast Asian market, as the market itself as well as the development of PCR mandates are still in the inchoate state, the growth in demand will likely be moderate. In addition, GC has projected increased competition in the food and beverage market that utilizes PCR PET, as other competitors in Thailand have gradually obtained certification from the Food and Drug Administration (Thai FDA). As for PCR HDPE, for which the demand is primarily tied to commodity goods, plans to utilize it in place of virgin resin are still shrouded in uncertainties. Therefore, the demand is projected to see moderate growth in Southeast Asia, and the product must instead be exported to other regions, such as Europe, the U.S., the Middle East, and India.

Value Added Oleochemicals (VAO)

Market Overview in 2023

The methyl ester (ME) market in 2023 improved from the previous year, with the demand rising by 0.2 million tons to approximately 1.39 million tons per year. The upswing could be attributed primarily to the government's policy to maintain the biodiesel blending ratio at B7 throughout the year. However, as the biodiesel demand continued to be depressed by a slump in economic activities in line with the global economy, the domestic consumption of high-speed diesel fell 3% year-on-year, while the production capacity saw a slight increase due to an addition of approximately 115,000 tons per year in output by other players, intensifying the competition. The overall utilization rate of the industry in 2023 stood at 40-45%, while the domestic ME price slid to 39.22 baht per kilogram, a 14.39 baht per kilogram decrease, due to falling domestic prices and the restructured ME price scheme stipulated by the Energy Policy and Planning Office (EPPO), the Ministry of Energy, which came into effect on October 3, 2022.

The fatty alcohols (FA) demand in 2023 improved slightly relative to the previous year, primarily attributed to a post-COVID-19 recovery. However, the overall market remained volatile, especially in China, where economic activities still did not rebound to the anticipated level, while customers in India delayed purchases as the government imposed countervailing duties (CVD) of 3-30% on imports from Indonesia, Malaysia, and Thailand. In addition, there were vulnerabilities resulting from the global economic recession, inflation, and geopolitical tensions, which impacted the confidence of market players and caused them to become more cautious in their purchasing decisions and purchase only as necessary for each use. On the supply side, no domestic market obligations (DMO) restricting or prohibiting palm oil exports were announced by major producers like Indonesia as in the previous year. Although some producers had halted their production, the overall supply for fatty alcohols improved due to the fact that a number of fatty acid manufacturers had shifted their production lines to fatty alcohols. The average fatty alcohol price fell considerably from the previous year from approximately US\$ 2,335 per ton to US\$ 1,467 per ton, representing a US\$ 868 per ton decrease, attributable to the decline in crude palm kernel oil (CPKO) prices, which dropped in line with the economic slowdown.

As for the fatty alcohol ethoxylate market, the demand experienced a slowdown compared to the previous year. In the first half of 2023, the demand saw an increase during Q1 due to concerns over feedstock costs but began to show a clear slowdown as the feedstock prices weakened in Q2. However, the demand in the latter half of the year recovered as the prices of its feedstocks – fatty alcohols and ethylene oxide – surged. On the other hand, the supply dwindled due to the annual turnarounds of some major producers in Q3 and an economic slump in China, which prompted Chinese manufacturers to begin exporting SLES (sodium lauryl ether sulfate) to create alternative sales channels, resulting in price interference and affecting the demand for upstream products, such as fatty alcohol ethoxylate. As a result, the price of fatty alcohol ethoxylate in 2023 slid by US\$ 442 per tons, or 23%, from the previous year to US\$ 1,448 per ton.

The oleochemicals market in 2023 saw a decline in demand, attributable to an economic and production slowdown in various regions, which resulted in delayed raw material orders and the downward adjustment of inventory levels throughout the supply chain.

Market Forecast for 2024

The ME market in 2024 is expected to see a 4% uptick in demand. Starting from January 1, 2024, the EURO 5 diesel will be enforced to enhance emission control and reduce particulate matter from diesel engines. It is anticipated that Thailand will continue to maintain a B7 biodiesel blending ratio as the fundamental oil throughout the year. Additionally, the market will be buoyed by various economic stimulus policies from the government, while the market supply will stabilize due to the absence of expansion plans from domestic producers. As a result, the ME price in 2024 will show a slight improvement in line with crude palm oil prices in the country.

Demand for fatty alcohols in 2024 will likely improve slightly, primarily due to the global economic recovery, which will prompt most buyers to increase their purchase volumes to restock their inventories. Meanwhile, the overall supply in the industry will likely trend upward, driven by the plans of fatty alcohol producers in Indonesia to expand the production capacity by 140,000 tons per year while other manufacturers have no plans to halt production. However, the prices of fatty alcohols are expected to increase in line with the anticipated surge in palm kernel oil prices driven by a decline in domestic and international supply, echoing the trend of the reference price of the Malaysian Palm Oil Board (MPOB).

The fatty alcohol ethoxylate market will likely rally, driven by the increase in the number of tourists, private consumption, and political stability in Asia. Demand for home and personal care (HPC) products, agrochemicals, and chemicals related to EV production will see higher growth rates, while demand for textile chemicals, paper chemicals, and construction chemicals is anticipated to slow down due to the fragile global economic condition. However, economic

challenges in China and the United States will likely drive down domestic demand and potentially push the supply of chemicals and other products towards international markets. Additionally, drought will drive up the costs of agricultural products, which may dampen the demand for natural and renewable feedstocks and prompt downstream producers to delay their decision to transition to or adopt fatty alcohol ethoxylate products derived from natural sources (fatty alcohols derived from plant oils) in the development of new products or their current production in order to reduce feedstock costs and gain a competitive edge.

Demand for basic oleochemicals and specialty oleochemicals are expected to grow compared to 2023 as every region sees an economic recovery and customers are beginning to normalize their inventory levels.

Market Overview – Performance Chemicals

Market Overview in 2023

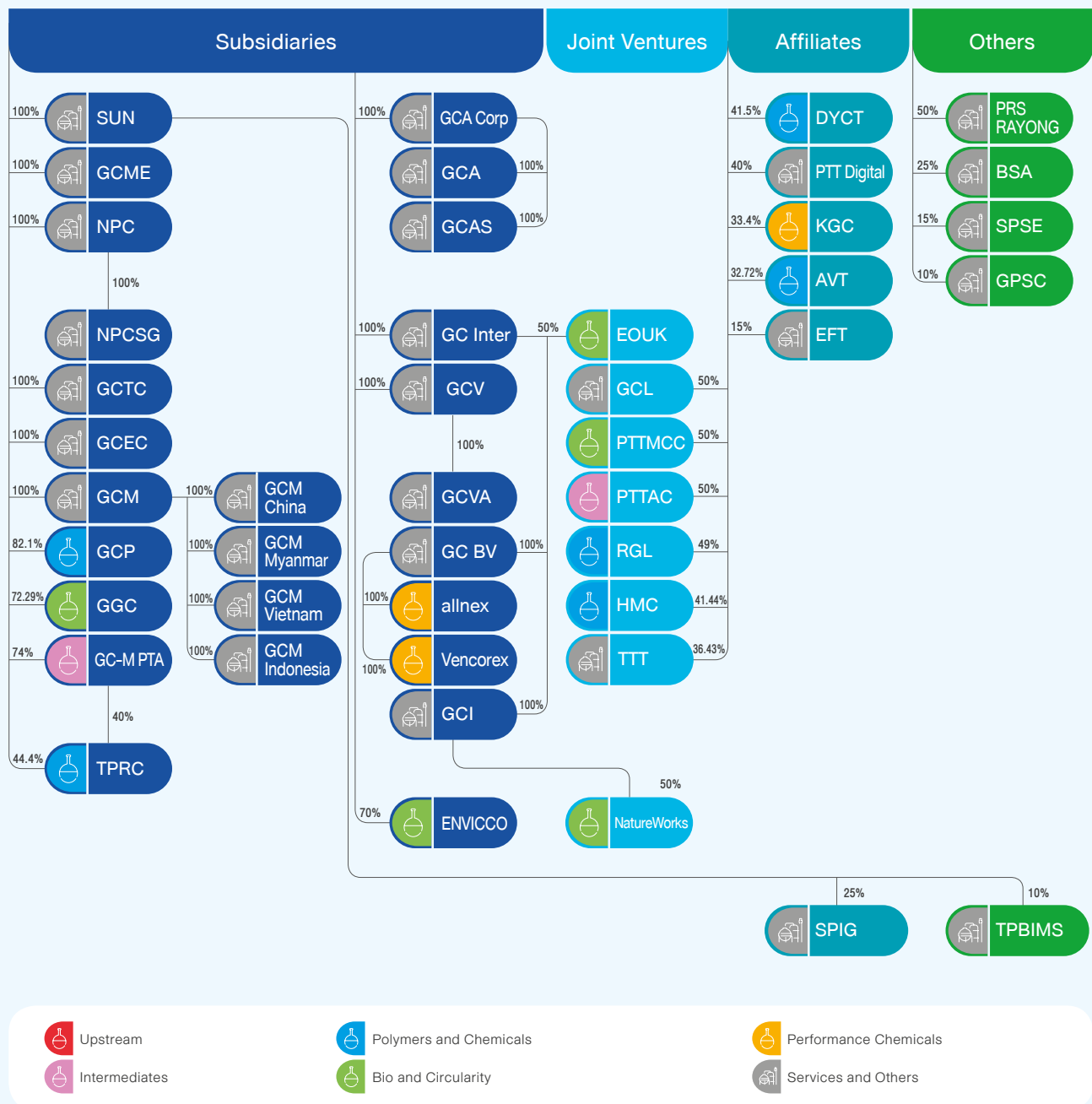
Demand for coating resins, hexamethylene diisocyanate (HDI), and HDI derivatives in Q1/2023 stabilized to the same level as in Q4/2022 due to a macroeconomic slump and a slowdown in other industries, coupled with the fact that demand in Asia, especially in China, had not returned to the normal level. However, there were signs of a slight recovery in the remaining quarters of 2023, driven by positive signals in some downstream industries, such as the automotive sector. However, the overall economic recovery was not as robust as anticipated, keeping the demand for these products lower than the overall level seen in 2022. The economic slowdown also exerted pressure on the market for specialty polyamide (PA9T) and high-performance thermoplastic elastomers (HSBC) products, which commenced commercial production in Q1/2023.

Market Forecast for 2024

Demand for coating resins, HDI, HDI derivatives, PA9T, and HSBC is projected to trend upward compared to 2023 and will see higher growth rates than the overall GDP. The recovery rate of the business will depend on the rebound of the downstream industries, such as the automotive industry. However, fiercer price competition is projected, especially from manufacturers in the Asian region with lower production costs.



Shareholding Structure in Subsidiaries and Affiliates



Remarks: Significant change in the shareholding structure in subsidiaries and affiliates from January 1st to December 31st, 2023

- March 31st, 2023 : PTT Phenol Co.,Ltd. (Phenol) and GC Oxirane Co.,Ltd. (GCO) have already registered their dissolutions.
- September 5th, 2023 : PTTGC Innovation America Corporation (GCI) changed the company's name to GC America Sustainability Corporation (GCAS) and PTTGC America Corporation (GCA Corp) currently hold 100% share of GCAS.
- December 20th, 2023 : GC sold 50% of shares in GC Logistics Solutions Company Limited (GCL) to WHA Venture Holding Company Limited (WHAHV). As a result, GC currently holds 50% of GCL shares and changed from subsidiary company to joint venture company.
- In 2024, GCM Polymer Trading DMCC will file for company dissolution.

Abbreviation	
SUN	Solution Creation Company Limited
GCME	GC Maintenance and Engineering Company Limited
NPC	NPC Safety and Environmental Service Company Limited
NPCSG	NPC S&E Security Guard Company Limited
GCTC	GC Treasury Center Company Limited
GCEC	GC Estate Company Limited
GCM	GC Marketing Solutions Company Limited
GCM China	GC Marketing Solutions (Shanghai) Company Limited
GCM Myanmar	GC Marketing Solutions Myanmar Company Limited
GCM Vietnam	GC Marketing Solutions Vietnam Company Limited
GCM Indonesia	PT GCM Marketing Solutions Indonesia
GCP	GC Polyols Company Limited
GGC	Global Green Chemicals Public Company Limited
GC-M PTA	GC-M PTA Company Limited
TPRC	Thai PET Resin Company Limited
GCA Corp	PTTGC America Corporation
GCA	PTTGC America LLC
GCAS	GC America Sustainability Corporation
GC Inter	PTTGC International Private Limited
GCV	GC Ventures Company Limited
GCVA	GC Ventures America Corporation
GC BV	PTTGC International (Netherlands) B.V.
allnex	allnex Holding GmbH
Vencorex	Vencorex Holding
GCI	GC International Corporation
ENVICCO	ENVICCO Limited

Joint Ventures	
EOUK	Emery Oleochemicals UK Limited
GCL	GC Logistics Solutions Company Limited
PTTMCC	PTT MCC Biochem Company Limited
PTTAC	PTT Asahi Chemical Company Limited
RGL	Revolve Group Limited
HMC	HMC Polymers Company Limited
TTT	Thai Tank Terminal Limited
NatureWorks	NatureWorks LLC

Affiliates	
DYCT	Dynachisso Thai Co., Ltd.
PTT Digital	PTT Digital Solutions Company Limited
KGC	Kuraray GC Advanced Materials Company Limited
AVT	AGC Vinythai Public Company Limited
EFT	Eastern Fluid Transport Company Limited
SPIG	S.P. Petpack Inter Group Company Limited

Others	
PRS RAYONG	Pracharath Rak Samakkee Rayong (Social Enterprise) Company Limited
BSA	Business Services Alliance Company Limited
SPSE	Sarn Palung Social Enterprise Company Limited
GPSC	Global Power Synergy Public Company Limited
TPBIMS	TPBI & Myanmar Star Company Limited

Policy on Investment in Subsidiaries, Joint Ventures, Affiliates, and Other Companies

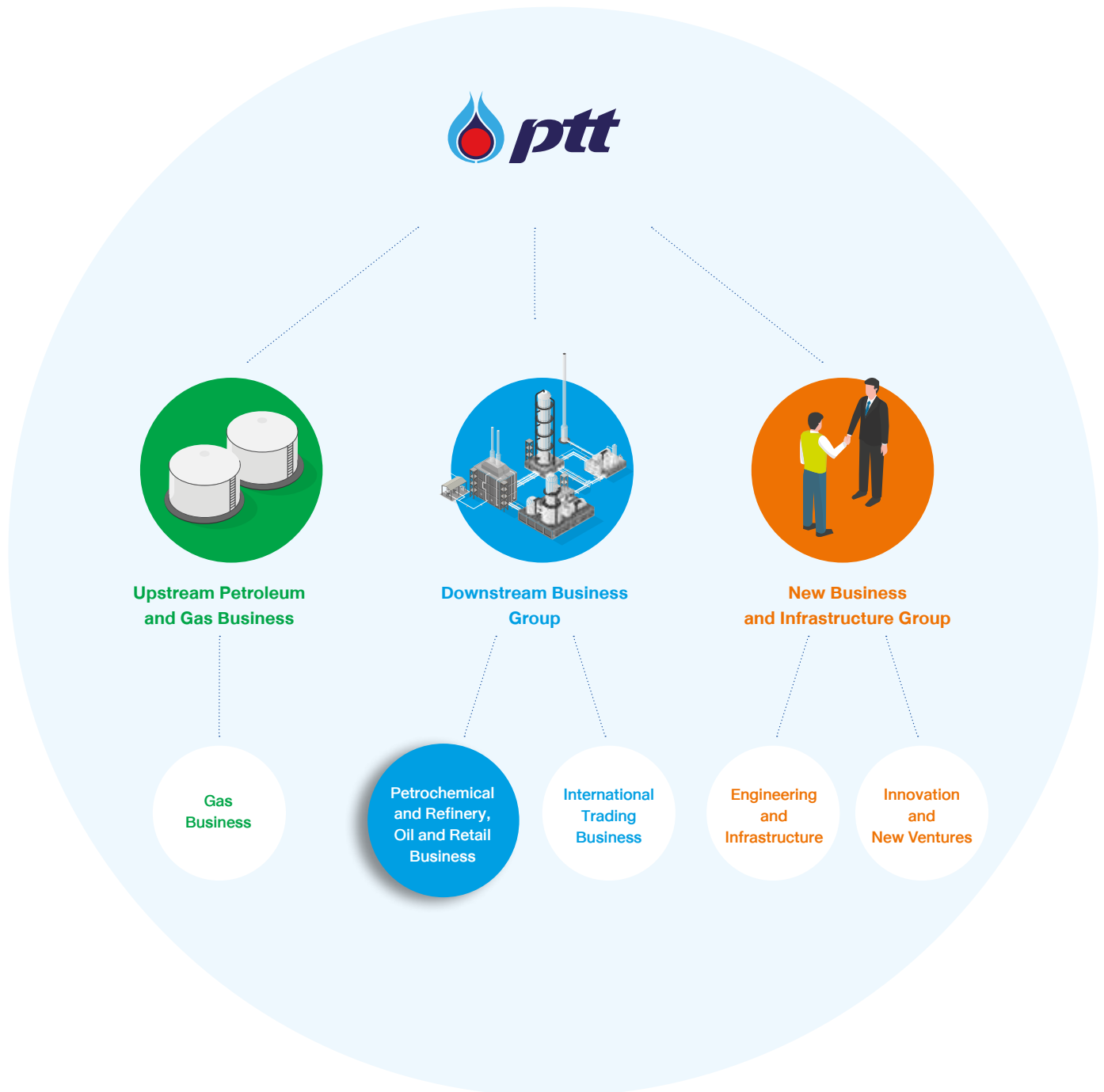
As a policy, GC invests in subsidiaries, joint ventures, affiliates, and others to support and promote business growth. To ensure governance, GC appoints its Executives to the board of subsidiaries and assigns its representatives to serve as Directors in subsidiaries, ventures, affiliates, and others.

The presence of GC's representatives as Directors or Executives in subsidiaries, ventures, affiliates, and others enables it to participate in policymaking, stay informed, and periodically monitor performance. Any activity that may have a significant impact on GC must be approved by the Board of Directors first.

Relations with the Major Shareholder's Business Groups

GC is part of the Petrochemicals and Refining Business Group under the Downstream Petroleum Business Group of PTT Public Company Limited, as shown in the charts below, which show PTT's management structure, subsidiaries, and shareholding by business group respectively.

PTT's Management Structure



PTT is a fully integrated national petroleum and petrochemical company with the mission to ensure national energy security, economic prosperity, and organization sustainability in parallel with socio-environmental stewardship.

PTT operates its own businesses as well as operates through its subsidiaries. Its business structure and relations are as detailed below.

PTT Group's Subsidiaries and Shareholding by Business Unit

Upstream Petroleum and Gas Business Group

Gas Business

- Supply and Distribution
- Gas Separation Plant
- Distribution Pipeline
- NGV
- Commercial and Marketing Management

Gas Transmission Business

PTT LNG Co., Ltd. (PTTLNG)	100.00%
PTT Exploration and Production Plc. (PTTEP) ^{1/}	63.79%
PTT Natural Gas Distribution Co., Ltd. (PTTNGD) ^{3/}	58.00%
Trans Thai-Malaysia (Thailand) Co., Ltd. (TTM(T)) ^{3/}	50.00%
Trans Thai-Malaysia (Malaysia) Sdn. Bhd. (TTM(M)) ^{3/}	50.00%
Map Ta Phut Air Products Co., Ltd. (MAP) ^{3/}	49.00%

International Investment Business

PTT Energy Resources Co., Ltd. (PTTER)	100.00%
PTT Green Energy Pte. Ltd. (PTTGE)	100.00%
PTT Global Management Co., Ltd. (PTTGM)	100.00%

Own Operations

Investment in PTT Group

Downstream Petroleum Business Group

International Trading Business

- Crude oil and condensate
- Refined oil product and LPG
- LNG and alternative products
- Petrochemical product, chemical and solvent
- Derivatives
- International Chartering

PTT International Trading Pte. Ltd. (PTTT)	100.00%
PTT International Trading London Ltd. (PTTT LDN)	100.00%
PTT International Trading USA Inc. (PTTT USA)	100.00%

Petrochemical and Refining Business

PTT Global Chemical Plc. (GC) ^{1/}	45.18%
Thai Oil Plc. (TOP) ^{1/}	45.03%
IRPC Plc. (IRPC) ^{1/}	45.05%
PTT Tank Terminal Co., Ltd. (PTT TANK)	100.00%

Oil and Retail Business

PTT Oil and Retail Business Plc. (OR) ^{1/}	75.00%
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New Business and Infrastructure Business Group

- Innovation and New Ventures
- Engineering and Project Management
- Innovation Institute

Energy Complex Co., Ltd. (EnCo)	50.00%
PTT Energy Solutions Co., Ltd. (PTTES)	40.00%
Global Power Synergy Plc. (GPSC) ^{1/}	47.27%
District Cooling System and Power Plant Co., Ltd. (DCAP)	35.00%
PTT Digital Solutions Co., Ltd. (PTT DIGITAL)	20.00%
VISUP Company Limited (VISUP)	22.22%
InnoSpace (Thailand) Co., Ltd. (InnoSpace)	13.61%
HG Robotics Co., Ltd. (HG ROBOTICS)	9.47%
Baania (Thailand) Co., Ltd. (Baania)	2.63%
Sunfolding, Inc. (Sunfolding)	5.81%
Luminar Technologies, Inc. (Luminar)	0.08%
Ample, Inc. (Ample)	1.13%
Shenzhen Immotor Technology Co., Ltd. (Immotor)	3.05%
NTG Holdings Pte. Ltd. (NT)	14.22%
6K, Inc. (6K)	1.30%
CHCJ EQ LLC. (CHCJ)	43.73%

Other Businesses

PTT Treasury Center Co., Ltd. (PTT TCC)	100.00%
Business Services Alliance Co., Ltd. (BSA) ^{2/}	25.00%
Sarn Palung Social Enterprise Co., Ltd. (SPSE)	20.00%
Dhipaya Group Holdings Plc. (TIPH) ^{1/}	13.46%
Veolia Sustainable Solution (Thailand) Co., Ltd. (VSS)	40.00%

Remarks:

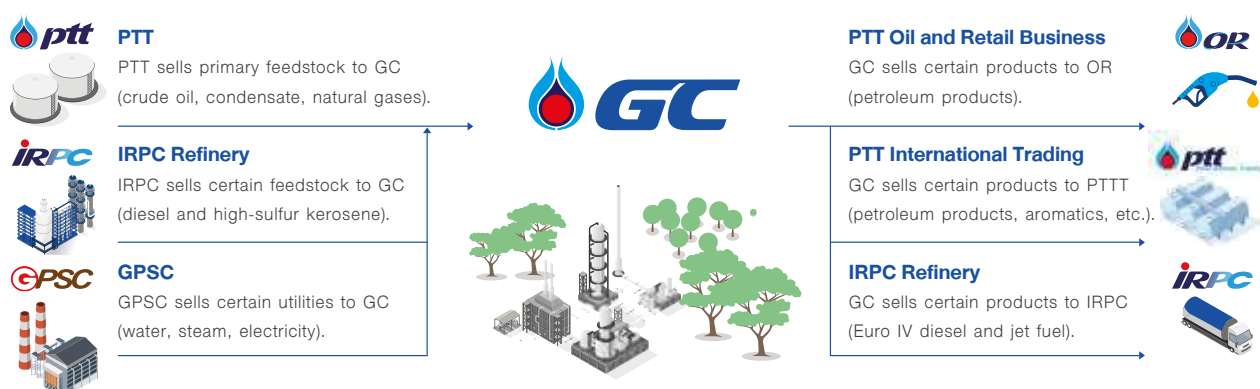
Information as of December 31, 2023. (All figures are presented by PTT's portion.)

^{1/} These 7 listed companies registered in The Stock Exchange of Thailand.

^{2/} BSA is a wholly owned subsidiary as PTT holds all common shares of BSA.

^{3/} Shareholding in these subsidiaries is a joint investment in other businesses. Details are in Supplements to 56-1 One Report of PTT Public Company Limited for the year 2023.

The chart below shows major relations between GC and other companies under PTT Group with significant connection to GC's main businesses.



Shareholder Structure

(a) The list of top 10 major shareholders as at the book closure date of February 28, 2023 is as follows:

No.	Shareholder	Number of shares	Percentage
1.	PTT Public Company Limited ⁽¹⁾	2,037,220,915	45.18
2.	Thai NVDR Company Limited ⁽²⁾	344,333,936	7.64
3.	Siam Management Holding Company Limited	135,240,000	3.00
4.	SOUTH EAST ASIA UK (TYPE C) NOMINEES LIMITED	96,311,037	2.14
5.	HMC Polymers Company Limited ⁽³⁾	83,427,636	1.85
6.	STATE STREET EUROPE LIMITED	57,737,901	1.28
7.	Social Security Office	57,006,771	1.26
8.	THE BANK OF NEW YORK MELLON	51,280,980	1.14
9.	NORTRUST NOMINEES LIMITED-NT0 SEC LENDING THAILAND CL AC	46,100,682	1.02
10.	BANGKOK SYNTHETICS Company Limited	43,420,625	0.96

Remarks:

⁽¹⁾ Majority shareholder of PTT Public Company Limited is Ministry of Finance.

⁽²⁾ Shareholders of Thai NVDR Company Limited holding Non-Voting Depository Receipt (NVDR) are ineligible to vote at shareholders' meetings except when exercising their voting right on delisting the shares from the Stock Exchange of Thailand.

⁽³⁾ GC holds 41.44% of shares of HMC Polymers Company Limited.

(b) As of December 28, 2023, the major shareholders with significant influence on GC's policy establishment or operations are PTT Group, holding 45.18% of shares of GC.

(c) Foreign Shareholders

As of December 28, 2023, there are 18 foreign shareholders of GC, holding a combined of 503,559,192 shares of GC or 11.17% of GC's paid-up capital.

GC has a restriction on foreign shareholding as specified in Article 8 of GC's Articles of Association, which states that "GC's shares can be transferred without any restriction, except in the case where the said transfer would result in more than thirty-seven (37) percent of the Company's total paid-up shares being held by foreigners".



Securities

As of December 31, 2023, GC's registered capital totaled Baht 45,088,491,170, consisting of 4,508,849,117 common shares at the par value of Baht 10. GC's paid-up capital totaled Baht 45,088,491,170.

Issuance of Other Securities

Bonds

GC issued the following long-term bonds:

US Dollar Debentures

- On March 18, 2021, GC Treasury Center Co., Ltd., a subsidiary of GC, issued and offered unsubordinated and unsecured debentures in US dollar, consisting of:
 - 10-year debenture due March 18, 2031, with a fixed coupon rate of Baht 2.98 per year, paid every six months throughout the term, worth USD 700 million
 - 30-year debenture due March 18, 2051, with a fixed coupon rate of Baht 4.30 per year, paid every six months throughout the term, worth USD 550 million
- On March 30, 2022, GC Treasury Center Co., Ltd., a subsidiary of GC, issued and offered unsubordinated and unsecured debentures in US dollar, consisting of:
 - 10-year debenture due March 30, 2032, with a fixed coupon rate of Baht 4.40 per year, paid every six months throughout the term, worth USD 1,000 million
 - 30-year debenture due March 30, 2052, with a fixed coupon rate of Baht 5.20 per year, paid every six months throughout the term, worth USD 300 million
- In 2023, GC Treasury Center Co., Ltd. conducted USD bond buybacks, as detailed below.

Unit: million USD

Debenture	Issue Date	Issue Amount	Buyback Amount	Outstanding Amount
1. 10-year debenture	March 18, 2021	700	70	630
2. 30-year debenture	March 18, 2021	550	24.837	525.163
3. 10-year debenture	March 30, 2022	1,000	200	800
4. 30-year debenture	March 30, 2022	300	60	240
Total		2,550	354.837	2,195.163

Baht Debentures

GC has 15 series of unredeemed, unsecured, unsubordinated domestic debentures, with the total issue amount of Baht 90,000 million, as detailed below.

Symbol	Unredeemed Amount (Million Baht)	Annual Coupon Rate (%)	Maturity Date	Maturity (Year)	Credit Rating (Fitch Ratings)
PTTGC248A PO	10,000	2.90	August 22, 2024	5 years	AA(thai)
PTTGC249A II	1,500	2.20	September 5, 2024	5 years	AA(thai)
PTTGC269A II	7,000	2.43	September 5, 2026	7 years	AA(thai)
PTTGC299A II	1,500	2.75	September 5, 2029	10 years	AA(thai)
PTTGC274A II/HNW	1,530	2.60	April 8, 2027	7 years	AA(thai)
PTTGC304A II/HNW	3,310	2.99	April 8, 2030	10 years	AA(thai)
PTTGC324A II/HNW	4,360	3.29	April 8, 2032	12 years	AA(thai)
PTTGC354A II/HNW	5,800	3.50	April 8, 2035	15 years	AA(thai)
PTTGC271A II/HNW	14,000	2.13	January 25, 2027	5 years	AA(thai)
PTTGC291A II/HNW	2,000	2.65	January 25, 2029	7 years	AA(thai)
PTTGC321A II/HNW	2,000	3.05	January 25, 2032	10 years	AA(thai)
PTTGC341A II/HNW	12,000	3.29	January 25, 2034	12 years	AA(thai)
PTTGC276A II/HNW	5,000	3.21	June 15, 2027	5 years	AA(thai)
PTTGC346A II/HNW	3,000	4.00	June 15, 2034	12 years	AA(thai)
PTTGC296A PO	17,000	3.50	June 30, 2029	7 years	AA(thai)

The following are ratings from various credit rating agencies.

Credit Rating Agency (International Rating)	MOODY'S	S&P Global	FitchRatings
Credit Rating	Baa3	BBB	BBB
Latest Date of Credit Rating Review	August 23, 2023	June 27, 2023	January 26, 2024

Credit Rating Agency (National Rating)	FitchRatings
Credit Rating	AA (thai)
Latest Date of Credit Rating Review	September 27, 2023

Dividend Payment Policy

PTT Global Chemical Public Company Limited

The Board of Directors Meeting No. 1/2011, held on October 19, 2011, resolved that the dividend payment policy of the Company is “to pay dividend at a rate of no less than 30% of net profit after tax and allocation to all reserve funds of the Company. Such dividend payment, however, is subject to the investment plan, other necessary and appropriate considerations in the future”.

Subsidiaries' Dividend Payment Policy

The dividend payment policy for GC's subsidiaries shall be considered and proposed by the Board of Directors of each subsidiary for approval at the Annual General Meeting of each subsidiary. The dividend payment of subsidiaries shall be calculated based on the investment plans and other requirements and considerations, such as the adequacy of cash flow of each subsidiary after deducting reserve funds in accordance with the law.

Dividend Payment

Year	Dividend Payout (Baht/Share)			Earnings per Share (Baht/Share)	Dividend Payout Ratio (%)
	1 st half	2 nd half	Full Year		
2023*	-	0.75	0.75	0.22	>200%
2022	0.75	0.25	1.00	(1.94)	56%
2021	2.00	1.75	3.75	10.01	37%
2020	-	1.00	1.00	0.04	>200%
2019	1.00	1.00	2.00	2.59	77%

Remark:

- * At the Board of Directors' meeting held on 12 February 2024, the Board approved to submit for approval at the Annual General Meeting of the Shareholders, a full year 2023 dividend payment at the rate of Baht 0.75 per share, amounting to Baht 3,382 million to the shareholders entitled to receive dividends. This dividend payment is subject to the approval of the Shareholders at the Annual General Meeting to be held on 9 April 2024.



Risk Management

Risk Management and Risk Factors

Risk Management

In 2023, GC faced various challenges amid the rapidly changing circumstantial factors, particularly global geopolitical conflicts and concerns over economic recession, which exerted pressure on both demand and supply and cause the overall profit margins for petrochemical products shrink further than in the past. However, GC implemented various measures to mitigate the impact on its operations and maintain liquidity, including cost reduction initiatives, investment prioritization, production and sales plan adjustment, and product portfolio realignment to suit the evolving market conditions. The goal was to ensure that GC could respond to diverse challenges in an effective and timely manner, minimize potential damage from arising risks, and secure business opportunities that would increase its competitiveness and create sustainable value for the business.

GC places utmost emphasis on risk and crisis management, which formed the foundation for sustainable business growth in the current situation. GC's risk management is based on the Committee of Sponsoring Organizations of the Treadway Commission (COSO)'s Enterprise Risk Management Framework, or ERM COSO (2017), the International Organization for Standardization (ISO)'s guidelines, or ISO 31000:2018, the Thai Corporate Governance Code for Listed Companies 2017, and its anti-corruption guidelines and commitment as a certified member of Thai Private Sector Collective Action Against Corruption (CAC). Furthermore, GC integrates its enterprise risk management system with policies, laws, regulations, and operational standards, encompassing governance, risk management and internal control, and compliance, or GRC for short, to ensure that GC has suitable risk management as well as adequate and effective enterprise-wide control systems, thus enabling the organization to achieve its strategic goals and various key objectives.

Risk Management Structure

GC's risk management is organized into three levels: corporate, business units, and operations. At the corporate level, the Board-appointed Risk Management Committee (RMC) is responsible for defining the direction of risk management guided by the risk appetite, risk policy, and five risk management frameworks: corporate, foreign exchange, price-and-spread, subsidiaries, and investment. It is also tasked with monitoring and providing recommendations on the management of risks towards the achievement of GC's strategic and business goals. The Enterprise Risk Management Committee (ERMC) is comprised of executive officers from each function responsible for regularly monitoring risk management progress to ensure alignment with the policies and risk management frameworks approved by the Risk Management Committee. In addition, GC requires all units to perform self-assessment of the adequacy of the internal control system using the Control Self-Assessment (CSA) and Operational Risk Management (ORM) tools for operational or process risk management to ensure compliance with the policies, objectives, risk appetite, and risk management frameworks approved by the Risk Management Committee.

For business-specific risks, GC has instituted either risk management at the business unit/function level or appointed special purpose committees to facilitate direct management and close monitoring of situations, including:

- **The Value Chain Management (VCM) Committee** is responsible for closely monitoring the market situation on a weekly basis and providing guidelines for managing risks related to product price and spread as well as exchange rate volatility in accordance with the risk management framework approved by the Risk Management Committee.

- **GC Group's Sustainable Development Committee (SDC)** is responsible for monitoring GC's sustainable development performance and management to ensure that GC has in place sustainability risk management guidelines that are sufficient and appropriate for both current and future business operations to achieve the goal of net zero carbon emission in the short, medium, and long term by 2050.
- **The Investment Committee (IC)** is responsible for overseeing and reviewing investment projects to ensure strategic alignment as well as risk assessment and the establishment of measures to manage projects.
- **PTTGC Group's Digital & IT Steering Committee (DISC)** is responsible for prescribing technology direction, goals, and strategies in alignment with GC Group's policies, direction, and business strategies.
- **Other key committees and working groups** include the GC Operational Excellence Committee, the Safety, Health, and Environment Governance Committee, the Information Safety and Security Committee, and the Water Management Working Group.

Risk Management Tools

GC has applied a variety of risk management tools to perform risk analysis, assessment, and monitoring, such as risk appetite, risk map, mitigation plan, and key risk indicators (KRI). Moreover, GC has applied the PESTEL Analysis Framework in monitoring the situation and trends of external factors as well as conducted scenario analysis to assess the impact of risks under various potential circumstances and establish response measures. GC also places importance on emerging risks that may affect the business in the short, medium, and long term so as to establish proactive risk management measures.

Risk Management Culture

GC strives to foster a risk management culture throughout the organization and expand outcomes towards integrated GRC management (Governance, Risk Management & Internal Control, and Compliance) through the following six components: governance, leadership, risk management structure, risk management techniques, and risk management communication and education. To this end, GC has developed a risk management structure that encompasses all levels and includes the monitoring and regular reporting of risk management performance to the management and the Board of Directors. Additionally, the roles and responsibilities and guidelines pertaining to the risk management activities of the Board of Directors, top executives, and employees are clearly determined to ensure suitability.

GC also seeks to promote a risk management culture across the organization by organizing activities and projects and by issuing regular communications on risk management, internal control systems, GC Group's Business Code of Conduct, and culture of good corporate governance through diverse channels, such as the intranet system, newsletters, short videos called "Hook Talk", which executives are required to regularly communicate to employees in internal meetings, and the GRC Day.

In 2023, GC held training for employees at all levels to continuously enhance GRC knowledge and foster the culture of GRC through lessons on its online learning platform, or UP Learning Platform. GC also held road shows to promote GRC culture and awareness and organized an Integrated Enterprise Risk Management training program led by experts for relevant personnel to foster risk management knowledge and understanding.

Risk Factors

GC is aware of both internal and external risk factors that may impact the business and has established risk management measures to mitigate potential effects and ensure that it is able to achieve its strategic goals. Corporate risk factors are categorized into three groups, as summarized in the table below.

Business-as-Usual Risk

Risk Factor	Key Risk Management Measures
<div>  </div> <p>Operational and Safety Risk</p> <p>As GC's core business is in large-scale chemical plants and refineries, occupational health and safety, operational regulations and standards, a plant's production stability, as well as energy efficiency and production costs per unit are all key factors in its business operation that impact its competitiveness. GC is committed to enhancing its operational excellence with the goal of placing itself in the 1st quartile in terms of the safety and production stability of its plants to ensure reliability and continuity and prevent unplanned shutdowns.</p>	<ul style="list-style-type: none"> — Improve Process Safety Management (PSM) to meet international standards by requiring safety risk assessment using Bowtie assessment and Bowtie barrier validation; by monitoring PSM leading indicators on a regular basis to verify the readiness of major accident prevention and control systems in all plants; as well as by undertaking production safety management assessments by internal and external assessors. — Establish standards and encourage personnel to utilize field risk assessment (FRA) tools to indicate dangers as well as assess and manage risks in work processes in accordance with the risk identification and risk treatment procedures; and monitor, examine, and oversee compliance with standards. — Utilize digital technology to enhance the management and monitoring of machine reliability and integrity. — Monitor the production stability of the plants, conduct benchmarking analysis, and implement production efficiency optimization projects, while ensuring regular monitoring of project progress. — Promote the B-CAREs safety culture and operational discipline among employees and contractors and emphasize strict and robust implementation of measures at the work site through operators, such as Effective Toolbox Talks, Management Safety Walks, and the Felt Leadership Program, which are aimed at encouraging managers and supervisors to serve as safety role models to ensure that employees at all levels can correctly follow the operating procedures, with the Total Recordable Injury Rate (TRIR) included in the corporate and individual KPIs of employees at all levels across the organization. — Monitor policy directions related to changes in laws, regulations, and standards that may impact plant operations, and implement mitigation measures accordingly, as well as participate in discussions with relevant agencies regarding the drafting of laws on controlling the release of volatile organic compounds from industrial plants as a representative of the Federation of Thai Industries.

Risk Factor	Key Risk Management Measures
	<ul style="list-style-type: none"> Establish a Business Continuity Management System (BCMS) and regularly conduct the Business Continuity Plan (BCP) drills for emergencies and crises that may result in business interruption to mitigate the effects of such events and/or shorten the rehabilitation period, as well as establish pre-incident plans and consistently conduct drills both in the factories and for oil spills. GC Group has necessary insurances in place to limit any potential damage from unforeseen circumstances.
<div> </div> <p>Market Volatility and Business Performance Risk</p> <p>GC is facing market pressures driven by various external factors, such as geopolitical unrest, and the ongoing risks of economic recession, which impact the demand for end products. These are accompanied by an increase in production capacity, particularly in China due to its self-sufficiency policy, which has led Chinese manufacturers to expand into performance/specialty chemicals and increase backward integration. Simultaneously, the direction of certain national-level policies may also affect product pricing and demand and GC's profitability, such as free trade agreements and petrochemical trade flows from the United States and the Middle East, which are expected to intensify competition in the Southeast Asian market in the future.</p>	<p>Mitigation measures for market impacts</p> <ul style="list-style-type: none"> Implement Market-Focused Business Transformation (MFBT) strategies, expand the product portfolio towards HVP business with low price volatility, improve the innovation portfolio, and develop product solutions that better cater to end markets. Conduct rolling price forecasts and weekly assessments of impact on operating results and adjust production/sales plans accordingly. Foster cooperation within PTT Group in various dimensions, such as re-optimization, product exchange, and location swap/co-load. Implement a defensive strategy to safeguard existing customer bases in CLMV and broaden market reach to new countries, such as Africa and India. Work with the Petrochemical Industry Club of the Federation of Thai Industries in presenting insights on the impact of free trade agreements with UAE to the Department of Trade Negotiations. <p>Mitigation measures for impacts on business performance and liquidity</p> <ul style="list-style-type: none"> Prepare a robust GC Recession Playbook for both GC and companies in GC Group. Implement commercial hedging to reduce the impact of product price volatility as approved by the Value Chain Management Committee (VCM). Establish and implement additional ancillary measures, such as the sale and leasing of precious metals and business restructuring. Plan portfolio adjustments and intensify supervision of GC Group companies with regard to financial, investment, and operational policies to achieve the established goals in collaboration with partners.

Risk Factor

**Cyber Threat**

At present, cyber crime comes in the form of a variety of attacks and threats, and new methods or technologies are being used to launch attacks through various channels more and more. This, coupled with the changing nature of the business and competition, has spurred GC to adopt digital technology for enhanced work efficiency and competitiveness. Use of digital technology, however, poses a risk and increases GC's vulnerability to cyber attacks.

Key Risk Management Measures

GC implements cyber risk management in adherence to the framework of the National Institute of Standards and Technology (NIST Framework), which consists of five components as follows.

1. Identify

- Monitor new threats, assess risks in both office and factory systems, test IT security measures, and perform system assessments and internal audits to ensure strict compliance with the relevant safety standards.
- Establish measures for maintaining the security of both corporate and personal information, data protection, and information leakage monitoring, as well as measures for violations and personal information leakage.

2. Protect

- Enforce requirements, policies, and guidelines on the security of Information Technology (IT) and Operational Technology (OT) and data governance for use as guidance in GC Group.
- Prepare work systems and increase IT security measures to support working from anywhere, as well as install various protection systems, such as firewalls, WAF, data protection systems, threat intelligence, and assess system vulnerabilities, such as through vulnerability assessment, web applications, penetration testing, compromise assessment, penetration testing, and two-factor authentication.
- Foster cybersecurity awareness among employees at all levels, such as by providing information on guidelines and practices for IT management as well as relevant laws, and conducting phishing tests to assess employee awareness and understanding.

3. Detect

- Utilize a cyberattack detection and monitoring system using deception technology and endpoint security protection.

4. Respond

- Conduct cyberattack response drills and IT and plant systems recovery drills on a regular basis and improve response plans to ensure suitability and mitigate any potential damage.

5. Recover

- Establish policies and follow data backup and emergency preparedness protocols to ensure the continuous availability and functionality of GC's data and information systems.
- Establish disaster recovery plans and conduct regular reviews and drills.

Strategic Risk

The rapidly changing and complex business environment may affect the successful implementation of the business strategy. GC has, therefore, set the following measures to manage various risks related to the achievement of its business objectives.

Risk Factor	Key Risk Management Measures
<div> </div> <p>Sustainable Feedstock Supply Risk</p> <p>The dwindling natural gases in the Gulf of Thailand and uncertainties over volumes and prices due to the direction of state policies have negatively impacted GC's cash cost competitiveness. In addition to projects aimed at enhancing feedstock flexibility for olefins production, GC must also prepare guidelines or alternatives for guaranteeing its long-term feedstock security so as to ensure feedstock availability, which will enable it to generate added value throughout the production chain through quality and cost competitiveness.</p>	<p>Mitigation measures for impacts on current business operations</p> <ul style="list-style-type: none"> — Closely monitor the quantity and quality of natural gases and policies related to natural gases. — Perform analysis and optimization to assess the cost-effectiveness of each feedstock. <p>Measures for increasing alternatives and flexibility</p> <ul style="list-style-type: none"> — Seek opportunities to procure low-cost feedstocks in the long term from feedstock suppliers in the United States and explore joint investments in port facilities for exporting feedstocks from the United States. — Establish olefins feedstock flexibility strategies to increase the utilization of propane in place of naphtha and enhance flexibility when other feedstocks become more cost-effective.



Risk Factor

Key Risk Management Measures



Financial and Investment Management Risk

Strategic investment helps to increase competitiveness, drive growth, and create sustainability for the business in the long term. However, there are risk factors that GC must monitor and manage closely. In addition to the management of financial risks that may impact GC's profitability and liquidity as well as its ability to finance investments while also maintaining its investment-grade credit rating, GC must also consider efficient management and allocation of investments budget to achieve future growth and increase returns in parallel with achieving balance in sustainability.

- Prudently conduct project analysis, review, and prioritization with a focus on critical aspects, such as reliability and safety and on growth and sustainability projects that require low investments and yield good returns; and seek investment approval according to the Corporate Investment Management (CIM) process by the Investment Committee.
- For significant investment projects involving high capital budgets or encumbered securities which may significantly affect GC's reputation or stakeholders, the Risk Management Committee examines and comments on the risk assessment performed and the adequacy of the risk management measures to be implemented. This information is then submitted as part of the investment proposal for approval by the Board of Directors.
- Manage financial risks, such as exchange rates, interest rates that may impact profitability, financial costs, and GC's liquidity through various financial tools, such as Cross Currency Swap (CCS) and P2F Hedging.
- Ensure financing preparedness, maintain GC's liquidity, and reduce its liabilities to maintain the credit rating and fiscal discipline according to its financial policy to support future investments, such as by or through:
 - reducing the holding of assets or investments that are not aligned with the core strategy
 - expediting the payout of accrued oil fund
 - bond buybacks
- Conduct look-back analysis to follow up on and evaluate completed projects in order to enhance GC's project management and increase the chances of success for future projects.



Risk Factor

Key Risk Management Measures



Decarbonization Implementation Risk

To advance global leadership in sustainability, GC has announced its net zero goal, with the medium-term target of reducing 20% emissions by 2030 and achieving Net Zero emissions by 2050. As such, the risks that must be managed in order to achieve these targets include the challenges of carrying out projects under GC's three decarbonization pathways: efficiency-driven, portfolio-driven, and compensation-driven; as well as the government's regulatory policies and efforts to align business operations to international climate regulations on matters such as alternative energy, renewable energy, third-party access, and economic tools.

In general, GC monitors and analyzes climate scenarios and incorporates them into the formulation of strategies and business plans.

Efficiency-Driven

- Establish performance indicators on greenhouse gas emissions and energy efficiency and incorporate them into the corporate KPIs, as well as monitor and track progress on a monthly basis.
- Engage internal and external experts to analyze and report the energy consumption of various plants in depth, promote energy efficiency improvement in plants through the ISO 50001 CPI process and operational excellence frameworks, and organize workshops to develop additional quick-win initiatives for GHG reduction.
- Establish plans and drive renewable energy procurement, monitor trends in clean energy technologies, and analyze their feasibility and suitability for practical applications.

Portfolio-Driven

- Formulate investment portfolio adjustment strategies and project execution plans, and conduct a thorough analysis of policies and trends in low-carbon business development to seek investment opportunities.
- Study the feasibility of reducing the proportion of businesses with high carbon emissions.
- Create added value for GC's existing products by leveraging the benefits derived from the reduced carbon footprint in accordance with the decarbonization pathway.
- Collaborate with the government and civil society to provide supplementary information for adjusting policies in alignment with the industries in Thailand's context and driving the development of Thailand's infrastructure and ecosystem.

Compensation-Driven

- Study and expedite the readiness of carbon capture business development, monitor the development of a supportive ecosystem, clearly define roles in collaborating with associations/networks to advocate for policies, laws, and supporting guidelines, and formulate a roadmap in alignment with GC Group's action plans so as to ensure the successful development of projects within appropriate timeframes and costs.
- Seek more efficient and cost-effective carbon capture technologies to apply within GC's plants.
- Coordinate with the government to develop reforestation projects at a reasonable cost to earn carbon credits.

Risk Factor

Key Risk Management Measures

**People and Organization Risk**

GC must cope with challenges in ensuring preparedness with regard to its people, organization, and culture to support new business models and evolving work formats in an efficient, adequate, and timely manner.

People

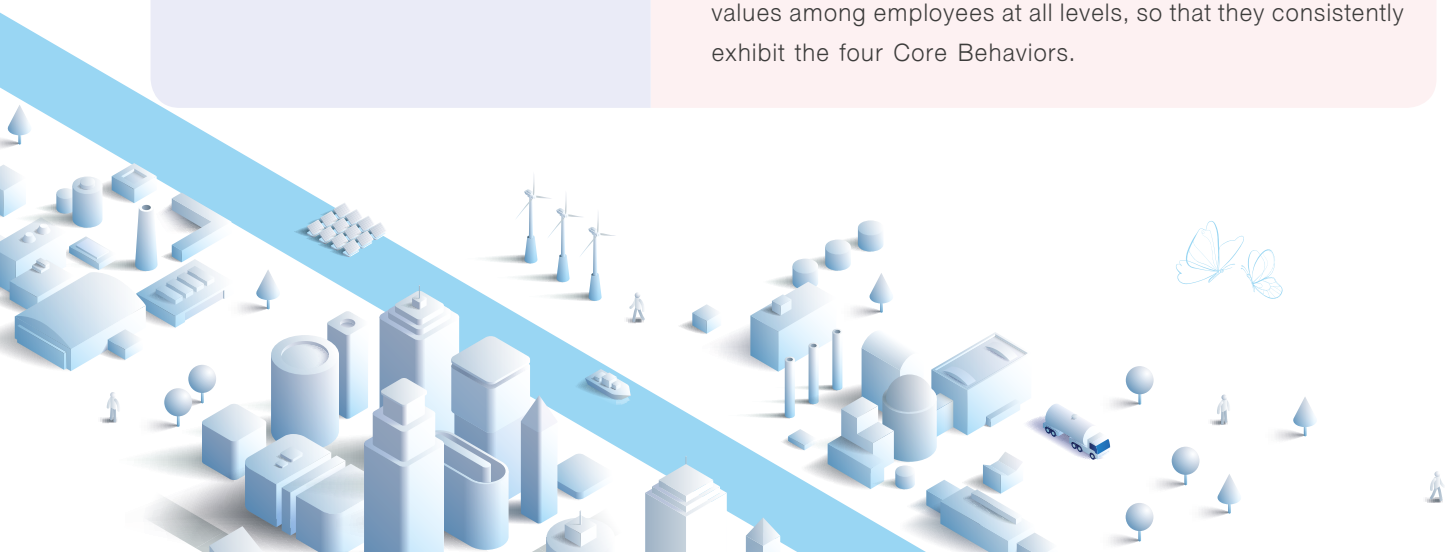
- Analyze and define essential work skills suitable for the changing business environment; assess the knowledge and ability of current employees in order to design training programs that can enhance their knowledge and skills through GC NextGen in collaboration with target groups of employees so as to develop new work skills, such as customer focus, design thinking for business innovation and entrepreneurship; and regularly evaluate the outcomes.
- Monitor and survey employee opinions through questionnaires, such as the Wellbeing Pulse Survey and the Work From Home Survey, to determine their needs and well-being and optimize activities, policies, and modes of work for greater efficiency.
- Collaborate with leading consulting firms to conduct employee engagement surveys that cover various factors and thus allow for benchmarking against global companies in order to enhance and improve the work systems and enable GC to attract and retain knowledgeable and skilled personnel.

Organization

- Enhance the flexibility, speed, and efficiency of the operations to keep up with the evolving business and situation, such as by encouraging cross function collaboration.
- Define a clear structure, action plans, roles and responsibilities, and a progress tracking and evaluation system for the FiT project to achieve end-to-end lean process improvement and drive digital transformation to adjust and optimize the operation of the organization.
- Normalize working from anywhere for office workers to create flexibility and accommodate the current situation as well as respond to the needs of the new generation of employees.

Culture

- Organize activities that foster the corporate culture by promoting awareness, understanding, and implementation of GC SPIRIT values among employees at all levels, so that they consistently exhibit the four Core Behaviors.



Emerging Risk

GC has analyzed emerging risks that could have significant impacts on business operations in the next three to five years and has established effective risk management measures to ensure responsiveness to emerging situations and enable GC to achieve its defined strategic goals and directions.

Risk Factor	Key Risk Management Measures
 <p>Changing Consumer Trends due to Natural Resource Crisis and Regulations</p> <p>Environmental awareness trends among consumers, accelerating energy transition, technological advances, and government policies and support for the development of low-carbon technology have transformed consumer behavior, lowered demand for GC's petroleum and petrochemical products, and impacted GC's profitability, while operational costs may rise due to investments to switch in new technologies and feedstocks in order to meet consumer needs. In addition, GC has to adjust its role and expand its responsibilities beyond production towards the disposal of petrochemical products as well as chemicals that may have environmental impacts.</p>	<p>GC monitors and analyzes future product demand to inform its strategies and business plans and has discovered that the growth rate of its chemical products is still in line with the global megatrends, especially population growth and urbanization.</p> <p>GC has carried out various initiatives to seek new business opportunities and prepare for changes in consumer demand in the future, as detailed below:</p> <ul style="list-style-type: none"> — Implement strategies to expand its investment portfolio towards low-carbon businesses, establish clear action plans for the projects, and prescribe the regular monitoring and control of the operation of such projects. — Promote innovation to create products that are safe for the environment and health and meet consumer needs. — Explore the possibility of reducing the proportion of high carbon businesses by adjusting the business model and seeking partners whose interests are in line with GC's objectives. — Collaborate with global tech startups and venture capitals (VCs) to seek investment opportunities, with emphasis on new technologies that align with GC's strategic direction, and create business opportunities with high growth rates in line with megatrends. — Collaborate continuously with the government, private sector, and communities to drive a transition towards a low-carbon economy.



Risk Factor	Key Risk Management Measures
<div> </div> <p>Geoeconomic Confrontations</p> <p>The political tension in various regions and the use of economic sanctions as a political leverage tool may pose challenges for GC in forming economic cooperation, result in shorter supply chains, impact production costs, and lead to economic volatility, investment uncertainties, and instability in government assistance and funding, ultimately affecting GC's business operations.</p>	<ul style="list-style-type: none"> - Closely monitor and analyze political tensions as well as announcements regarding other countries' product standards and trade barriers that may affect GC's investment and operating results so as to assess impact on the organization's business plans and long-term strategic plans, as well as ensure the regular monitoring, review, and updating of the situation and relevant factors. - Conduct scenario planning for various levels of feedstock prices to promptly cope with and minimize impact arising from changes and uncertainties in the future. - Focus on establishing measures that create flexibility and optionality in terms of market and products so as to enable GC to readily adapt its business in the face of uncertainties and achieve sales and profit stability. - Implement efficient supply chain management by analyzing the situations and forecasting risks in collaboration with suppliers, establishing relationships with key suppliers, and expanding the number of potential suppliers in the region.
<div> </div> <p>Failure to Mitigate Climate Change</p> <p>The failure of climate change management measures of both the government and private sectors has led to a continuous rise in greenhouse gas levels and may thwart the goal of limiting global warming to 1.5 degrees Celsius and efforts to mitigate the impact of climate change. This could intensify environmental crises, societal challenges, and economic instability and potentially impact GC's corporate image as the world's leading chemical producer.</p>	<ul style="list-style-type: none"> - Collaborate with consulting firms to assess natural disaster risks in the future and forecast their impact on both GC's assets and operations in order to make preparations for such risks, and operate in adherence to international standards under the framework of the Task Force on Climate-related Financial Disclosures (TCFD). - Monitor drought and implement water risk management sustainably through the Water Management Taskforce, advance initiatives to optimize water efficiency in production, and secure alternative water sources to ensure an adequate water supply for the current plant operations and accommodate future projects. - Conduct business continuity plan drills for various scenarios. - Monitor and assess the impacts and opportunities arising from changes in climate change policies in both the short and long term. - Create a corporate GHG inventory for use in establishing GC's GHG management guidelines. - Actively follow the established decarbonization roadmap to minimize negative impacts and generate positive impacts on the environment and ecosystems.

Risk Factor	Key Risk Management Measures
<div> </div> <p>Biodiversity Loss and Ecosystem Collapse</p> <p>The failure to mitigate and adapt to climate change has resulted in extreme weather conditions and caused damage to biodiversity and ecosystems. This could lead to interruptions in production and increased operational costs for GC as it is required to seek and apply disaster management technology and innovation, and may also affect GC's credibility and image among stakeholders.</p>	<ul style="list-style-type: none"> – Screen vital biodiversity risks for all sites of operation, including among key suppliers and customers, through a systematic assessment process and integrate biodiversity assessment and management into the Quality, Security, Safety, Occupational Health, Environment, and Business Continuity Policy. – Apply the mitigation hierarchy principle in preventing, avoiding, mitigating, restoring, and compensating for environmental impacts on biodiversity throughout the value chain. – Promote the generation of net positive impacts and maintain No Net Loss (NNL) in the implementation of both current and future projects. – Avoid carrying out operations near biodiversity-sensitive areas and vulnerable ecosystems, such as those listed on the IUCN Red List, World Heritage Sites, wetlands, biosphere reserves, and areas protected under IUCN Categories I to IV. – Actively follow the established decarbonization roadmap, push forward efficiency-driven targets, and adjust the portfolio to minimize negative impacts and generate positive impacts on the environment and ecosystems.

GC is confident that the implementation of the above risk management measures can mitigate impacts from various risks and increase business opportunities for sustainable growth. It will also enable GC to achieve its business goals according to the established direction and strategies.

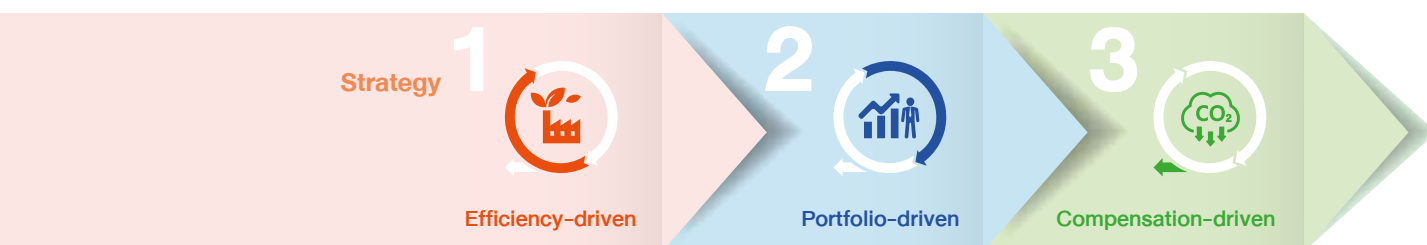


Driving Business Towards Sustainability

Sustainability Management Policy and Goals

Throughout the past period, GC has conducted business based on awareness of sustainability and a commitment to be “A leading global chemical company for better living”. We have also contributed to supporting the United Nations Sustainable Development Goals (SDGs). Such efforts have been implemented across our business chain through a balance of three dimensions, namely Environmental, Social and

Governance (ESG). In order to create competitiveness in environmentally friendly businesses, GC has declared the Net Zero Target which aims to reduce scope 1 and 2 greenhouse gas emissions to Net Zero by 2050. Thus, GC has implemented rigorous measures and action plans in order to accomplish this target by means of three key strategies:



Strategy 1

Efficiency-driven: Enhancing process efficiency and shifting to renewable or low-carbon energy as well as developing and implementing low carbon emitting technologies in production processes in order to reduce greenhouse gas emissions more efficiently.

Strategy 2

Portfolio-driven: Implementing projects that have been ranked by their investment priority to reflect the company's current situation and are in line with the low-carbon business strategy. Important courses of action that have been carried out include the study of business restructuring, the study of investment in High Value Businesses (HVB) through allnex's business expansion, and the investment in the Bio & Circularity Business Unit. In addition, GC also drives the circularity business and has plans to establish a Sustainable Product Portfolio, which targets to expand the domestic Post-Consumer Recycled (PCR) plastic market. GC has also formulated a growth plan for sustainability products as well as expanded the waste management business across the country through the YOUTURN Platform. Meanwhile, the company also conducted a feasibility study on new businesses in waste management and built cooperation with recycled plastic packaging manufacturers in the beverage industry, such as Coca Cola, Pepsi and Minere, to promote sustainable packaging management.

Strategy 3

Compensation-driven: Offsetting carbon to manage residual greenhouse gas from production and business operations by using nature-based solutions, such as reforestation, forest restoration, and carbon credit trading, as well as technology, such as Carbon Capture and Storage (CCS). GC also analyzed the feasibility of a key project, namely PTT Group CCS Hub which is a plan for the cooperation between PTT Group and other companies. In order to effectively meet the Net Zero Target, GC has contributed to the government's policy making process through our cooperation in numerous associations, such as the Thai Chamber of Commerce, the Federation of Thai Industries.

ESG

ESG Leadership

ESG Leadership: Our accomplishment in ranking as the world's number one in sustainability in the chemicals industry by the Dow Jones Sustainability Indices (DJSI) has inspired us to continue pursuing our goal to become a world-class model organization through business chain expansion in order to build competitiveness and be a key force in driving the country's sustainable economic system.

E

E - Environment

GC has established a strong and effective Decarbonization Pathway consisting of the following approaches:

- Increasing the proportion of renewable energy consumption as well as implementing technology and digital systems in production processes.
- Implementing long-term business restructuring towards low-carbon businesses, adjusting investment proportions, empowering the growth of Green & Bio Business and Circularity Business, and pursuing new domestic and overseas business opportunities.
- Offsetting carbon using nature-based solutions through "The More You Plant the Better" project, exploring means of applying the Carbon Capture and Storage (CCS) technology, and trading carbon credits.
- Recognizing the significance of natural resources, conducting business with caution and consideration for impacts on biodiversity in all operating sites.

S

S - Social

- 'Human resources' are the key factor in supporting the organizational transition towards sustainability. Therefore, investing in human capital development can yield significant value for the organization. GC implements through various programs to uplift skills, expertise, and academic competencies, to promote learning and development continuously and practically. This is to align with the needs of global trend and drive the company's strategy to be most efficient and effective, and could potentially create value for the organization.
- In addition to a strong business, society and communities also form a critical foundation for the development of the industry and country. GC has initiated many supportive programs and further sustainably create value for society, by integrating with the greenhouse gas reduction plan towards the Net Zero goal and use resources efficiently according to the principles of the circular economy. GC also expands implementation to cover various cooperation networks to create social benefits on a large scale.

G

G - Governance & Economic

- Ethics and business ethics are an important basis for business operations and the business chain, which covers employees, suppliers, customers, and business partners.
- Continuously developing innovation to meet future business needs and lifestyle while supporting various collaborations in the form of Open Innovation (Innovation Management).
- The most vital components are Supply Chain Management to create sustainable values and supplier capacity development to enable simultaneous enhancement of business competitiveness.

GC's sustainability leadership is reflected through four leading sustainability indices:

- EcoVadis: GC has achieved a Platinum Medal from EcoVadis, which places in the top 1% in chemicals category.
- Dow Jones Sustainability Indices (DJSI): GC is the world's first organization to have ranked number one in the Dow Jones Sustainability Indices in the Chemicals Industry for five consecutive years.
- Morgan Stanley Capital International (MSCI): GC received 'A' rating in MSCI ESG Ratings in the chemical industry sector.
- Stock Exchange of Thailand (SET): GC obtained 'AAA' level assessment from SET ESG Ratings, maintained our position on the list for the ninth consecutive year, and won the Sustainability Awards of Honor in the Sustainability Excellence Category from the SET Awards 2023 for the sixth consecutive year.

Impact Management for Stakeholders

GC acknowledges that stakeholder opinions play a vital role in improving the efficiency of our performance. For this reason, GC annually reviews the formats of activities and stakeholder engagement channels to ensure that the company provides equal and transparent opportunities for all groups of stakeholders to participate and express their opinions, which, in turn, enhances our operational efficiency. GC classifies our key stakeholders into four groups:



1) Shareholder

Expectation	Action and Response
<ul style="list-style-type: none"> — Conduct business in accordance with the principles of corporate governance, adding value and creating business value. — Prevent and reduce environmental impact from business operations to strengthen capabilities in the business value chain. — Green investments, investments and business activities that promote ESG in line with changing international and national trends to accommodate future risks. 	<ul style="list-style-type: none"> — Comply with laws and regulations of relevant regulatory bodies, create understanding, ensure communication throughout the Group, and build confidence by disclosing corporate governance performance via the company's various channels. — Continuously review sustainability strategies, integrate business operations with sustainable development that covers ESG, and focus on key business issues that correspond with megatrends, low-carbon society, or climate change under the implementation of a clear roadmap according to GC's Net Zero Target. — Plan investments on reducing greenhouse gas emissions, and High Value & Low Carbon Business to add value to products by developing and designing the products that high quality, great performance, safe, environmental-friendly, and lower natural consumption, etc.



2) Business Partner, Customer, and Investor

Expectation	Action and Response
<ul style="list-style-type: none"> — Commitment to create sustainable and eco-friendly products, such as bioplastics, by investing in innovation and building cooperation with suppliers or business partners across the value chain in order to uplift the capability of production processes. 	<ul style="list-style-type: none"> — Study and research the potential of advanced technology that supports the production of sustainable and low-carbon products. Formulate a technology implementation plan and seek opportunities to engage in business with suppliers and partners while aligning resource allocation with the company's strategy. — Conduct capacity development projects for employees and suppliers covering diverse topics including GC's strategies, technical knowledge, and sustainable management, for example Global Leadership Acceleration Program (G-LAP) for employees and the training on Decarbonization and Road Map for suppliers, etc.

Expectation	Action and Response
<ul style="list-style-type: none"> Develop the potential and abilities of both employees and suppliers by offering technical trainings and knowledge to equip them with necessary business skills in the long run. Regularly communicate to suppliers and business partners about the management and progress of our environmental performance. Create innovative products and services that respond to the current market and future needs behaviors of customers/consumers. Digital technology can contribute to providing services to suppliers, business partners and customers to offer maximum convenience and satisfaction. Implement standardized production and procurement processes that are environmentally and socially responsible throughout the value chain. 	<ul style="list-style-type: none"> Regularly communicate environmental performance to all stakeholders, including suppliers and business partners, through meetings or webinars to share good practices that are consistent with the company's environmental goals. Analyze and monitor customer demands, expectations and satisfaction regularly. Conduct customer satisfaction survey on all product groups in conjunction with market analyses, forecasts, and management of current and future risks in order to develop products, services and solutions as well as build customer engagement, meet customer/consumer demands and transition into an eco-friendly business. Engage customers through online platforms, webinars, Line Official Account with customers, websites, and applications where customers can access and exchange information via a secure two-way digital communication system. Develop the Supplier Code of Conduct and a procurement support system to control negative impacts on the economy, society and environment across the value chain.



3) Community, Society, Government, Non-Profit Organization and Press

Expectation	Action and Response
<ul style="list-style-type: none"> Community: Provide assistance to communities, revitalize local economies by promoting jobs and environmental activities, share the values of growth with communities. Society: Consider environmental impacts, conserve natural resources and conduct business in accordance with ethical principles and in compliance with legal and regulatory requirements. Government/regulatory agencies: Cooperate with the government to take part in promoting the national economic policy (BCG Model) as well as rehabilitating the country from economic, social and environmental impacts to create sustainability. Non-profit organizations: Business processes and products that create public benefits and positive contributions to the world and the country. Press: Disclose information and performance transparently in accordance with business ethics to create benefits for the society as a whole. 	<ul style="list-style-type: none"> Conduct site visits and strengthen relationships with communities and society, welcome feedback from communities and apply them in the development of projects that focus on increasing career opportunities and options, respond to expectations, continuously strengthen communities and society, and determine performance indicators, such as Social Return on Investment (SROI), etc. Form a Public-Private-Civil partnership network through third-party entities, i.e., the Joint Standing Committee on Commerce, Industry and Banking (JSCCIB), the Federation of Thai Industries (FTI), the Thai Chamber of Commerce (TCC), and the Thai Bankers' Association, to discuss key issues and offer comments, leading to national regulatory/promotional policies that are beneficial for the overall economy and industry. In addition, GC has also collaborated with our partner network on various important projects to take part in driving national policies. Integrate sustainability issues into business processes, take into account sustainability factors in investment management, and design products that promote the economy, care for the environment and create value for society in line with the United Nations Sustainable Development Goals. Share information, news, and progress via GC's channels in an accurate and timely manner using a two-way communication system to develop, improve and receive suggestions on the company's issues/projects.



4) Employee

Expectation	Action and Response
<ul style="list-style-type: none"> Provide physical and mental safety for employees to empower work efficiency. Organize activities to create engagement with the organization. Employee development, welfare, remuneration, working conditions, and fairness and transparency. Conduct business in a balanced, stable and sustainable manner. Implement hybrid working and create cooperation between business units across the value chain to boost opportunity to participate in driving operations on the basis of the Group's sustainability. 	<ul style="list-style-type: none"> Define measures to care for employees' physical and mental health, providing them with confidence and satisfaction to fulfill their duties. Accordingly, GC has continuously organized activities that encourage care for the body and mind as well as personal finance management. Communicate corporate policies and directions covering topics of importance to employees, provide opportunities for employees to express constructive opinions, and change activity formats to better match current circumstances and new working style. Adjust human resources management, develop employees' skills in various areas to support business growth and expansion through, for example, Digital Learning & In-house Training, Individual Development Plan, Upskill-Reskill employees at all levels using a digital system called DEX Spark - Data Science & Engineering Program. Implement Governance, Risk Management & Internal Control and Compliance (GRC) principles in management according to Good Governance. Manage, monitor, and assess performance using the Performance Management System. Plan risk management strategy to accommodate future market trends, create a strong business ecosystem by driving the business to enable growth and generate stable profits on the basis of being a sustainable organization. Promote corporate culture through the GC SPIRIT 4 Core Behaviors by organizing activities and creating diverse materials to enable employees' understanding and highlight the importance of working and striving together towards excellence and social responsibility.



Sustainability Management in the Environmental Dimension

Climate Change Management

GC has set the goal to reduce scope 1 and 2 greenhouse gas emissions by 20 percent within 2030. The company also targets to reach Net Zero while halving scope 3 emissions by 2050. In the past year, GC has assessed and disclosed information on climate-related risks and opportunities in accordance with the



guidelines of the International Financial Reporting Standards (IFRS) S1 (Sustainability-related Disclosures) and S2 (Climate-related Disclosures). We have also formulated other relevant policies and established the Climate Strategy and Energy Management for the short term, medium and long term. In this regard, the Sustainable Development Committee (SDC) has been appointed to drive these strategies and determine business directions in line with the Low Carbon Transition Framework:

- **Efficiency-driven:** Enhance energy management by applying low-carbon technology in production processes and switching to renewable energy or low-carbon energy through various efforts, including 74 energy conservation projects, Stripper Column Optimization, Advance Membrane Separation Technology, renewable energy projects, etc. The goal of these projects is to reduce the amount of greenhouse gas from production processes.
- **Portfolio-driven:** Adjust the business portfolio towards low-carbon businesses by focusing on investment in three business groups:
 - Specialty & Performance Chemicals by creating highest value products from existing businesses, markets and technology, such as low VOC coating from allnex and Vencorex, which were acquired by GC.
 - Bio-Based Products, such as Fatty Acid Methyl Ester, Refined Glycerin, and Palm Kernel Oil Production in the Eastern Economic Corridor (EEC) Project and PLA bioplastics in the Nakhon Sawan Biocomplex Project.
 - Circularity & Recycling by utilizing innovation and advanced production technology with the potential to transform plastic waste into quality and usable products that answer to the needs of sustainable products, such as ENVICCO: GC's Global-Standard Plastic Recycling Plant which provides end-to-end waste management by recycling and upcycling discarded plastics through YOUTURN Platform, and Upcycling Upstyling which features the collaboration between GC and business partners to develop a comprehensive product circularity plan.

In addition, GC also requires the implementation of product stewardship, which is an operational framework that applies the principles of Eco-Design and Life Cycle Assessment (LCA) as guidelines in the research and development of eco-friendly and safe products. It focuses on optimizing resource efficiency from the production process through to the disposal process.

- **Compensation-driven:** Using nature-based solutions and technology such as Carbon Capture and Storage (CCS) to manage and offset residual greenhouse gas. In 2023, GC has been studying alternative emerging carbon capture technology in collaboration with subsidiaries of PTT Group. We also aim to conserve natural resources as well as continuously restoring and strengthening the balance of the forest ecosystem in order to store carbon and generate carbon credits to offset residual greenhouse gas from operations. In this regard, GC has been planting forests to register carbon credits in the company's areas and in collaboration with government agencies, the private sector and communities through various projects since 2013, spanning across a total area of more than 6,000 rai. These projects include the Mangrove Planting for Carbon Credit Benefits Project in collaboration with the Department of Marine and Coastal Resources (DMCR) as well as the continuation of existing projects (Huai Mahad Forest Restoration Project, Eco-Forest Rayong Wanarom, Mangrove Planting Project, "The More You Plant, the Better" Project by GC x BMA). In addition, GC has signed an agreement to join the Community Forest Project initiated by Mae Fah Luang Foundation to maintain, restore, and plant forests in order to benefit from three years' worth of carbon credits from the project's implementation.



Environmental Management

GC places importance on the environmental management system through compliance with environmental principles and standards in business operations. The company has defined an eco-friendly and sustainable business strategy, developed the Quality, Security, Safety, Occupational Health, Environment, and Business Continuity (QSHEB) Policy, and established an environmental management system that integrates energy, air, water, waste, and efficient use of resources.



Sustainable Water Management

GC has developed the One Water Strategy, which covers water management (Governance), sustainable water resources management (Water Stewardship) and the establishment of a water management network (Resilience). The company also promotes an integrated approach in water management by planning water consumption based on the 3Rs principles (Reduce, Reuse, Recycle) to recirculate water (Renewable Water).

In 2023, GC implemented water management projects, such as Recycling Treated Water in OLE4 using Wastewater Reverse Osmosis (WWRO), Water Efficiency Improvement whereby the company has installed a Sea Water Reverse Osmosis (SWRO) Plant to prepare for the drought crisis in the Eastern Economic Corridor (EEC), Optimization of Cooling Water System, and Reutilization of Water Discharged from Steam Boilers in Production Processes, etc.

In addition, GC plays an important role and engages in water planning and management at both local and national levels. We have established networks with the government, private sector and industrial sector, including the Water and Environment Institute for Sustainability (WEIS), the Federation of Thai Industries (FTI), Water War Room, and Maptaphut Plant Manager Club (PMC), etc., to drive sustainable water management.



For more information on water resource management goals is available at:

Additional information is available in GC website
<https://sustainability.pttgcgroup.com/en/home>

GC has employed Digital Infrastructure, IoT (Internet of Things) and 5G Solutions to promote and enhance the company's operational processes in all aspects, such as a solution that boosts energy efficiency and reduces greenhouse gas emissions, and a system and data source that displays real-time updates directly from tools or equipment, etc.



Air Quality Control

GC places importance on air quality management both within our plants' boundary and in surrounding areas by enhancing the efficiency of production processes, continuously developing an air quality control system, and forming a management plan to control air quality within the standard criteria during business as usual and turnaround activities. GC plants have also implemented the Code of Practice (COP) to manage the release of benzene and 1, 3 butadiene vapors by, for example, proactively monitoring air quality within and along the plants' boundary.

As a result of GC's endeavors to control air quality through numerous projects, air pollution emission intensity is continuously declining. Meanwhile, there has been no cases of complaints regarding air pollution from neighboring communities.



For more information on management of greenhouse gas from production is available at:

Additional information is available in GC website
<https://sustainability.pttgcgroup.com/en/home>



Waste Management

GC has applied the principles of circular economy in formulating our Waste Management Policy. We also focus on minimizing the amount of waste in tandem with implementing the 5Rs principles, which consist of Reduce, Reuse, Recycle, Renewable and Refuse. Furthermore, we have developed a system to monitor and prevent impacts that may occur on communities, society and environment across the value chain in order to ensure that waste is being managed according to the company's requirements and in strict compliance with laws and international standards.

In 2023, GC achieved the Zero Industrial Waste to Landfill and Zero Waste to Landfill goals for the ninth consecutive year. GC has also executed a variety of waste management projects, such as Refuse Derived Fuel (RDF), Green Turnaround, which includes sub-projects such as Reutilization of Insulation, which can effectively lower resource consumption and minimize hazardous and non-hazardous waste from turnaround activities. As a result of our continuous efforts in waste management.



Sustainability Management in the Social Dimension

Organization Transformation

GC strives to become the chemical industry's leader in organizational efficiency as well as a top quartile employer in Asia-Pacific (APAC). The company has developed the 2023-2027 Organization Transformation Strategy, which highlights the importance of four core aspects of management, namely Skills & Competencies, Resource Planning, Great Well-being, and Policy & System Transformation. This enables GC's strategy to accommodate business volatility and competition in the long run.



Skills & Competencies

GC has modified the method of employees' skill and ability development training from offering basic content for employees in all business units to contents that are more critical and specific for each unit. The company has also improved the training method using an experiential learning approach through hands-on practice. Accordingly, each business unit considers and analyzes business strategies and define skill development guidelines that are consistent with short-term, medium-term, and long-term strategies, with support and advice from internal and third-party experts in order to create a competitive advantage.



For more information on waste management goals is available at:
Additional information is available in GC website
<https://sustainability.pttggroup.com/en/home>



Resource Planning

GC has developed the Strategic Workforce Planning Model to reduce the potential risk of manpower imbalance or inconsistency with corporate strategies. The company has conducted in-depth studies and research on the situation regarding the demand for manpower and the labor market from the past until now in an effort to prepare a database for simulating various scenarios to assess potential future risks and impacts. Meanwhile, operational guidelines and measures have been developed to effectively manage such risks, for example improvement of employee recruitment guidelines, trainings related to skills and abilities demanded by the market, succession planning, etc.



Great Well-being

GC constantly places priority on the well-being of our employees, including their physical health, mental health, and emotional well-being. The company has improved guidelines to support well-being from providing one-size-fits-all assistance to a more group-specific format through granularity of employee, such as generation, work site, line of work, job position, and gender, to perform people analytics and create projects that appropriately meet demands, such as Fit & Stretch Challenge 2023, Flexible Benefits, financial knowledge projects, etc.



Policy & System Transformation

GC is committed to upgrading and improving our HR Policy to cover more overseas operations. We have also applied development guidelines from leading organizations in our human resource management. The company has also taken other actions, such as surveying and collecting information on leading practices from around the world, listening to and engaging in discussions with both domestic and

overseas executives, identifying touchpoints in an employee's growth path, and improving the remuneration structure, etc. In addition, GC has also adopted platform technology and advanced data analytics to enhance various support systems.

Safety and Reliability

GC has improved the Quality, Security, Safety, Occupational Health, Environmental, and Business Continuity (QSHEB) Policy and adopted various standards, such as ISO 45001, Process Safety Management (PSM) and Contractor Safety Management (CSM), to govern and manage work with greater efficiency in order to reduce fatality and injury rates across the value chain. Such actions also provide assurance that GC's operations are safe and in compliance with national and international laws, rules and regulations. GC's comprehensive management covers process safety, personal safety, and safety culture.



Process Safety Management (PSM)

GC has continuously raised safety standards in our production processes by utilizing innovation in our operations. The company has also implemented Proactive Safety Management to prevent potential repeated incidents or losses. In addition, GC has employed the Hazard and Operability Study (HAZOP) process to assess risks and hazards that are likely to occur in production processes while prioritizing risks and developing impact mitigation plans. In 2023, GC has further developed a variety of safety projects, such as the Bowtie Barrier Validation, Electronic Field Risk Assessment (e-FRA).



Personal Safety and Safety Culture

GC has adopted the Operational Discipline (OD) approach, which was developed based on the DuPont Methodology, and the Engineering Control Strategy to upgrade safety processes, strengthen safety culture,

comprehensively control potential work-related accidents, and effectively reduce injury statistics. The company has developed several personal safety projects, including Onsite Supervision using Permit to Work and Operational Discipline (OD), Early Detect Low-performance Contractors, and Hand Injury Reduction using Engineering Control, etc.

Human Rights Management along Value Chain

GC's human rights policy and practices have been formulated in accordance with international principles, including the Universal Declaration of Human Rights (UDHR), the UN Guiding Principles on Business and Human Rights (UNGP), and the Declaration on Fundamental Principles and Rights at Work. In doing so, GC aims to prevent violations of employees' human rights within the Group, relevant businesses (joint ventures, mergers & acquisitions), business partners (suppliers, contractors, and customers), and local communities as well as to become a model business that adheres to human rights principles.

GC continuously conducts Human Rights Due Diligence (HRDD) and assesses human rights risks in all activities across the value chain covering all six aspects of human rights, namely labor rights, community rights, supply chain, safety, environment, and consumer rights. As a result of residual risk assessment, one high residual risk was found, i.e., vehicle accidents in the operating sites, and six residual risks were identified as moderate:

1. Turnaround-related issues
2. Wastewater pollution in Map Ta Phut area
3. Direct and indirect illegal forms of labor in the procurement of raw materials, products, and services
4. Discrimination against suppliers providing other products and services
5. Oil leakage/spill
6. Possibility of customer data leakage

The aforementioned risk issues have urged GC to establish measures and guidelines to closely control and mitigate impacts as well as requiring strict compliance from relevant departments and individuals to ensure that none of GC's activities across the value chain will cause any forms of human rights violation.

Contribution to Society

GC has developed a group-wide strategy on social responsibility, focusing on Creating Shared Value (CSV) and Social Enterprise (SE). The company has also set a target to become the Partner of Choice by 2025. Accordingly, GC has prioritized CSR projects based on three key elements:

- 1. Better Living:** GC places importance on developing the quality of life of communities and society by promoting well-being under the concept of self-sufficiency and self-sustainability. Examples of outstanding projects include Community Waste Model which features GC's collaboration with six communities in Rayong and Nakhon Pathom provinces in establishing recycling waste management hubs, and recycling waste management projects in collaboration with educational institutions and network partners to collect discarded plastic bottles for recycling and upcycling, which has created employment and careers as well as generated an income of more than 3.7 million baht in 2023.
- 2. Sharing:** GC promotes the strengthening of the organization by sharing ideas and innovations to create value for communities and society so that they may grow sustainably alongside the industry. Highlight projects include Smart Farming by GC which leverages the organization's innovation, such as photosensitive greenhouse films and shelf-life extension bags, in conjunction with energy-related innovation, technology and IoTs (Internet of Things) to upgrade cultivation and improve agricultural products while developing youth skills in modern agriculture to provide knowledge and enable efficient use of technology. In 2023, the project generated more than 860,000 baht for the community, raising the average income from product sales by approximately 31,800 baht per month compared to 2022.

3. Ecology: GC focuses on business practices as well as a sustainable ecosystem throughout the value chain. Outstanding projects include the “GC Community-based Water Management” project, which is a collaboration between GC, the government sector, educational institutions, and local communities of Rayong province to alleviate floods and droughts in the communities. Activities carried out under this project include constructing

water storage/sediment trap weirs using plastic flapped sacks, and the closed Groundwater Bank Project to alleviate the problem of saltwater intrusion, droughts and floods, etc. These projects ensure that farmers have sufficient water supply for agriculture all year round and reduce 126,200 baht per year worth of water consumption from the water supply system.



Sustainability Management in the Economic Dimension

Innovation Management

GC has worked continuously to enhance our Innovation Strategy through the planning and allocation of resources to support research and innovation, strengthen the company's competitive advantage and promote the achievement of the Net Zero Target. GC's Innovation Management Strategy and Operational Framework consists of 1) Competitiveness & Decarbonization, 2) Market-Focused Innovation, 3) Innovation Growth Platform, 4) Enabler. In addition, GC has also developed new innovation strategies, such as low-carbon energy and fuel production, chemical recycling, Syngas, textile recycling, and carbon capture, etc.



GC has made investments through Corporate Venture Capital (CVC) and determined a future investment direction that focuses on the High Value & Low Carbon Business Group to increase the company's competitiveness. This can be further developed into high value businesses through direct and indirect investment in innovation.

Furthermore, GC also supports the development of innovation, encourages the establishment of long-term cooperation with networks, third-party agencies or experts, and enhances employee capacity and capabilities. In 2023, GC has implemented various innovation projects, such as

- InnoPlus Solution Center which connects business networks across the value chain and promotes collaborative development of production innovation.
- Memorandum of Understanding (MOU) on Synthetic Biology Research and Development with the School

of Biomolecular Science and Engineering (BSE), Vidyasirimedhi Institute of Science and Technology (VISTEC) to research and develop Biomolecular Engineering and Synthetic Biology in an effort to expand into high-value businesses, such as Green Business and Bio Specialty Business.

- GC Ventures which aim to seek technology and opportunities to make direct and indirect investments with focus on Decarbonization technology, Advanced Materials, Biotech & Life Science, Clean Technology and Digital Platforms, etc.



GC also targets to leverage innovation to improve production processes (Process Innovation) and develop products (Product Innovation) to meet the needs of customers and the market while endeavoring to achieve environmentally friendly production processes. Such

efforts have been manifested in the form of various projects such as OLE Online Heater Cleaning, Heavy Residue Upgrading to Carbon Black Feedstock, B-LEAP, CSD Cap Grade for New Design (Light Weight), and Collation Bundling Shrink Film.



For more information on innovation management goals is available at:
Additional information is available in the 2023 Integrated Sustainability Report. Page 129

Additional information on GC's sustainable operations is available in the 2023 Integrated Sustainability Report.



Management Discussion and Analysis

Executive Summary

In 2023, the Company had total sales revenue of Baht 616,635 million, decreased by 9% due to price decreases across the petroleum and petrochemical products due to the ongoing economic recession that has not yet recovered. However, after the 2022 scheduled maintenance shutdown, the Refinery business sales volume increased with no shutdowns occurring in 2023. In 2022, the Russia-Ukraine conflict has triggered a global energy crisis, resulting in a sharp increase in energy prices. This resulted in an unusual surge in petroleum product prices in 2022. The Company had Adjusted EBITDA of Baht 40,007 million, decreased by 19% from the previous year. The petrochemical products spread declined during the year, especially the products in the Intermediates business and Polymers & Chemicals business which was affected by the new capacities during the year and the global economic slowdown.

In 2023, the Company incurred a Company had a Net Operating Loss Recurring⁽¹⁾ of Baht 3,587 million, due to the prevailing economic slowdown and the surplus supply of Petrochemical business persisting throughout the year. The Company recorded extraordinary items from stock loss net NRV of Baht 2,756 million, net gain from foreign exchange and financial derivatives of Baht 790 million. Additionally, as previously mentioned, through the sales of GCL shares of approximately Baht 2,640 million. The Company recorded gain on the transaction (including a gain from change in ownership interest in subsidiary to joint venture at fair value) at Baht 4,017 million. Moreover, as the Company reduced overall debt through repurchase of USD bonds, the Company recorded a gain of Baht 1,890 million. As a result, the Company improved performance beyond its regular business operations. The Company had share of loss from investments at Baht 725 million, which declined in comparison to the previous year as the petrochemical business encountered a downturn in overall performance throughout the current year. The Company recorded net profit in 2023 at Baht 999 million (Baht 0.22/share).

⁽¹⁾ Net Operating Profit/Loss excludes stock gain/loss net NRV, gain/loss from foreign exchange and financial derivative, gain/loss from commodity hedging, and extraordinary items

Performance Summary

(Unit: Million Baht)	2022	2023	YoY % +/(-)
Sales Revenue	678,267	616,635	-9%
EBITDA	22,420	40,449	80%
EBITDA Margin (%)	3%	7%	4%
Share of profit/(loss) of investments in JV and Associates	2,908	(725)	-125%
Net Profit/(Loss)	(8,752)	999	111%
EPS (Baht/Share)	(1.94)	0.22	111%
Adjusted EBITDA ⁽¹⁾	49,134	40,007	-19%
Adjusted EBITDA Margin (%)	7%	6%	-1%

Note:

⁽¹⁾ Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss), NRV, Gain/(loss) from commodity hedging, and Extra item.

In 2023, Upstream business performance improved compared to the previous year, primarily attributed to enhanced Aromatics performance, supported by higher product spread of paraxylene and benzene and the rebound in downstream demand. While Refinery performance is impacted by the decline in the GRM, while the sales volume increased compared to the prior year, after the 2022 scheduled maintenance shutdowns. Olefins performance slightly decreased, aligned with the decreasing trend in product spread and was influenced by the addition of new capacities and a slowdown in downstream demand. Moreover, the Olefins 2 Modification Project commenced commercial operations, enabling the company to enhance feedstock flexibility as well as enhancing long-term competitive capabilities by utilizing propane as feedstock. Throughout the year, there were scheduled maintenance shutdowns for the Aromatics 2 plant, Olefins 1 plant, and Olefins 2/2 plant.

Intermediates business performance significantly declined, aligning with market trends, primarily due to downstream demand stagnated amid the economic slowdown. Additionally, new production capacities for phenol, bisphenol A (BPA), and purified terephthalic acid (PTA) from Chinese producers emerged in 2023.

Throughout the year, there were scheduled maintenance shutdowns for Phenol plant 2, BPA plant, and Monoethylene Glycol (MEG) plant.

Polymers & Chemicals business declined from the previous year due to the decrease in spread of plastic resins products, especially polyethylene (PE), which declined by 19% compared to the prior year, driven by ongoing economic slowdown, high inflation, economic regression, and oversupply, resulting from the continuous introduction of new production capacities from China.

Bio & Circularity business performance decreased compared to the previous year, primarily due to softened demand, especially in the fatty alcohol downstream industries.

Performance Chemicals business performance decreased compared to the previous year, impacted by a decline in allnex sales volume, particularly in America and Europe, while remaining stable in Asia. Furthermore, Vencorex, a HDI derivatives producer, faced persistent challenges from soft demand and intense price competition.

Adjusted EBITDA by Business Unit

Adjusted EBITDA ⁽¹⁾ Margin by Business Unit	2022	2023	YoY % +/(-)
Adjusted EBITDA (Million Baht)			
Upstream	21,616	24,364	13%
Intermediates	5,049	(359)	-107%
Polymers & Chemicals	7,580	6,178	-18%
Bio & Circularity	1,579	673	-57%
Performance Chemicals	10,667	7,006	-34%
Services and Others	2,643	2,145	-19%
Total	49,134	40,007	-19%
Adjusted EBITDA margin (%)			
Upstream	6	7	1
Intermediates	6	(1)	(7)
Polymers & Chemicals	7	6	(1)
Bio & Circularity	7	4	(3)
Performance Chemicals	9	7	(2)
Average	7	6	(1)

Note:

⁽¹⁾ Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss), NRV, Gain/(loss) from commodity hedging, and Extra item.

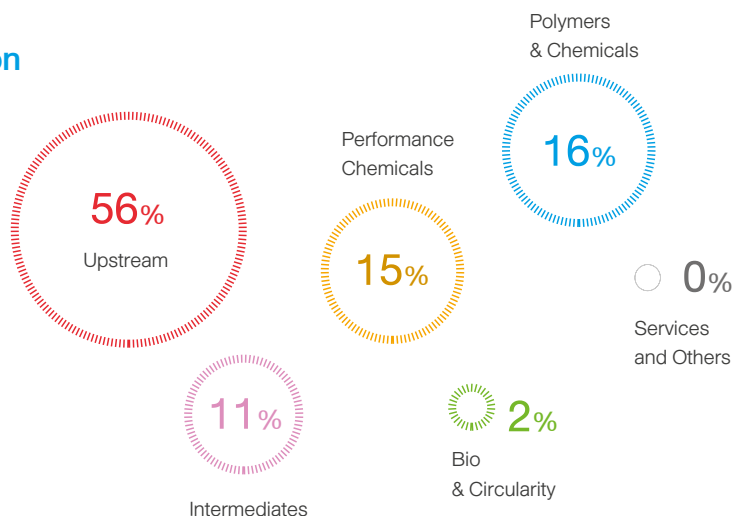


Sales Revenues

Breakdown by Business group

Year 2023:

Baht 616,635 Million



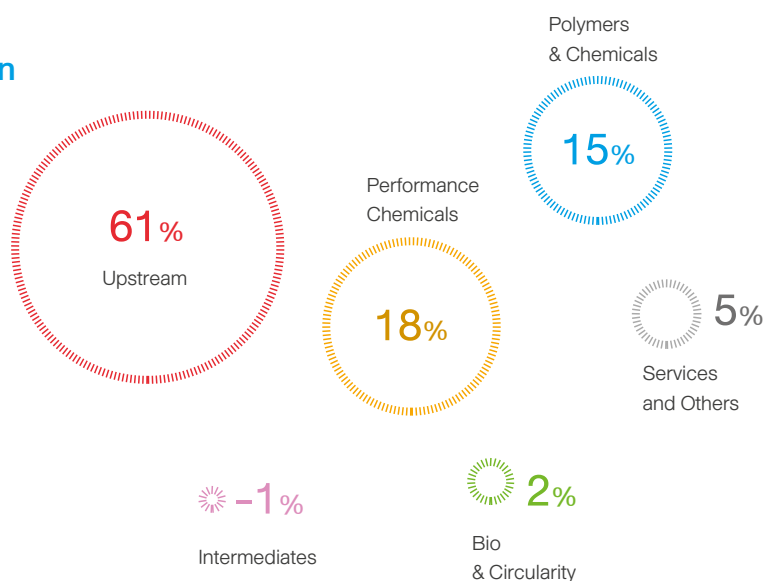
2023

ADJUSTED EBITDA

Breakdown by Business group

Year 2023:

Baht 40,007 Million



Performance Analysis by Business Unit

Upstream

Price, Product Spreads and Performance of Upstream

	2022	2023	YoY % +/-
Dubai Crude Oil (\$/bbl)	96.3	82.1	-15%
Diesel-Dubai (\$/bbl) ⁽¹⁾	34.3	21.9	-36%
LSFO-Dubai (\$/bbl)	22.5	11.5	-49%
Gasoline-Dubai (\$/bbl)	18.8	16.7	-12%
Jet-Dubai (\$/bbl)	30.3	22.5	-26%
Market GRM (\$/bbl)	12.1	9.4	-22%
Condensate (\$/ton)	830	679	-18%
Paraxylene (FECF)-Condensate (\$/ton)	275	359	31%
Benzene-Condensate (\$/ton)	198	218	10%
BTX P2F (\$/ton)	85	189	123%
Naphtha (MOPJ) (\$/ton)	785	649	-17%
Ethylene (SEA) (\$/ton)	1,054	889	-16%
Propylene (SEA) (\$/ton)	1,008	858	-15%
Hedging Gain/(Loss) (MB)	(23,057)	(626)	97%
Stock Gain/(Loss) and NRV (MB)	(3,197)	(2,584)	19%
Adjusted EBITDA⁽²⁾ (MB)	21,616	24,364	13%
Adjusted EBITDA (%)	6%	7%	1%
Petroleum Product Sales Volume (million bbl)	50.8	64.8	27%
Petrochemical Product Sales Volume (million ton)	5.1	5.1	0%

Note:

⁽¹⁾ Diesel 50 ppm

⁽²⁾ Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss), NRV, Gain/(loss) from commodity hedging, and Extra item



For Upstream Business in 2023, the Adjusted EBITDA was Baht 24,364 million, which increased from the previous year by 13%, and the Adjusted EBITDA Margin was at 7%. The overall product sales volume increased from 2022. The Company's petroleum product sales volume at 64.8 million barrels. The Company's petrochemical product sales volume of 5.1 million tons. The Company had the planned maintenance shutdown of Olefins plant 2/2 in Q1/2023, the planned maintenance shutdown of Aromatics plant 2 in Q3/2023 and the planned maintenance shutdown of Olefins plant 1 in Q4/2023. The commercial operation of Olefins 2 Modification Project started in 2023, resulting in the Company increased propane usage as feedstock, which align with the Company's strategy to enhance feedstock flexibility and long-term competitiveness. The performance decreased as a result of the following:

1. For the Refinery business in 2023, the performance decreased from 2022 resulting from economic recession. Despite the China's re-opening in January 2023, the economic indicators presented the slowdown of economic activities and reflected that demand recovery was weaker than expected, which impacted the demand of Petroleum products. Also, geopolitical tensions remain a significant risk factor, including the ongoing conflicts in Russia and Ukraine which led to a decline of market supply. However, the production of the Middle East and Russia was stable, even with production cuts in Saudi Arabia. Petroleum product spreads

decreased from 2022 which included Diesel, Jet, Gasoline, and Low Sulfur Fuel Oil spreads mainly due to higher export from China and freight rate. The Company's Market GRM in 2023 decreased to 9.4 USD per barrel.

2. For the Aromatics business in 2023, the performance increased from the previous year resulting from an increase in Paraxylene and Benzene over Condensate spread as a recovery of downstream market, especially the Polyester and textile market mainly due to China's re-opening in January 2023 and the shift in the feedstock to gasoline blending. Also, Benzene spread was supported by China's re-opening and the Chinese New Year holiday in January 2023 supported demand recovery of downstream market with control supply by several producers. The Market P2F in 2023 increased to 189 USD per ton.
3. For the Olefins business in 2023, the performance decreased from 2022 resulting from the Olefins products spread was decreased from the higher production capacities in Asia and a weak demand of downstream market from economic recession, despite control of production by Asian ethylene producers. The Company's sale volume was increased in 2023 mainly due to a start of the commercial operation of Olefins 2 Modification Project in July 2023.



Intermediates

Price, Product Spreads and Performance of Intermediates

(Unit : USD per ton)	2022	2023	YoY % +/-
Mono-ethylene glycol (MEG-ACP)	903	855	-5%
MEG-0.65Ethylene	218	278	28%
Phenol	1,309	977	-25%
Phenol spread*	357	252	-30%
Bisphenol A (BPA)	1,860	1,272	-32%
BPA spread**	553	230	-58%
Propylene Oxide (PO)	1,230	1,053	-14%
Purified Terephthalic Acid (PTA)	845	779	-8%
PTA-0.67PX	105	83	-21%
Acrylonitrile (AN)	1,706	1,310	-23%
AN-Propylene	697	452	-35%
Methyl Methacrylate (MMA)	1,874	1,562	-17%
MMA-Naphtha	1,089	912	-16%
Adjusted EBITDA (MB)	5,049	(359)	-107%
Adjusted EBITDA (%)	6%	-1%	-6%
Sales Volume (Kton)	2,874	2,602	-9%
Share of gain/(loss) from investment (MB)	(592)	(1,014)	-71%

Note:

* Phenol spread derives from Phenol-0.878 BZ-0.474 Propylene+0.616 Acetone

** BPA spread derives from BPA-0.853 Phenol-0.273 Acetone

For Intermediates Business in 2023, the Adjusted EBITDA was Baht -359 million, which decreased from the previous year by 107%, and the Adjusted EBITDA Margin was at -1%. The overall product sales volume was approximately 2,602,000 ton which decreased from 2022 by 9% due to the planned maintenance shutdown of Phenol plant 2, BPA plant and MEG plant.

The overall market of Intermediates product in 2023 was weak compared to the market in 2022 due to the dampening demand impacted by the global economic slowdown, and new production capacities for Phenol, BPA, and Purified Terephthalic Acid (PTA) from Chinese producers.



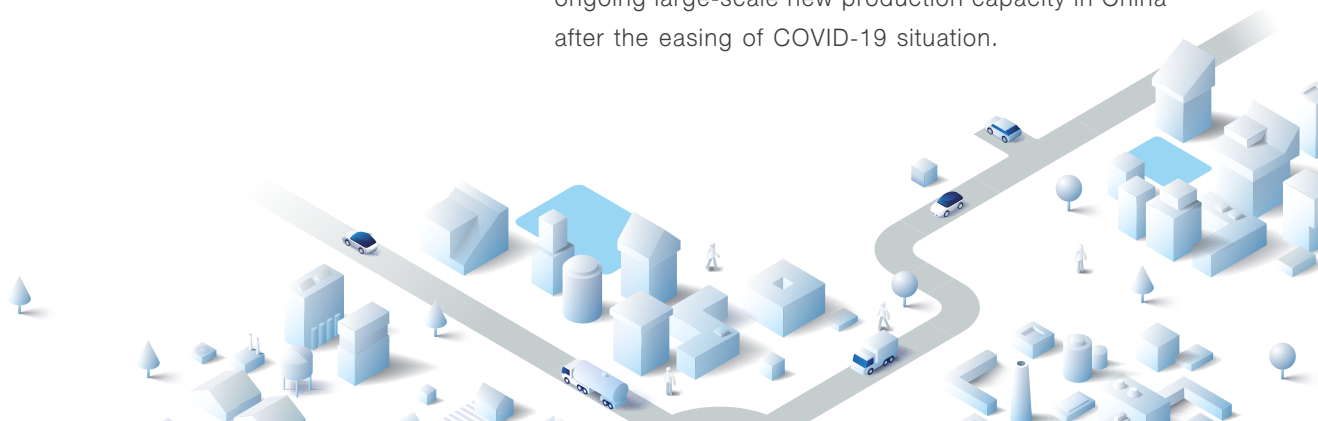
Polymers & Chemicals

Price, Product Spreads and Performance of Polymers & Chemicals

(Unit : USD per ton)	2022	2023	YoY % +/-
Average Polyethylene (PE)	1,280	1,033	-19%
High-Density Polyethylene (HDPE)	1,203	1,044	-13%
HDPE-Ethylene	148	155	4%
Linear Low-Density Polyethylene (LLDPE)	1,208	1,013	-16%
LLDPE-Ethylene	154	124	-19%
Low-Density Polyethylene (LDPE)	1,428	1,041	-27%
LDPE-Ethylene	373	152	-59%
Polyethylene Terephthalate (PET)	1,097	925	-16%
Polypropylene (PP)	1,206	1,008	-16%
PP-Naphtha	421	358	-15%
Polyvinyl chloride (PVC)	1,103	814	-26%
PVC-0.5 Ethylene	576	370	-36%
Polyols	1,656	1,366	-18%
Polyols-0.92 PO	525	397	-24%
Adjusted EBITDA (MB)	7,580	6,178	-18%
Adjusted EBITDA (%)	7%	6%	1%
Sales Volume (Kton)	2,199	2,331	6%
Share of gain/(loss) from investment (MB)	1,598	(553)	-135%

For the year 2023, Polymers and Chemicals business had an Adjusted EBITDA of Baht 6,178 million, which decreased by 18 percent from the previous year, resulting in an Adjusted EBITDA Margin of 6%. This reduction was attributed to a decrease in product spread. Overall sales volume was approximately 2,331,000 tons, which increased by 6% compared to the previous year.

In the overview of the market situation for Polymers and Chemicals business in the year 2023, there was a decline compared to last year, primarily due to the significant reduction in the product spread. The average price of PE decreased by 19% from the previous year. The economic conditions, which had not fully recovered, continued to exert pressure on the market situation due to high inflation rates and an economic downturn. Additionally, there was excess supply resulting from ongoing large-scale new production capacity in China after the easing of COVID-19 situation.



Bio & Circularity

Price, Product Spreads and Performance of Bio & Circularity

(Unit : USD per ton)	2022	2023	YoY % +/(-)
Methyl Ester (ME) P2F (THB per Kilogram)	3.4	4.3	26%
Fatty Alcohol (FA) P2F	514	434	-16%
Adjusted EBITDA (MB)	1,579	673	-57%
Adjusted EBITDA margin (%)	7%	4%	-3%
ME Sales Volume (Kton)	293	320	9%
FA Sales Volume (Kton)	97	97	0%
Share of gain/(loss) from investment (MB)	1,326	(204)	-115%

For Bio and Circularity Business in FY2023, the Adjusted EBITDA was Baht 673 million, which decreased from the previous year by 57%, and the Adjusted EBITDA Margin was at 4%. This was impacted by the decrease in Fatty Alcohol P2F in 2023 due to economic activity in China being weaker than expected and slowdown purchase from Indian buyers. FA sales volume was stable, and FA price was decreased

following a decline in feedstock price under pressure from high production in Malaysia of Crude Palm Kernel Oil (CPKO). Methyl Ester (ME) sales volume increased from the previous year as the Thai government announced to maintain B7 biodiesel mandate throughout the year. ME price decreased in 2023, but ME P2F increased due to decline in CPO price as feedstock.

Performance Chemicals

Price, Product Spreads and Performance of Performance Chemicals

	2022	2023	YoY % +/(-)
Adjusted EBITDA (MB)	10,667	7,006	-34%
Adjusted EBITDA margin (%)	9%	7%	-2%
Sales Volume (Kton)	837	788	-6%
Share of gain/(loss) from investment (MB)	(20)	(205)	<-200%

For Performance Chemicals Business in 2023, the Adjusted EBITDA was Baht 7,006 million, which decreased from the previous year by over 34%, and the Adjusted EBITDA Margin was at 7% due to the drop in allnex's sales volume mainly in Europe and America region, following the destocking effect during

economic downturn. In the other hand, there was a strong volume performance in China and India in second half of 2023. Vencorex was still impacted by sluggish demand during an economic downturn and intense price competition among manufacturers in the market.

Operating Performance

Unit : MB	2022	2023	YoY % +/(-)
1 Sales Revenue	678,267	616,635	-9%
2 Feedstock cost	(521,512)	(478,301)	8%
3 Product to Feed Margin	156,755	138,334	-12%
4 Variable Cost	(51,148)	(47,944)	6%
5 Fixed OH	(32,542)	(33,666)	-3%
6 Stock Gain/(Loss) and NRV	(3,657)	(2,756)	25%
7 Gain/(Loss) on Commodity Hedging	(23,057)	(627)	97%
8 Other Revenue	7,527	13,931	85%
9 SG&A Expenses	(31,458)	(26,823)	15%
10 EBITDA	22,420	40,449	80%
11 Depreciation & Amortization	(26,646)	(27,504)	-3%
12 Extra items	893	(86)	-110%
13 EBIT	(3,333)	12,859	>200%
14 Net financial expense	(9,171)	(10,707)	-17%
15 FX Gain (Loss)	(313)	790	>200%
16 Share of gain/(loss) from investment	2,908	(725)	-125%
17 Corporate Income Tax	2,273	(1,352)	-159%
18 Net Profit/(Loss) after Tax	(7,636)	865	111%
19 Profit/(loss) attributable to: Non-controlling interests	1,116	(134)	-112%
20 Owners of the Company	(8,752)	999	111%
21 Adjusted EBITDA⁽¹⁾	49,134	40,007	-19%

Note:

⁽¹⁾ Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss), NRV, Gain/(loss) from commodity hedging, and Extra item.

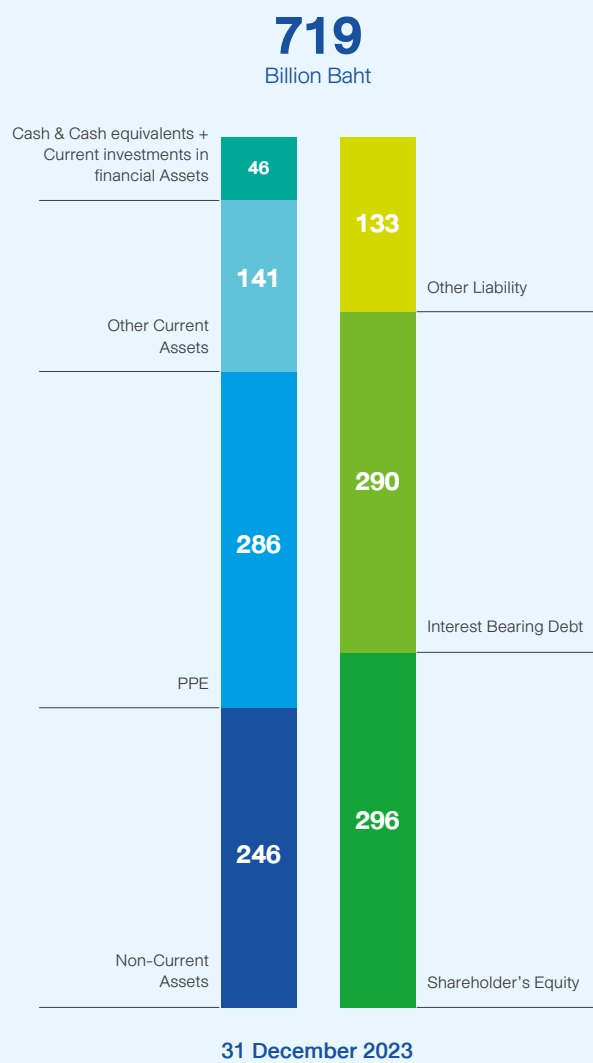
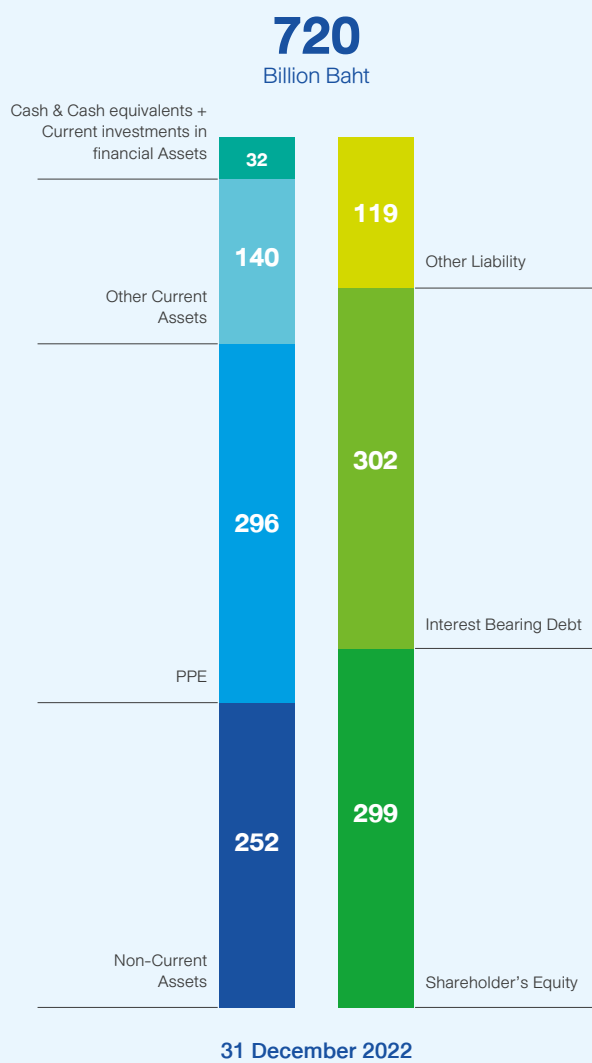
In 2023, the Company had sales revenue of Baht 616,635 million, decreased from last year by 9%. This decrease was primarily due to decreased prices of petroleum and petrochemical products across all categories, reflecting an ongoing economic downturn globally. In terms of sales volume, the refinery business increased from last year, as there was maintenance shutdown in Q4/2022, while there was no refinery turnaround in 2023. However, in 2022, there was a Russian-Ukrainian conflict, significantly impacted to energy prices, resulting in higher-than-normal petroleum product prices. In addition, variable expenses decreased compared to the previous year, mainly driven by lower utility expenses. Fixed overhead and SG&A expenses decreased, mainly attributed to lower sales volume. Additionally, the Company incurred losses from stock loss net NRV totaling Baht of 2,756 million, and

hedging loss amounting to Baht 627 million. Other income increased by Baht 6,404 million, consisting of gain from sales of shares in GCL (including gains from fair value adjustments of the remaining investment in GCL) of Baht 4,017 million, gain from repurchase of USD bonds of Baht 1,890 million, and insurance claim income related to warehouse incident of Baht 500 million. In addition, the Company recorded extra items in 2023 amounting to losses of Baht 86 million, mainly from asset disposals totaling Baht 557 million due to disruptions in preparing for a warehouse project, as well as gain of Baht 518 million from the fair value assessment of the remaining investment in Thai Tank Terminal Company Limited, which was completed in 2023 following the change in the ownership in December 2022.

Statements of Financial Position

Balance Sheet

Unit: Billion Baht



Assets

As of December 31, 2023, the Company had total assets of Baht 719,005 million, decreased by Baht 960 million or 0.1% from December 31, 2022 and variance of the assets are described as follows:

- Total current assets increased by Baht 14,865 million mainly due to increase in cash and cash equivalents, and current financial assets by Baht 14,287 million (refer to cash flows analysis). There was an increase in account receivables by Baht 12,507 million due to the petroleum sales volume increased after completed the planned maintenance shutdown of Refinery in Q4/2022. Inventories decreased by Baht 8,102 million as Aromatics inventory was lower.
- Property, plant and equipment decreased by Baht 10,462 million mainly due to the completion of projects by Baht 7,777 million and depreciation by Baht 16,025 million.
- Non-current assets decreased by Baht 5,364 million from the fair value measurements on the investment in Global Power Synergy Public Company Limited (GPSC).

Liabilities

As of December 31, 2023, the Company had total liabilities of Baht 422,824 million, increased by Baht 1,686 million from December 31, 2022 and movements of liabilities were as follows:

- Interest-bearing debt (including Lease liabilities) decreased by Baht 11,751 million due to 1) the drawdown of short-term borrowings by Baht 11,400 million and long-term borrowings by Euro 64 million 2) Short-term loans were repaid by Baht 2,000 million, and Baht 7,157 million along with USD 100 million were used to repay long-term loans. Additionally, USD bonds total of USD 355 million were repurchased.
- Trade accounts payable increased by Baht 13,550 million mainly due to higher crude purchased after the completion of planned maintenance shutdown of Refinery and higher propane purchased.
- Other liabilities increased by Baht 613 million due to other payable increased by Baht 2,107 million, and a decline in payables to contractors by Baht 1,223 million. However, derivatives liabilities decreased by Baht 1,548 million related to commodity hedging.

Shareholder's Equity

As of December 31, 2023, the Company had total shareholder's equity of Baht 296,181 million, which decreased by Baht 2,647 million from December 31, 2022 as a result from change in Other components of equity, which included the loss from fair value measurements in financial assets and the fair value measurements of GPSC.

Cashflow Statement

Cashflow (Unit: Million Baht)	For the year Ended 31 December 2023
Net cash flows provided by operating activities	48,234
Net cash flows used in investing activities	(12,148)
Net cash flows provided by financing activities	(25,123)
Net increase (decrease) in cash and cash equivalents, before effect from foreign exchange rate	10,963
Effects of exchange rates on cash and cash equivalents	416
Net decrease in cash and cash equivalents during the period	11,379
Cash and cash equivalents at the beginning of the period	25,940
Cash and cash equivalents at the end of the period	37,319
Current investments in financial assets at the end of the period	8,930
Net cash and cash equivalent and investment at the end of the period	46,249

For the period ended December 31, 2023, the Company had cash flow activities as follows:

- Cash flows received from operating activities of Baht 48,234 million due to operating activities and decrease in working capital.
- Cash flow used in investing activities of Baht 12,148 million. The Company had cash paid for property, plant, and equipment, and intangible assets amounting to Baht 19,586 million. The Company had cash received from disposal of property, plant and equipment of Baht 4,503 million, dividends received of Baht 2,566 million, and cash received from sales of GCL shares.
- Cash flow provided by financing activities of Baht 25,123 million mainly due to the repayment of short-term and long-term borrowings from financial

institutions of Baht 15,102 million, cash paid for finance costs of Baht 10,861 million, cash paid for bond repayment of Baht 10,330 million, and cash paid related to lease liabilities of Baht 3,186 million. Meanwhile, the Company had cash received from short-term and long-term borrowings from financial institutions of Baht 15,535 million.

As a result, as of December 31, 2023, the Company had total cash and cash Equivalents of Baht 37,319 million, along with current investments in financial assets of Baht 8,930 million. Hence, the Company had total cash and cash equivalent and investment of Baht 46,249 million. The Company had Net interest-bearing debt to equity at 0.82 times and Net interest-bearing debt to EBITDA at 6.03 times.



Key Financial Ratios

Financial Ratios		2021	2022	2023
<u>Liquidity Ratios:</u>				
Current Ratios	(Times)	1.42	1.65	1.48
Quick Ratio	(Times)	0.85	0.74	0.83
Operating Cash Flow Ratio	(Times)	0.67	-0.03	0.42
Account Receivables Turnover	(Times)	11.72	14.22	12.02
Account Receivables Days	(Days)	31.14	25.66	30.37
Inventory Turnover	(Times)	7.81	8.53	8.05
Days Sales in Inventory	(Days)	46.76	42.81	45.33
Account Payables Turnover	(Times)	9.08	9.89	9.08
Account Payables Days	(Days)	40.18	36.90	40.22
Cash Cycle	(Days)	37.72	31.57	35.48
<u>Profitability Ratios:</u>				
Gross Margin Ratio	(%)	12.62	7.64	5.99
EBIT/Sales Revenue	(%)	12.52	0.00	2.24
Cashflow from Operation/EBIT	(%)	116.9	>200	>200
Net Profits to Sales Revenue	(%)	9.59	-1.28	0.16
Return on Equity	(%)	15.0	-2.9	0.3
<u>Efficiency Ratios:</u>				
Return on Total Assets	(%)	9.5	-0.01	1.9
Return on Fixed Assets	(%)	24.05	5.99	9.79
Total Asset Turnover	(Times)	0.76	0.93	0.86
<u>Leverage Ratios:</u>				
Interest Bearing Debt to Equity	(Times)	0.84	1.01	0.98
Interest Coverage Ratio	(Times)	12.25	-0.07	4.24
Dividend Payout Ratio	(%)	37	N/A	>200



Projects Progress

In 2023, the Olefins 2 Modification Project started commercial operation in July 2023 allowing the Company to increase propane usage as feedstock and align with the Company's strategy to enhance feedstock flexibility and long-term competitiveness. The project has increased the Company's ethylene and propylene capacity from 3,680,000 tons per year to 3,729,000 tons per year.

Estimated Annual CAPEX of PTTGC Group for the next 5 years

CAPEX of PTTGC group*	Total 2024-2028	Estimated Annual CAPEX (M.USD)				
		2024	2025	2026	2027	2028
1) PTTGC group excluding allnex	192	151	37	3	1	-
2) allnex expansion & growth Capex	474	111	114	95	91	63
total	666	262	151	98	92	63

Notes:

- * 1. Group annual maintenance ~ 400 M.USD (including allnex Holding GmbH)
- 2. Other projects such as IT & digital, new office facility, operational excellence etc.
- 3. allnex expansion & growth Capex based on capex plan, including committed and uncommitted projects
- 4. FX assumption for USD/EURO is 1.01 for allnex CAPEX plan.

Market and Business Outlook in 2024

Global economic growth in 2024 remains challenging, even though there have been efforts to recover from the COVID-19 crisis, conflicts in Ukraine, and energy crises. The global growth outlook continues to be weak both in the overall sentiment and on a country-by-country basis. This is attributable to the impact of interest rates hike that have persisted to the highest level in the past decade in key global economies, as well as economic challenges. Furthermore, geopolitical tensions remain a significant risk factor, including the ongoing conflicts in Russia and Ukraine, and the Israel-Hamas war. It is expected that global growth will slow down from 3.5% in 2022 to 3.0% in 2023 and 2.9% in 2024, according to the International Monetary Fund (IMF, October 2023). Nevertheless, the economic situation is expected to gradually improve in the latter half of the year after international economic stimulus measures, leading to a slowly improving overall economic outlook.

Upstream Business Unit

The Company anticipates that the trend of Dubai crude oil prices in 2024 will average between 75-85 USD/barrel. However, there are several factors contributing

to the challenge in crude oil market. These factors include ongoing inflationary pressures, persistently high-interest rates from previous years, and uncertainties related to the economic recovery in China, which can dampen oil demand. In terms of supply, OPEC and its allies (OPEC plus), expect a continuous control over production levels to maintain market stability. On the other hand, the supply shortage can be supported by increased production from non-OPEC countries, such as the United States, Brazil, or Iran.

For petroleum products, the Company anticipates that the price and products spread in 2024 will be softened compared to 2023. This is due to economic pressure factors, high-interest rate policy effects, and uncertainties in the global economy. Additionally, changes in consumer behavior and market uncertainties contribute to the expected weakening of demand. As a result, Diesel over Dubai spread is expected to be 15-19 USD/barrel, while Low Sulfur Fuel Oil (LSFO) over Dubai spread will be in the range of 9-12 USD/barrel. The expected Gasoline over Dubai spread is around 14-18 USD/barrel. The Company continues to manage its production and sales strategies to align with the evolving market conditions. This includes optimizing by closely monitoring the market situation for crude oil supply and product spread. The Company expects that the Refinery's utilization rate to be at 101% in 2024.

For Aromatics products, the Company anticipates that the product spread for paraxylene and naphtha in 2024 will decrease to a range of 370-390 USD/ton, down from 2023. Economic challenges in the global economy and changing consumer behavior contribute to the expected decrease. The spreads for benzene and naphtha are expected to be around 240-260 USD/ton, which is similar to 2023. The economic outlook is expected to gradually improve in the latter half of 2024, driven by continued economic stimulus package by the Chinese government, which can positively drive up the benzene market. The production capacity utilization rate for the aromatics is expected to be at 94% in 2024.

The outlook for Olefins products, the Company anticipates that Ethylene products price will be at 910-940 USD/ton and Propylene price is expected to be 900-930 USD/ton. Both will increase from 2023. Economic conditions are expected to slowly improve in the second half of 2024, which can support the overall market for ethylene and propylene. The Company expects Olefins utilization rate to be around 92% in 2024.

Intermediates Business Unit

For Phenol market trend in 2024, the Company expects that Phenol P2F spread will be in the range of 210-230 USD/ton. This reflects a decrease from 2023 and is impacted by ongoing economic challenges in the first half of the year, with a gradual improvement expected in the latter half of 2024. The economic stimulus package in China is anticipated to support this improvement. However, the continuous growth of new capacities entered in China will exert pressure on Phenol products.

Regarding MEG (Monoethylene Glycol) market trends, the company expects the price of MEG to be around 540-560 USD/ton with an upward trend. There is an expectation of a gradual recovery in the second half of 2024 as economic pressures will start to ease. This will support the demand for MEG products. For PTA (Purified Terephthalic Acid) products, the Company anticipates that the product spread for PTA will gradually improve in 2024 as various economic activities worldwide, including trading and tourism, return to more normal levels.

Polymers & Chemicals Business Unit

The Company anticipates that the average Polyethylene price in 2024 is expected to be 1,050-1,080 USD/ton, with a slight increase from 2024. The demand for plastic resins is expected to be supported by economic stimulus package and recovery measures implemented by countries worldwide. However, there are factors that may exert pressure, such as economic setbacks and global central bank policies to manage inflation rates. Additionally, there is still some uncertainty related to geopolitical factors in the European and Middle East region. In terms of suppliers, the Company anticipates that there will be additional capacities coming from countries such as China, India, and the United States. The Company expects the Polyethylene plants utilization rate to be around 104% in 2024.

Performance Chemicals Business Unit

The economic slowdown is expected to continue to have a prolonged impact on the demand for industrial Coating Resin products. However, it is anticipated that the growth in demand for products in this business unit will outpace the overall GDP growth. This is due to several factors that underscore the importance of quality control and surface protection in various industries that utilize coating resins, particularly in industries such as automotive.

Sustainability Management (Environment Social Governance & Economic)

GC strives to operate for the organization's growth as well as the balance of the three dimensions, namely environment, social, governance and economic (ESG). Our success has been reflected throughout the recognitions both national and international. The company has implemented sustainability strategies and achieved the objectives as our goals. We have also attained outstanding results under sustainability strategy (Step up):

Sustainability Management in the Environmental Dimension

Efficiency-driven: GC is undertaking improvements in energy management by incorporating low-carbon technologies into the production processes and

transitioning to renewable energy or low-carbon energy sources. This includes 74 energy conservation projects, efficiency enhancements in the refining process, the development of the Word Membrane Platform, and the implementation of renewable energy projects. The objective is to reduce greenhouse gas emissions from the production processes.

Portfolio-driven: GC is undertaking a business portfolio adjustment to become a low-carbon business. This involves a focus on investments in three business groups:

- High Value Business (HVB: Developing highly efficient products from the markets and technologies, such as coatings with low Volatile Organic Compound (VOC) content.
- Bio-based Products Group: Producing bio-based products, including Fatty Acid Methyl Ester (FAME), Refined Glycerin, products from palm kernel oil, and the bio-plastic PLA (Polylactic Acid).
- Circularity & Recycling Group: Utilizing innovations and advanced manufacturing technologies to enhance the quality of recycled plastics, making them usable and sustainable and operating the ENVICCO plastic recycling plant, meeting global standards, and supporting end-to-end waste management through projects like the YOUTURN Platform and the Upcycling Upstyling initiative.

Additionally, the company has committed to the principles of Product Stewardship, applying an Eco-Design approach and Life Cycle Assessment (LCA) in research and development. This ensures that products are environmentally friendly, safe for consumption and use, and optimize resource use throughout the entire production and disposal processes.

Compensation-driven: GC is managing greenhouse gas emissions through various approaches, including Nature-based solutions and technological interventions. This involves compensating for remaining emissions through natural carbon absorption, utilizing technologies such as Carbon Capture and Storage (CCS), and exploring new alternative emerging carbon capture technologies. In 2023, the company is studying new alternative technologies for capturing and storing carbon dioxide (Alternative Emerging Carbon Capture Technology) in collaboration with companies in the PTT Group. The focus is on conserving natural resources, including ongoing efforts to restore and enhance the balance of forest ecosystems. This includes continuous

reforestation efforts to register carbon credits, both within the company's areas and in collaboration with government agencies, private sectors, and various communities in various projects. Since 2013, the company has been consistently involved in projects, spanning over 6,000 rai, such as the Forest Conservation and Carbon Credit Registration Project, Huai Mahat Forest Restoration Project, Eco-Forest Rayong Wanarom plantation project, Mangrove Reforestation Project, and the tree planting project namely "The More You Plant, the Better" in collaboration with the Bangkok Metropolitan Administration. Furthermore, the company has entered into agreements for community forest projects with the Mae Fah Luang Foundation, focusing on the maintenance, restoration, and tree planting in the community forest. As part of these initiatives, the company has received carbon credits for a duration of 3 years from the project.

Sustainability Management in the Social Dimension

GC is determined to be a leading organization in operational efficiency in the chemical products industry and aims to be a Top Quartile Employer in the Asia-Pacific (APAC) region. It has developed an Organization Transformation Strategy for the years 2023-2027, emphasizing management in four main areas: Skills & Competencies, Resource Planning, Great Well-being, and Policy & System Transformation. This strategic focus supports the company's overall strategy, enabling it to adapt to long-term business fluctuations and competition.

GC has developed a group-wide strategy for social responsibility, focusing on creating shared value (CSV) and conducting business as a social enterprise (SE). The goal is to become a sustainable partner for the community by 2025. The company has prioritized three key components:

- **Better Living:** Emphasizes improving the quality of life in communities through initiatives promoting self-sufficiency and sustainability. A notable project is the Community Waste Model, a collaboration with six communities in Rayong and Nakhon Pathom provinces. This project establishes waste management centers, collecting and recycling plastic bottles to create employment and generate income for the communities. In 2023, it contributed over Baht 3.7 million to the communities.

- **Sharing:** Promotes organizational strength by sharing ideas and innovations to create value for communities and society. An outstanding project is the Smile-Creation Innovation Project, namely Smart Farming by GC. This project incorporates innovations such as plastic coverings for greenhouses and stretchable bags for vegetables. It integrates alternative energy and IoT technologies to elevate agricultural practices, providing sustainable income to communities. In 2023, it generated over 860,000 Baht, with an average monthly income increase of approximately 31,800 Baht compared to 2022.
- **Ecology:** Prioritizes business practices that align with sustainable ecology throughout the value chain. The Water Conservation project, a collaboration between the company, the government, educational institutions, and communities in Rayong, focuses on addressing flood-drought issues. Activities include creating water catchment barriers with winged plastic bags and implementing a closed underground water bank. This project alleviates saltwater intrusion, drought, and flood issues in communities. These projects ensure that farmers have sufficient water supply for agriculture all year round and reduce 126,200 baht per year worth of water consumption from the water supply system.

Sustainability Management in the Governance & Economic Dimension

GC continuously updates its innovation strategy by planning and allocating resources to support research and the creation of new innovations. This strengthens the company's competitiveness and promotes the achievement of its net greenhouse gas emission targets. The innovation management strategy and operational framework include: 1) Competitiveness & Decarbonization: Focuses on enhancing competitiveness and reducing greenhouse gas emissions. Ongoing projects include low-carbon energy production, chemical recycling, syngas, textile recycling, and carbon capture. 2) Market-Focused Innovation: Involves working on innovative product development aligned with market demands. 3) Innovation Growth Platform: Establishes platforms to foster innovation growth. 4) Enabler: Strengthens support units to facilitate innovation.

Additionally, the company supports long-term collaboration with external networks, organizations, or experts and enhances the potential and capabilities of its employees. In 2023, various innovation projects were undertaken, including the establishment of the InnoPlus Solution Center, serving as a hub connecting business networks throughout the value chain. Collaboration initiatives involved a Memorandum of Understanding (MOU) with the School of Molecular Science and Engineering, the Vidyasirimedhi Institute of Science and Technology (BSE, VISTEC). This collaboration focused on synthetic biology research, biomolecular engineering, and green business, aiming to elevate the company's position in high-value businesses. The company is actively seeking technologies and investment opportunities, emphasizing technology groups such as decarbonization, advanced materials, biotech and life science, clean technology, and digital platforms within the Green Century Ventures project.

GC's firm commitment to sustainability is in line with the national approach and in accordance with international standards. The company has achieved notable success, reflected through leadership in four leading sustainability indices:

- **Dow Jones Sustainability Indices (DJSI):** Ranked first in the Dow Jones Sustainability Indices for the Chemicals sector for five consecutive years, making it the first organization globally in this category.
- **Morgan Stanley Capital International (MSCI):** Received an MSCI ESG Rating of A in the Chemicals industry group.
- **EcoVadis:** Awarded the highest Platinum rating by EcoVadis, placing the company in the top 1% of the basic chemicals manufacturing industry.
- **Stock Exchange of Thailand (SET):** Evaluated with a sustainable rating of AAA in the SET ESG Ratings. Listed as a sustainable stock for the 9th consecutive year and received the SET Awards 2023 in the Sustainability Excellence category, specifically the Sustainability Awards of Honor, for the 6th consecutive year.

These examples of success in sustainability leadership undoubtedly reflect GC's commitment to grow with ESG as our foundation.

Company Information and Other Important Information

Company Information

References

Securities Registrar

Thailand Securities Depository Company Limited
93, 14th Floor, Ratchadaphisek Road, Din Daeng
Sub-District, Din Daeng District, Bangkok 10400
Tel: +66 (0) 2009-9999
Fax: +66 (0) 2009-9991
Website: www.set.or.th/tsd

Registrar and Debenture Holders Representative

Bank of Ayudhya Public Company Limited
1222 Rama III Road, Bang Phongphang
Sub-District, Yan Nawa District, Bangkok 10120
Tel: +66 (0) 2296-2030, 4808, 5557
Fax: +66 (0) 2683-1298
Website: www.krungsri.com

US\$ Bond Registrar

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Legal Proceeding

Oil spill incident legal case

During the third quarter of 2014, a number of people in Rayong filed several lawsuits with the Civil Court and the Rayong Provincial Court against the Company to claim extra compensation from an oil spill incident and to perform the rehabilitation of the sea and natural environmental recovery. Some cases were dismissed and some cases had been passed a judgement by the Civil Court on 25 August 2016 which ordered the Company to compensate for damages including interest and rehabilitation of approximately Baht 11.26 million. The Company has appealed on 17 February 2017. Subsequently, on 11 May 2018, the Company made

compromise agreements with the majority of plaintiffs at the Civil Court. On 20 December 2018, the Court of Appeal passed the judgement according to the compromise agreements for which the Company had already paid compensation in full amount. For the remaining plaintiffs, the Court of Appeal ordered the Company to pay compensation with interest according to the judgement of the Court of First Instance and reduced the amount of interest. The Company has paid the compensation to all plaintiffs completely and no petition was submitted to Supreme Court by any plaintiffs. This case has become final.

For the case at Rayong Provincial Court, on 28 September 2018, the Court made a judgement ordering the Company to pay damage costs with interest of approximately Baht 38 million by deducting the remedy payment paid to the plaintiffs of Baht 24 million. The Company deposited the remaining damage costs with interest with the Rayong Provincial Court on 25 February 2019. Some plaintiffs filed an appeal with the Rayong Provincial Court and the Company filed an answer to the appeal with the Rayong Provincial Court on 2 October 2019. Subsequently, on September 1, 2020, the Court of Appeal Region 2 passed the judgement ordering the Company to pay additional damages including interest to the plaintiffs. The Company deposited the additional amount of Baht 25 million to Rayong Provincial Court on 30 September 2020, which was to cover the additional damages ordered under the judgement. Afterwards, on 14 October 2020, the Rayong Provincial Court set an appointment to hear the judgement or the order of the Court of Appeal Region 2 on 26 November 2020. Then, the plaintiffs filed the Dika appeal period on 1 March 2021. The Supreme Court issued an order accepting the Dika appeal of the plaintiffs on 2 March 2022 and sent a copy of Dika appeal to the Company on 19 March 2022. The Company filed an answer to the Dika appeal on 13 September 2022. The case is currently under the trial by the Supreme Court.

Thereafter, on 28 July 2023, the Company received a related summons and a copy of the civil complaint which the Department of National Parks, Wildlife and Plant Conservation filed against the Company to Rayong Provincial Court regarding

tort causing damage to natural resources and claim for damages. The plaintiff claimed that the oil spill incident in 2013 caused damage to the plaintiff. The Company and legal advisor of the Company considered relevant facts, evidence and laws and are of the opinion that the Company had remedied and compensated for the damage and the natural resources and environment had been restored after the incident, therefore, the Company should not have liability as claimed. Accordingly, the Company has not recorded any provision for any losses resulting from such case.

Oil spill incident legal case in 2022

On 8 April 2023, the Company has received a summons and a copy of the civil complaint which the Local Fisheries Association, fishermen and merchants ("Plaintiffs") filed against Star Petroleum Refining Public Company Limited as the first defendant and the Company as the second defendant to Rayong Provincial Court regarding tort, claim for damages and request for marine resources restoration. The Plaintiffs claimed that the oil spill incident caused the Plaintiffs' loss of income. The Company and legal advisor of the Company considered relevant facts, evidence and laws and are of the opinion that the Company did not commit a wrongful act against the Plaintiffs as claimed and, therefore, it should have no liability as claimed. The Company submitted the statement of defense to the Rayong Provincial Court on 8 June 2023 and the case is under the trial by the Rayong Provincial Court. Accordingly, the Company has not recorded any provision for any losses resulting from such case.

Frequently Contacted Financial Institutions

(In case the company issues bonds)

Bangkok Bank Public Company Limited

Address : 333 Silom Rd., Silom,
Bang Rak, Bangkok 10500
Tel : 0-2230-2328, 0-2230-2295,
0-2626-3646, and 0-2353-5421

Krungthai Bank Public Company Limited

Address : 35 Sukhumvit Rd.,
Klong Toey Nua,
Wattana, Bangkok 10110
Tel : 0-2208-4845-47

Bank of Ayudhya Public Company Limited

Address : 1222 Rama III Rd.,
Bang Phongphang, Yan Nawa,
Bangkok 10120
Contact location : 550 Phloenchit Rd., Lumpini,
Pathum Wan, Bangkok 10330
Tel : 0-2296-3999 and 0-2296-4776

Kasikornbank Public Company Limited

Address : 1 Soi Rat Burana 27/1,
Rat Burana Rd., Rat Burana,
Rat Burana, Bangkok 10140
Contact location : 400/22 Phahon Yothin Rd.,
Samsen Nai, Phaya Thai,
Bangkok 10400
Tel : 0-2470-3074
and 0-2888-8888 ext. 819

Siam Commercial Bank Public Company Limited

Address : 9 Ratchadapisek Rd.,
Chatuchak, Chatuchak
Bangkok 10900
Tel : 0-2544-5740 and 0-2777-6784

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Corporate Governance

GC seeks to establish itself
as a model of corporate governance on the global stage.

To this end, we prioritize and are fully committed to transparency, accountability, and fairness and all anti-corruption efforts to foster trust among all shareholders and stakeholders as we believe a sustainable growth can only be achieved through business ethics and good corporate governance.

GC...Chemistry for Better Living





Corporate Governance Policy

GC, under the supervision of the Board of Directors, is committed to maintaining its corporate governance standard in conformity with international standards since its establishment in 2011. To this end, the Board of Directors has established a Corporate Governance Policy as part of the Business Operations Policy. The Corporate Governance and Sustainability Committee has been assigned to oversee relevant matters and ensure that GC's corporate governance practices meet international standards, align with the Company's business strategies and directions, and comply with any other requirements, laws and guidelines. The committee is also tasked with monitoring and assessing the effectiveness of corporate governance implementation on a yearly basis through meetings of each subcommittee. The assessment results are also regularly reported to the Board of Directors.

Overview of Corporate Governance Policy and Practices

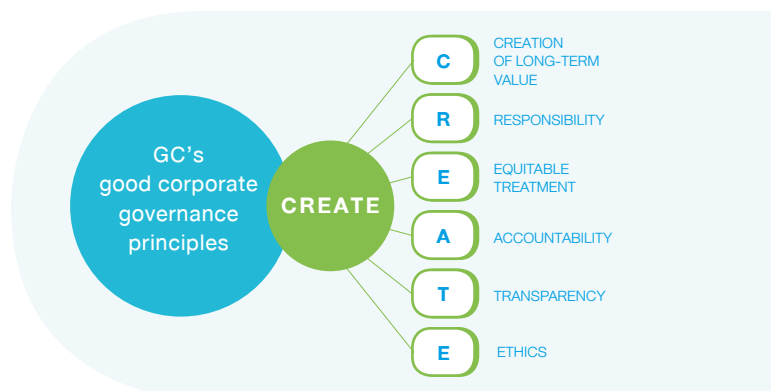
The Board of Directors has established a fair management structure that governs the relationship of the Board of Directors, the management, and shareholders. The Board of Directors also plays an important role in formulating visions, strategies, policies, and important action plans, ensuring that there are effective performance monitoring/assessing and risk management systems, in addition to maintaining its independence and accountability for the outcomes of its performance of duties pursuant to good corporate governance principles. The objectives are as follows:

- Strengthening the management system so that it is transparent and fair to all groups of stakeholders, complies with the applicable laws, regulations, rules, and requirements of the government agencies, and meets international and distinct standards, which will help enhance GC's competitiveness adaptability and enable it to prevent and eliminate any potential conflicts of interest.
- Building confidence among investors and the general public both in Thailand and overseas and taking part in increasing the value of GC's shares in order to protect its interests while taking into consideration the interests, rights, and equality of the shareholders and relevant stakeholders.

- Monitoring GC's performance assessment and inspecting the operation in order to improve and rectify, a more effective operation.
- Establishing the scope of responsibilities of the Board of Directors and Executives towards all stakeholders, to ensure that the management exercises its authority within the defined scope.

In this connection, the Board of Directors has established a Corporate Governance Policy as operational guidelines for all of GC Group's Directors, Executives and employees in adherence to both domestic and international practices, such as guidelines of the Stock Exchange of Thailand (SET), the Corporate Governance Code for Listed Companies of the Securities and Exchange Commission (CG Code), the ASEAN Corporate Governance Scorecard, the Dow Jones Sustainability Indices (DJSI). Moreover, the Board of Directors is determined to continuously improve the Company's corporate governance to meet international standards, which include taking into consideration the shareholder's rights, equitable treatment of shareholders, emphasis on the roles of stakeholders, information disclosure and transparency, and the accountability of the Board of Directors.

GC's good corporate governance principles consist of Creation of long-term value, Responsibility, Equitable treatment, Accountability, Transparency, and Ethics (C R E A T E). These principles have been adopted by the Company as guidelines to ensure that its operation complies with the applicable laws and regulations of every country in which it operates. The Board of Directors and Executives serve as ethical leaders and role models for compliance with the Corporate



Governance Policy, Anti-Corruption Policy, Corporate Governance and Business Code of Conduct Handbook of GC Group. They also promote good corporate governance culture, attend to the stakeholders, and promote practices and business operations which take into account human rights, consumer rights, and fair labor practices. In addition, they shall put in place the auditing, monitoring, assessment, and revision systems in order to ensure that all employees adhere to and follow the Corporate Governance Policy fully and sustainably. Details of the corporate governance performance can be found under “Ensure Compliance with Corporate Governance policy and practices”.

Policy and Practices for the Board of Directors

Board of Directors

The Board of Directors shall be appointed by the Annual General Meeting of Shareholders, elected directors to replace those retiring by rotation on a yearly basis. All Directors shall be qualified and possess no prohibited characteristics stipulated by relevant laws and regulations. A board diversity policy has also been established as part of the Director nomination and selection process to ensure a suitable and diverse board composition in line with the Corporate Governance and Business Code of Conduct Handbook. Under this policy, the nomination takes into consideration the range of knowledge, competency, and expertise in various fields beneficial to the Company according to the Board Skills Matrix in alignment with the strategic direction and business approaches, such as engineering, energy, material, petrochemical and chemical, economics and finance, business administration, accounting, law, security, sustainability, information technology, and international business, and takes into account the diversity of gender, ethnicity, and nationality as well as the suitable proportion of independent director in accordance with good corporate governance principles, without discrimination on the grounds of ethnicity, nationality, skin color, race, or religion, in order to achieve a diverse range of expertise and perspectives necessary for and beneficial to GC's business operations.

The current Board of Directors consists of fifteen members, consisting of one executive Director and fourteen non-executive Directors. Among these, nine are Independent Directors, which is considered suitable for the size and nature of the Company's business and its strategic direction and allows for an effective

delegation of duties. Board duties and responsibilities are clearly defined in compliance with applicable laws, regulations and articles of association, shareholder resolutions, and good corporate governance principles. The Chairman of the Board oversees its discharge of duties to ensure efficiency and independence from the management.

Further details appear under "The Board of Directors".

Sub-committees

The Board of Directors has appointed four Sub-committees, namely the Audit Committee, the Nomination and Remuneration Committee, the Corporate Governance and Sustainability Committee, and the Risk Management Committee, helps in screening the operation in different aspects as assigned as well as specifies the qualifications, term of office, and scope of duties according to the charter of each specific committee. The Directors of the sub-committees are qualified for their knowledge and capability with appropriate and adequate experience sufficient to perform in the sub-committee for each specific field according to the stipulation of the relevant laws, rules, regulations, and the Company's Articles of Association. Each sub-committee regularly reports its performance to the Board of Directors at Board meetings and disclose its annual performance in the past year to regulatory agencies, shareholders, and the general public in Form 56-1 One Report on a yearly basis.

Nomination and Appointment of Directors, Independent Directors, and Chief Executive Officer and President

The Board of Directors has appointed and entrusted the Nomination and Remuneration Committee with the authority to nominate and select qualified candidates to take directorship to replace resigning Directors or Directors due to retire by rotation in accordance with the Company's fair and transparent nomination criteria and procedures, as well as to nominate and select candidates for the Chief Executive Officer and President position from a list of qualified Directors and propose such candidates to the Meeting of the Board of Directors and/or the General Meeting of Shareholders for consideration and approval. Such candidates shall have all qualifications and shall not hold any of the prohibited characteristics as stipulated by the applicable laws and regulations, including the Public Limited Company Act B.E. 2535 (1992), the Securities and Exchange Act B.E. 2535 (1992), the Organic Act on Counter Corruption

B.E. 2561 (2018), Notifications of the Capital Market Supervisory Board, Notifications of the Bank of Thailand, CG Code, rules and regulations of the Office of the Securities and Exchange Commission (SEC) and the Stock Exchange of Thailand (SET), GC's articles of association and Corporate Governance and Business Code of Conduct Handbook, and the independence and conflicts of interest of the Directors shall be also be taken into consideration with due circumspection. Every Director shall perform their duties with accountability, upholding the duty of care and the duty of loyalty. In addition, the Nomination and Remuneration Committee may consider candidates from the directors' pool of GC and directors' pool of creditable organizations, such as that of the State Enterprise Policy Office (SEPO) and the list of directors of the Thai Institute of Directors Association (IOD), which compile a list of knowledgeable and competent persons with diverse areas of specialization beneficial to the strategic direction and business approaches of the Company. The committee shall also take into consideration the Board diversity, including the proportion of female Directors (gender diversity), the diversity of ethnicity and nationality, and Independent Directors. The diversity of skills of the existing Directors, including knowledge, skills, expertise, experience, and specialization that will benefit the Company and correspond with its strategic direction and business approaches according to the Board Skills Matrix of the Company, in order to ensure that the Board composition is diverse, suitable, and in line with the Board Diversity Policy and that the Board of Directors can effectively responds to GC's existing and future strategic directions and goals, as detailed below.

Nomination and appointment of Directors to replace Directors retiring by rotation: The Company gives opportunities for shareholders to nominate qualified persons for directorship of the Company in advance of the Annual General Meeting of Shareholders every year. The Nomination and Remuneration Committee is responsible for nominating and selecting qualified candidates in accordance with the Director nomination and appointment criteria and procedures and proposing the candidates to the Meeting of the Board of Directors for consideration and approval before proposing the list of such candidates to the General Meeting of Shareholders for consideration and approval. The approval of the General Meeting of Shareholders shall be by a majority of votes of shareholders who attend the meeting and are entitled to vote. In compliance with the corporate governance principles, the shareholders shall vote on each candidate on an individual basis. In the case of the nomination of former directors for re-appointment, the performance in the previous years, the ability to dedicate time to their

duties, and their participation of each such candidate shall be taken into consideration.

Nomination and appointment of Directors to fill vacancies in cases other than retiring by rotation: In accordance with the articles of association of the Company, the Nomination and Remuneration Committee is responsible for nominating and selecting qualified candidates according to the Director nomination and appointment criteria and procedures and proposing such candidates to the Meeting of the Board of Directors for consideration to be appointed as Director to fill a vacancy, except in the case that the remaining term of the vacant seat is less than two months, in which case The Director who is appointed to the seat shall remain in office for the remaining term. The approval for such appointment shall be by at least three quarters of the votes of the number of the remaining Directors.

Nomination and appointment of members of Sub-committees: The Nomination and Remuneration Committee is responsible for nominating and selecting qualified Directors of the Company in accordance with the sub-committee nomination and appointment criteria and procedures, which include the charter of each Sub-Committee, and for proposing the candidates to the Meeting of the Board of Directors for consideration for appointment as members of the Sub-committee. A sub-committee member shall hold office for three years per term. The approval for such appointment shall be by a majority of votes of the Meeting of Board of Directors. A sub-committee member retiring by rotation may be re-appointed for another term by the Board of Directors. In case of vacancy other than by rotation, the replacing sub-committee member shall remain in office for the remaining period of the one that has been replaced.

Consideration of qualifications of Independent Directors: The performance of Independent Director's duties is a key mechanism in the oversight of the Company's business operations to ensure that the decisions of the Board of Directors will prioritize the interests of shareholders as a whole and comply with corporate governance principles. To this end, the qualifications of Independent Directors have been specified in the Corporate Governance and Business Code of Conduct Handbook and on the Company's website. The qualifications of Independent Directors established by the Company are more stringent than those prescribed by the Notification of the Capital Market Supervisory Board No. TorJor. 39/2559 Re: Application for Approval and Granting of Approval for Offering of Newly Issued Shares by the Securities Exchange

Commission with respect to the shareholding of no more than 0.5% of total shares with voting rights of the Company, parent company, subsidiaries and affiliates, major shareholders or persons with controlling power over the Company, including the shareholding of their related persons (while the Notification of the Capital Market Supervisory Board requires only shareholding of no more than 1%). In addition, the Company requires that the Independent Directors may remain in office for no more than nine consecutive years from the date of initial appointment. This requirement is included in the charter of Independent Directors, which has been published on the Company's website.

Nomination and appointment of the Chief Executive Officer and President (CEO): In case of vacancy, the Nomination and Remuneration Committee is responsible for nominating and selecting a candidate for the position from the list of Directors of the Company who possesses necessary and suitable skills, professional experience, and specific qualifications for the business operation in accordance with the Board Skills Matrix, which includes business administration knowledge and capability and experience in relevant fields, such as, energy, petroleum, and petrochemical. Furthermore, the candidate must demonstrate leadership, have experience as a leader of a company, and be well-regarded by relevant business organizations. The committee shall also take into account any potential conflicts of interest with GC and other companies in GC Group and propose the candidate to the Meeting of the Board of Directors for consideration and appointment.

Details of the nomination and appointment of Directors, Independent Directors, and Chief Executive Officer and President can be found under "Nomination, Development, and Performance Assessment of the Board of Directors."

Remuneration of the Board and Executives

The Board of Directors: Details of the remuneration of the Board of Directors can be found under "Meeting Attendance and Remuneration of Individual Board Members."

Executives: Details of remuneration of the Executives can be found under "Executives."

Development of Directors and Executives

The Board of Directors places great importance on seminar attendance as a way to enhance Directors' knowledge and competence and enable them to

discharge their duties more effectively as well as to prepare Executives for internal rotations and for succession to the Chief Executive Officer and President position and a role in the top management. The Board of Directors has also prescribed the potential assessment of top Executives to enhance their preparedness for Executive-level duties. Key development initiatives can be summarized under "Development of Directors, Executives, and Company Secretary."

Assessment of Directors' Performance

The Board of Directors has prescribed annual Board performance assessments to enable Directors to review their performance and review problems and obstacles during the year. Three types of performance assessment are performed, namely group assessment, self-assessment, and cross-assessment (assessing another Director). Furthermore, Board KPIs have established according to the CG Code and Dow Jones Sustainability Index (DJSI) comprising four aspects, which are Corporate KPIs, the Board performance group assessment results, Directors' meeting attendance, and Directors' engagement during Board meetings. Additionally, group assessment and self-assessment have been prescribed for the Company's sub-committees, namely the Audit Committee, the Nomination and Remuneration Committee, the Corporate Governance and Sustainability Committee, and the Risk Management Committee. The assessment results and suggestions are subsequently presented to the Board of Directors and used to develop guidelines for optimizing the Board's performance in a tangible way. The assessment results are also disclosed in Form 56-1 One Report and used by the Nomination and Remuneration Committee as a factor in the determination of The Board of directors annual remuneration.

Further details are provided under "Nomination, Development, and Performance Assessment of the Board of Directors."

Governance of GC Group

The Company grows in the petrochemical and chemical industry and engages in investment and joint venture expansion in various countries both by itself and through its subsidiaries, joint ventures, affiliates and others, as detailed under "Business Operation and Performance." The Board of Directors has approved the implementation of governance guidelines and management which are in line with GC Business Principle, as described in detail under "Governance of Subsidiaries and Affiliates."

Policy and Practices for Shareholders and Stakeholders

GC's business operation involves various groups of stakeholders, ranging from shareholders, customers, business partners, creditors, competitors, government sectors and employees to communities, society, and the environment. As each stakeholder group has different needs, the Board of Directors has established policies and guidelines for responsible engagement of each stakeholder group in line with their specific needs as part of the Corporate Governance and Business Code of Conduct Handbook and disclosed them on the Company's website.



Shareholder Rights

GC prioritizes shareholder right protection and has included it as part of the Corporate Governance and Business Code of Conduct Handbook to ensure full compliance.

(1) Provision of Important and Pertinent Information to Shareholders

GC provides shareholders with clear, up-to-date information of importance and pertinence on its business operations. To this end, it also discloses information deemed necessary, albeit not legally required, on its website and via the portal of the Stock Exchange of Thailand (SET).

(2) The 2023 Annual General Meeting of Shareholders

GC held the 2023 Annual General Meeting of Shareholders via electronic Means (E-AGM) at 9:00 a.m. on Friday, April 7, 2023, in compliance with the Emergency Decree on Electronic Meetings B.E. 2563 (2020) as well as other applicable laws and regulations. GC also ensured convenience for the attending shareholders as detailed below.

Prior to the Meeting

- GC clearly notified shareholders of the rules and procedures relating to rights of shareholders to propose matters to be included in the agenda of the Annual General Meeting of Shareholders and to nominate qualified persons for consideration and election as Directors in advance of the Annual General Meeting of Shareholders from September 15 to December 31, 2022 via SET Portal and the Company's website. The nominated persons or proposed matters will be considered in accordance with the prescribed criteria. The Nomination and Remuneration Committee will be in charge of considering the qualifications of such nominated persons, and the Corporate Governance and Sustainability Committee will consider the proposed matter deemed beneficial and which should be proposed as an agenda item of the meeting, which are then proposed to the Board of Directors for further consideration. The Board of Directors will inform the shareholders of its decision and rationale at the 2023 Annual General Meeting of Shareholders. For the year 2023, none of the shareholders proposed agenda items or nominated any person to be considered for appointment to directorship.
- According to the resolutions of the Board of Directors' meeting held on February 13, 2023, GC instantly notified SET after the meeting to disseminate the news to its shareholders that the 2023 E-AGM would be held on April 7, 2023, and the record date was set for February 28, 2023, to accommodate shareholders the rights to attend the 2023 E-AGM and receive dividend payment. This information was also published on GC's website.
- GC published the invitation letter on GC's website, comprising the agenda items with the Board's opinions on each agenda item as well as the attachments, proxy forms, and measures and guidelines for registration and attending the 2023 E-AGM in both Thai and English, on March 7, 2023, over 30 days in advance to the meeting. In addition, GC sent an invitation letter, along with QR codes for downloading the digital versions of Form 56-1 One Report for the year 2022 and the 2022 Integrated Sustainability Report.
- If a shareholder would like to assign a proxy to attend and vote at the E-AGM on their behalf or if they were unable to attend the E-AGM in person, GC provided them with a proxy statement that allowed them to specify their "Approval," "Objection," or "Abstention" vote for each agenda item. Independent Directors' profiles were also included for their consideration. Details of the proxy assignment process and documents required to

facilitate the procedure were enclosed with the invitation letter. All of the documents were available in both Thai and English.

- The invitation letter was mailed to its shareholders on March 16, 2023, over 21 days ahead of the meeting.
- Shareholders were given an opportunity to submit advance inquiries on the meeting agenda to GC via corporatesecretary@pttggroup.com or ir@pttggroup.com, or cg@pttggroup.com.
- GC opened an E-AGM registration system for shareholders and proxies from March 24, 2023 to the date of the meeting and provided a call center to address any inquiries from shareholders regarding the registration and attendance of the meeting.

On the Day of the Meeting

- The E-AGM was conducted in adherence to COVID-19 preventive measures, which all Directors, Executives, and employees were required to follow strictly. Such measures included requiring the attendees to take an ATK test before joining the meeting, wear a medical mask or a cloth mask, and maintain a physical distance at all times. Alcohol hand sanitizers were also provided at the venue.
- GC appointed call center and system administration staffs to ensure the convenience of the shareholders and proxies in accessing the E-AGM system and address questions regarding its use. Shareholders and proxies were allowed to access the E-AGM system over two hours ahead of the meeting to ensure that they were given accurate and complete information about the meeting and were able to submit inquiries and voted in accordance with the objectives of the meeting.
- The 2023 E-AGM was attended by fourteen Directors from fifteen Directors since one director resigned on March 2023. There are also top management, auditors, legal advisors, lawyer, who was a witness for vote counting, and shareholders' right protection volunteers from the Thai Investors Association responsible for evaluating the quality of the 2023 Annual General Meeting of Shareholders were also present.
- Before the meeting began, shareholders were explicitly informed of the voting and vote-counting procedure for each agenda item. Shareholders and proxies can cast a vote for "Approval," "Objection," or "Abstention" on all agenda items.

- At the meeting, the Chairman proceeded with all agenda items in order and afforded all shareholders equal rights to submit inquiries and express their opinions. For each agenda item, shareholders or proxies could submit inquiries in advance by typing their questions or by VDO conference. The Subcommittee chairpersons, Chief Executive Officer and President, and any relevant top management were assigned to answer shareholders' questions. All expressed questions and opinions were fully and accurately recorded in the minutes of the meeting.

After the Meeting

- GC disclosed its resolutions of the 2023 E-AGM through the SET Portal once the meeting was finished. The disclosed resolutions included a complete set of the "Approval," "Objection," "Abstention," of each agenda item.
- The minutes of the E-AGM were prepared in Thai and English, specifying the names of Directors and Executives attending the meeting, as well as other relevant attendees, key explanations, a list of questions and answers and a summary of opinions expressed. The minutes were submitted to SET and other relevant organizational authorities within 14 days after the meeting. They were also made available on www.pttggroup.com for shareholders inspection and mailed the minute of meeting shareholders. GC allowed the shareholders to object to the minute of E-AGM within 30 days.
- GC's 2023 E-AGM was ranked "Excellent" with a perfect score of 100 for the 12th consecutive year from 2012-2023 by the Thai Investors Association.

Equitable Treatment of Shareholders

GC ensures equitable treatment of all shareholders, whether majority or minority, Thai or foreign. GC's equitable treatment of shareholders is summarized as follows:

- GC values all shareholders and has put in place measures to fairly and equitably safeguard the fundamental rights of every shareholder. These measures are aimed at fostering investors' trust and confidence in the Company and ensuring continuous and suitable returns.
- Minority shareholders are given the opportunity to express their opinion, provide suggestions, and submit complaints to the Board of Directors, Chairman of the Corporate Governance and Sustainability Committee (an Independent Director) and the Company Secretary via GC website under



Corporate Governance Section or e-Mail at cg@pttgcggroup.com. The Corporate Governance and Sustainability Committee will review the complaints or suggestions submitted for take appropriate actions. Institutional investors can request information or express their opinions via email at ir@pttgcggroup.com under the care of the Investor Relations Department.

Roles of Stakeholders

GC places importance on the rights of all stakeholders. Based on principles related to the rights and impacts on stakeholders, the written good practice guidelines have been formulated and published on GC's website. Stakeholders are also provided with channels to express their opinions, to the Company. Stakeholder-related policies, guidelines, and actions in 2023, are summarized below:

Shareholders



GC respects the fundamental rights of shareholders and treats every shareholder equitably for their utmost satisfaction. These rights include the right to participate in the Annual General Meeting of Shareholders, the rights to vote, to propose meeting agenda items, and to nominate candidates for directorship. GC also listens to their opinions and suggestions and has provided them with contact channels via www.pttgcggroup.com and e-Mail addresses at ir@pttgcggroup.com and cg@pttgcggroup.com.

With regard to the treatment of institutional and retail investors, GC held quarterly performance review meetings both in person and online via Microsoft Teams as well as organized virtual roadshows, for which online booking channels were made available to enable interested institutional investors to directly make an appointment with GC.

In addition, GC took part in the quarterly Opportunity Day as well as SET Digital Roadshow, an online meeting held in collaboration with the Stock Exchange of Thailand (SET) to provide retail and foreign investors with access to information sources and an opportunity to communicate with listed companies. To comply with the Code of Conduct for Investor Relations, GC refrained from meeting with investors for 14 calendar days prior to the disclosure of its operating results to protect and safeguard GC's confidential information not yet publicly disclosed.

For debenture holders, GC complied with legal requirements and notifications of the Securities and Exchange Commission (SEC) and operated in strict adherence to the Company's policies and objectives and shareholder resolutions. In the same veins as with its shareholders, GC regularly organized activities to foster relations with debenture holders, such as meetings with domestic and overseas investors and site visits for investors.

Customers



To achieve customer satisfaction and confidence, GC has continued to develop the quality of its products and services and elevate its product and service development standards through systematic voice of customer management. In addition, GC seeks to identify and gain insights into the needs of customers and end markets to inform its product and service development in order that GC can promptly meet such needs and provide useful business suggestions to a comprehensive range of customers and end markets. GC also strives to develop green products and services through collaboration with customers and trade partners and consistently certify products to various international quality standards to enhance customer and market confidence.

Furthermore, GC regularly introduces information and digital technology as tools in sales, marketing, and customer management so as to optimize the delivery of products and services to customers and achieve efficiency targets. In addition, technology is employed to monitor potential problems and issues, ensuring alignment with customer demand across planning, sales, marketing, and product delivery processes.

In addition, GC implements systematic and comprehensive whistleblowing management to handle complaints, track progress, and report solutions to customers across every business unit. In addition, customer satisfaction surveys are conducted annually on the products and services delivered to customers to continuously improve product and service quality and internal processes. This data is considered crucial as it provides deeper insights into customer needs.

GC also engages in customer and partner relationship management through various marketing activities. These include seminars on current topics of interest in the industry, industrial situations, and relevant trade measures as well as joint promotional events in both

online and onsite formats, aimed at encouraging the exchange of information on the market situation and GC's products. Additionally, GC regularly issues communications and hosts training sessions to provide knowledge on its products and services as well as the direction of the market to its customers, thus ensuring optimal customer experience throughout the customer journey, which leads to trust, understanding, and rapport between the Company and customers. The goal is to foster customer loyalty and encourage them to repurchase products and services, thus becoming long-term customers.

Furthermore, GC treats all customers equitably and protects its confidential data using a Data Lost Protection (DLP) system and a privacy notice and has established a personal data management and protection policy and measures in accordance with the Personal Data Protection Act (PDPA). The Company also supervises its operation to ensure the absence of profiteering and unfair trade conditions.

Suppliers



With regard to vendor oversight, GC has established supplier management strategies encompassing supplier selection, relations management, and supplier capability assessment. Suppliers are required to comply with the Supplier Code of Conduct (SCOC) with respect to manufacturing, procurement of products and feedstocks, and service provision as well as to affix their signature to the SCOC before entering into transactions with the Company. In 2023, GC introduced a new digital vendor management system (VMS), which was applied to systematize new vendor registration, the management of data of approved vendors' products and services, and vendor performance assessment. The VMS helps expedite data searches and ensure that vendor registration is transparent, fair, and compliant with relevant criteria and standards without unfair advantage for any specific vendor.

Additionally, GC encourages suppliers to demonstrate Environmental, Social, and Governance (ESG) responsibility and conducts assessments among critical suppliers with high transaction value. In 2023, ESG assessments were conducted for an eighth consecutive year, with vendors whose products and services involved ESG risks now required to also undergo the assessment. A total of 153 suppliers were assessed, and the results showed no violation of labor rights or human rights, good corporate governance principles, business code

of conduct, or applicable laws, rules, and regulations, and that the safety and legal management was up to standards.

GC has established procurement strategies for decarbonization, with action plans and targets aligned with the corporate targets to reduce Scope 3 greenhouse gas (GHG) emissions from the waste disposal division and the transportation and service division of the polymer unit by 20% by the year 2030 and 100% by the year 2050. The 2022-2023 action plan focused on educating procurement personnel and target suppliers and familiarizing them with GC's decarbonization roadmap through various activities to enable them to develop action plans and operate in alignment with GC's targets.

With regard to green procurement, GC has actively fostered a green network as well as encouraged suppliers to join the Green Industry (GI) Program and offered recommendations on how to apply for the program. In 2023, a total of 320 suppliers became GI-certified, up by 70 suppliers from the previous year. In addition, GC has defined the specifications of green products and services, promoted the use of products with green labels, and procured products and services certified to the Green Industry and ISO 14001 standards. In 2023, green procurement accounted for 43% of the total procurement.

GC has consistently procured products and services from suppliers in communities across four municipalities around Map Ta Phut Industrial Estate to promote employment, generate revenue, enhance the quality of life for the local residents, and to contribute to Rayong's economic development. The services sourced from these communities include cleaning, shuttle buses for employees, landscape maintenance, and waste disposal. GC also develops their capabilities to ensure the local communities can grow alongside the Company.



Furthermore, GC has encouraged its suppliers to declare their intent to join the Thai Private Sector Collective Action Against Corruption (CAC) and paid visits to strategic suppliers with high transaction value to open up opportunities to further develop business and enhance relations with them. In 2023, 11 suppliers participated in the program, and GC was named a CAC Change Agent for a second consecutive year, having successfully invited a total of 21 suppliers to join the project.

In addition to the initiatives above, GC has reiterated its business code of conduct, no-gift policy, and the reception of comments and complaints from internal and external parties through its whistleblower system at the annual supplier conference. GC has also continuously improved its internal work processes and developed the skills and capabilities of its employees. These efforts combined will ensure that GC will have strong and supportive suppliers who enable the Company to operate with transparency and efficiently manage costs to maximize benefits, which will in turn lead to sustainable procurement.

Business Competitors



To ensure that treatment of business competitors is consistent with international standards and within the scope of the laws on trade competition, GC has established its Business Code of Conduct on the Treatment of Business Competitors in conformity to those principles to ensure fair and transparent competition by neither seeking confidential information of business competitors through fraudulent or inappropriate means nor tarnishing their reputation with slanders or give a negative review.

Creditors



GC treats its creditors fairly and responsibly and strictly complies with contractual terms and conditions. A Payment Tracking System (PTS) has been set up to enable creditors to conveniently track and check payment statuses by themselves. GC, in collaboration with financial institutes, has introduced an e-Mail Advice System, which is based on GC's Outsourced Payment System, to inform its creditors of necessary information in advance. An additional system has also been introduced to issue invoices, tax invoices, and receipts electronically. Accounts payable aging reports are also prepared for the benefit of tracking the resolution of overdue transactions. In the event that GC is unable to

fulfill contractual obligations or terms, it will notify its creditors in advance to seek mutual resolutions.

In collaboration with banking institutions, GC has introduced blockchain to the management of letters of guarantee and implemented strict measures for the verification of changes in creditor data to prevent cybersecurity risks and ensure that all transactions are correct and appropriate. GC has also coordinated with banking institutions to introducing the e-Withholding tax system to enable creditors to review data through the Revenue Department's system by themselves as well as enforced a standard for companies in GC Group requiring that they comply with the conditions between GC and its creditors to ensure adherence to defined procedures, prudence, and accountability.

For financial institutions and debenture holders, GC gives equal opportunities for all financial institutes to propose transactions. GC treats creditors as equals, fairly manages loan agreements, and complies with legal requirements and notifications of the Securities and Exchange Commission in issuing and offering debentures for sale. It also maintains independence in decision making and acts on the basis of integrity without requesting, accepting, or offering any undue benefits in its contact with financial institutions and debenture holders. All information of events related to GC's businesses is also regularly disclosed to creditors, debenture holders, and institutional investors. GC also fosters relations with creditors through activities every year.

GC has also established a Personal Data Privacy Policy for the oversight and management of personal data, including the storage, collection, use, and disclosure. To ensure that GC's operation is in compliance with the Personal Data Protection Act (PDPA) and relevant laws in accordance with GC's corporate governance policy.

Public Sector



Recognizing the significance of the public sector as one of GC Group's stakeholders, GC has established a guideline on the treatment of the public sector in the countries in which it invests so as to avoid adverse consequences. The treatment of the public sector policy has been included in the Corporate Governance and Business Code of Conduct Handbook. GC also strives to comply laws, rules, and governmental regulations in obtaining support for its business activities, which includes:

- (1) support for GC's strategies, such as the advancement of requirements, regulations, and standards, and the undertaking of joint projects to support national policies and bring benefits to GC's activities;
- (2) support for GC's usual business operations, such as permits, benefits, and concessions according to applicable laws, rules, and regulations as well as established procedures, processes and practices. All contacts and communication with the public sector, including local authorities and state enterprises, must be transparent, with full disclosure of accurate information as per governmental requirements. To this end, GC has adopted the Online Permits & Privilege Licenses System in the planning and monitoring of operation progress to ensure compliance with governmental rules, regulations, and conditions.

Other activities carried out by GC are as follows:

- Establishing an emergency communication center, which is connected to Rayong's local communication centers, and publicly disclosing the name of the officers assigned to communicate with government agencies so as to make known information communicated to relevant government agencies and local communities as well as create an accurate understanding of situations.
- Organizing activities to foster relations with relevant government agencies, such as anti-corruption activities that fostered understanding and reaffirmed mutual commitment to transparency and anti-corruption efforts.
- Providing venues for meetings held to share knowledge on new laws and other activities.
- Collaborating with the public sector to improve work processes, such as by increasing the use of online systems and reducing redundant steps.
- Keeping track of measures introduced in Rayong and Thailand to ensure that relevant communications and preparations are made and that they are implemented correctly.



Employees



GC ensures that its employee care is in line with good corporate governance principles and business ethics by fostering positive experience for employees at every part of the employee life cycle, focusing on employee development through various forms of learning in order to promote practical application, which include a 24/7 digital learning platform where employees could learn anywhere and anytime. GC also ensures the well-being of its employees and a safe work environment and conducts employee surveys on various topics to understand their issues and true needs and make improvements accordingly. Additionally, GC has instituted working from anywhere (WFA) as another normal mode of work for its office employees to enhance the flexibility, agility, and adaptability of its processes in response to the new normal of work, while also making improvements to its Smart Office to accommodate employees who are required to come and work at the office, thus ensuring a modern work environment suitable for the current modes of work. In addition, as a policy, GC determines employee remuneration based on their performance, provides competitive welfare for its employees and their families compared to other leading companies in similar businesses, and takes care of its retiring employees to ensure a happy retirement.

In addition, it is GC's policy to employ and promote career advancement for people with disabilities, in line with the Empowerment of Persons with Disabilities Act, B.E. 2550 (2007). Details of GC's employee treatment with respect to human rights appear under "Employees."

Society, Communities, and the Environment



Under the Sustainability Management Policy of GC Group, GC strives to lead the charge in operating its business in line with sustainable development guidelines, foster confidence and respond to stakeholder expectations through operational excellence and transparency, and take into account the preservation of an economic, social, and environmental balance. The policy is supported and complied to by Executives and employees at all levels.

GC's Corporate Social Responsibility (CSR) strategic plans are formulated in accordance with its strategies. GC has also initiated the reforestation project "the More You Plant, the Better" to increase green spaces. The project has been carried out in terrestrial forests in underserved areas in Bangkok, in mangrove forests

under the supervision of the Department of Marine and Coastal Resources, and along the coasts across Thailand. The objective of the project is to achieve net-zero greenhouse gas emissions and mitigate global warming, which is one of GC's core targets.

In tandem, GC has continued to carry out circular economy initiatives, including the construction of community waste hubs in communities surrounding its manufacturing plants in Rayong. The project is set to be scaled up to other provinces with preparedness, using the concept of social enterprise to foster sustainability in communities. This way, communities will not only reap environmental benefits through proper waste management but will also gain income through employment and the sales of good quality plastic waste for further upcycling.

GC also seeks to address the fundamental needs of communities and society and stimulate grassroot economies through its social enterprise Pracharath Rak Samakkee Rayong (Social Enterprise) Company Limited, as well as offer marketing assistance and create a marketplace for local Rayong products on online platforms. GC has also launched the Young Influencer Challenge Thailand 2023 campaign to publicize local products through various social media platforms in collaboration with partners in its network and educational institutions to increase customer reach.

GC has also adopted the world-class sustainability reporting framework known as Integrated Sustainability Report (ISR), which covers economic, social, and environmental topics, as well as other issues that may significantly affect GC. Further details can be found in the Integrated Sustainability Report 2023.

Compensation for Violations of Rights

GC has established guidelines to protect the rights of stakeholders in case of violations resulting from the business operation of GC Group, whereby the compensation offered shall not be lower than the legally mandated rate.

Prevention of Internal Information Use

GC's Internal information use Policy and guideline have been included in the Corporate Governance and Business Code of Conduct Handbook and published on the Company's website for shareholders' ready

access and acknowledgment. Directors, Executives, and employees are constantly reminded to comply with the policy, under which they are prohibited from using material insider information not yet publicly disclosed for personal gain or the benefit of others, including for trading GC's securities. The essence of the policy is summarized below:

- (1) Directors and Executives under SEC's definition must report to SEC changes in their holding of the Company's shares within three business days as required by SEC. Moreover, the Company has established a policy requiring Directors and Executives to notify the Company Secretary of their intention to trade the Company's shares at least one business day before the transaction is made.
- (2) The Board of Directors monitors each individual's compliance with GC's Business Code of Conduct on internal information use every month. The Company Secretary, who receives information from SEC via email on changes to Directors and Executives' shareholding when their shares are traded or transferred, will report such changes to the Board of Directors. Their shareholding at the beginning and the end of each fiscal year and any changes during the year are disclosed.
- (3) GC notifies Directors and Executives in writing that they are prohibited from trading the Company's shares 30 days ahead of the disclosure of the quarterly and annual financial statements or that of other information that may affect the prices of the Company's shares. They are also prohibited from trading the Company's shares within 24 hours after the said disclosure.
- (4) All Executives and employees are required to comply with the Company's guidelines on confidentiality of information and safeguard its information, customers'/supplier information, and personal information of related parties. They are also required to adhere to the Company's measures on the safeguarding of confidential information or information that is not yet publicly disclosed.
- (5) GC's Directors, Executives and employees are regularly kept up to date on regulations and policies regarding insider information to ensure their acknowledgement and compliance. The Company has clearly prescribed disciplinary sanctions in case of violation of the inside trading policy.

Details on the results of internal information use appears under "Ensure Compliance with Corporate Governance policy and practices."

Prevention of Conflicts of Interest

The Board of Directors has included a policy and guidelines for considering transactions that involve or may involve a conflict of interest in the Corporate Governance and Business Code of Conduct Handbook, to which all Directors, Executives and employees must adhere. They must also carefully follow the guidelines for connected transactions and refrain from violating the regulations of SEC and SET. Directors and Executives under SEC's definition must report their interests and those of their related parties to the Company. In addition, a related party transactions manual has been issued, and criteria, procedures, and protocols concerning connected transactions have been communicated to relevant units under GC Group. Lists of individuals with connection to the Company and information on such transactions have been recorded in a database retrievable by relevant departments for reference so as to ensure correct and full compliance with relevant criteria and prevent errors.

GC has also put in place measures to prevent conflicts of interest, under which Directors, Executives, and all employees are required to annually report potential conflicts of interest. When a conflict of interest arises, the person with vested interests must immediately report GC of such a conflict, using the Conflict of Interest Form (for the Directors) or report via the intranet (for Executives and employees), to their supervisors for acknowledgement so that they can take suitable action.

Details on the results of the prevention of conflicts of interest appears under "Ensure Compliance with Corporate Governance policy and practices."

Anti-corruption

GC has established an Anti-Corruption Policy, which has been approved and overseen by the Board of Directors, as well as written guidelines prohibiting all requests, acceptance, payments, and transactions with individuals or juristic persons involved in corruption, with disciplinary sanctions clearly defined. The policy is included in the Corporate Governance and Business Code of Conduct Handbook for Directors, Executives, and employees to follow. In addition, the Company is a member of Thai Private Sector Collective Action Against Corruption (CAC) as well as a CAC Change Agent and encourages its suppliers to join CAC as a member. Further details can be found under "Ensure Compliance with Corporate Governance policy and practices."

Business Code of Conduct

Corporate Governance and Business Code of Conduct Handbook

The Board of Directors approved the compilation of 'Corporate Governance and Business Code of Conduct Handbook,' comprising two parts. The first part is the corporate governance structure, and the second part is the principles according to corporate governance policy and business code of conduct, consisting of principles and best practices for ethical business operations, such as observance of laws, rules, and regulations; anti-fraud and anti-corruption measures; responsibility towards stakeholders; human rights; consumer rights; and fair labor. The handbook was distributed to all Directors, Executives and employees and required them to sign a compliance statement to pledge their adoption of the handbook as guidance in their performance of duties according to corporate governance policy. The Business Code of Conduct Handbook has also been distributed to GC's joint ventures and business partners and published on the Company's website (www.pttgcgroup.com) under "Corporate Governance and Business Code of Conduct Handbook" for ready access for stakeholders, regulatory agencies, and those interested. The details of the Business Code of Conduct are shown in Attachment 5 under "GC Policy and Practices of Corporate Governance and Business Code of Conduct."

Additionally, the Board of Directors has implemented an annual review of the Corporate Governance and Business Code of Conduct Handbook to ensure its consistency with criteria and practices issued by regulators and assessment agencies, both domestic



and international. In 2023, GC revised its Corporate Governance and Business Code of Conduct Handbook to ensure consistency with laws, good corporate governance principles, and GC's requirements, and the wording was edited to improve currency and suitability. In addition, the Board of Directors and Executives, who serve a crucial role in fostering and driving an ethical organizational culture, have also formulated and cultivated GC SPIRIT 4 Core Behaviors, an organizational value that places importance on integrity and ethics. GC SPIRIT: 4 Core Behaviors, along with the topics of corporate governance, risk management and internal control, and compliance (GRC), have been communicated to all employees across the organization through CEO Townhall and integrated into the work process in order to cultivate them into GC's corporate culture.

Corporate Compliance

GC recognizes the significance of compliance with laws and strives to surpass the requirements stipulated by laws, criteria, and standards. To this end, GC promotes compliance awareness on a regular basis to ensure compliance with domestic and international laws and criteria as well as relevant standards and standard systems. In 2023, GC improved its compliance process as well as guidelines and steps for legal and regulatory compliance management to ensure alignment with the ISO 37301: Compliance Management Systems: 2021 (E) standard and enhanced other compliance-related activities that promoted the effective management of compliance-related risks according to its obligations through a compliance management system, which comprised six steps: (1) Establish; (2) Develop; (3) Implement; (4) Evaluate; (5) Maintain; and (6) Improve. In addition, GC established a compliance process, which consisted of (1) Assessment - to identify major non-compliance risks, (2) Prevention - to ensure compliance control, and (3) Correction and Improvement - to appropriately manage matters that deviate from relevant laws and regulations and to regularly review and improve monitoring.

Furthermore, GC has established a compliance monitoring process internal units and defined the objectives and the scope of laws, rules, and regulations to adhere to. In addition, they are required to produce summaries, provide recommendations, and report the findings from the monitoring to the responsible executives of each unit for their acknowledgment as well as submit reports on the overall compliance performance and the action plan to the Corporate

Governance and Sustainability Committee on a yearly basis for acknowledgment and comments so as to ensure efficient governance and compliance with international laws and criteria.

In addition, GC regularly builds compliance awareness among its personnel through a wide range of activities as appropriate, including:

- Creating content on compliance, such as intellectual property, use of social media, money laundering, and complaint handling, which is communicated to employees through the tone from the top.
- Developing a compliance overview course in which executives and employees can learn by themselves through Hook Acknowledgement and Learning.
- Organizing workshops and courses on complaint investigation techniques for vice presidents across GC Group.
- Organizing an online training course entitled Mandatory Compliance for New Managers for division managers.

Dissemination of Good Corporate Governance Principles

GC communicates its key corporate governance principle entitled "C R E A T E," comprising six elements: the Creation of long-term value for the organization; Responsibility; Equitable treatment of all stakeholders; Accountability for decisions made and being able to offer justification for such decisions; Transparency, which entails full, accurate, equitable and timely disclosure through appropriate channels; and Ethics in business conduct, to its employees for their acknowledgement from the first day of work. GC also continuously underlines and instills corporate governance principles in its employees through training programs, seminars, and other activities. For example, GC offers a mandatory e-Learning program on its "Hook Acknowledgment and Learning" system, through which Executives and employees can sign the acknowledgement of the Corporate Governance and Business Code of Conduct Handbook and take a test. "PTT Group CG Day 2023: Good to Great – CG Empowering for the Future" was also organized to foster an understanding among employees, suppliers, customers, and relevant agencies of the role of corporate governance in driving the organization towards a sustainable future. Additionally, GC's corporate governance practices are assessed by domestic regulatory authorities and international standards, such as the Thai Institute of Directors Association (IOD), the Thai Investors Association (TIA),

and the Dow Jones Sustainability Indices (DJSI) in order to gauge GC's corporate governance performance and keep its corporate governance practices in line with international standards.

Furthermore, executives have communicated the principles of corporate governance, risk management, and internal control as well as corporate compliance to employees through Hook Talk videos in key meetings of each business unit and in internal meetings of each department to encourage them to behave ethically, be mindful of risks and internal control, and perform their duties in strict compliance with good corporate governance principles, the Company's regulations, laws and rules in addition to regularly improves its best practices.

Major Changes and Developments in Corporate Governance Policy, Practices, and Systems

For the year 2023, GC's major changes and developments in its corporate governance policy, practices, and systems for the optimization of corporate governance and the enhancement of GC's corporate governance standards in line with CG Code's principles and practices can be summarized as follows:

1. Awareness of the Board's roles and responsibilities as the leader and creator of sustainable value

- Revising two sub-committee charters:
 - Audit Committee: Non-assurance services were added to the scope of duties of auditors to align with the requirements stipulated by the Handbook of the International Code of Ethics for Professional Accountants B.E. 2565 and independence standards.
 - Risk Management Committee: The amendments include the following. 1) The scope of roles and responsibilities of the Risk Management Committee was revised to enhance clarity and address future risks; 2) The responsibilities of the Risk Management Committee were revised to clearly state that responsibility towards an external party is in the purview of the Board of Directors; and 3) the content under the topic of meetings was revised to align with GC's guidelines.

- The Corporate Governance and Business Code of Conduct Handbook was revised and proposed to the Corporate Governance and Sustainability Committee for approval before presenting it to the Board of Directors in January 2024.
- GC Recession Playbook was created to establish urgent measures for managing liquidity and restoring profitability in various situations and scenarios faced by the industry and GC so as to prevent them, ensure preparedness, and maintain the Company's ability to achieve the established targets.
- Strategic workforce planning was conducted in line with GC's business strategies to ensure that the organization had a suitable plan, that its personnel were equipped with necessary skills and capabilities to keep pace with business changes, and that the plan was connected with the Company's critical current and long-term (2-5 years) business plans.
- A leadership showcase entitled "How to Influence and Execute Speed to Global Mindset by Using GC SPIRIT 4 Core Behaviors" and a checkpoint for C-level executives were conducted to encourage them to serve as role models in promoting GC SPIRIT 4 Core Behaviors.
- Internal carbon pricing was applied to decision making related to returns on investment in various projects.

2. Establishing the organization's core objectives and targets for sustainability

- GRC (Governance, Risk Management & Internal Control, and Compliance) principles were utilized in defining the GRC Character and incorporating it into the corporate value.

3. Strengthening board effectiveness

Strengthening the Board of Directors

- The Board Skills Matrix and the table of definitions of various disciplines were revised based on the recommendations of the Nomination and Remuneration Committee to align with GC's strategic directions and business operation, with the addition of an understanding of energy security, financial technology, digital economy, money market, environmental laws, international trade laws, international politics, social and environmental stewardship, and information technology risks.

Strengthening sub-committees

- GC's Internal Control Questionnaire (ICQ) was revised in line with COSO's concept of internal control.
- GC Way of Conduct
 - GC revised the Thai and English versions of GC Way of Conduct e-book, developed GC Way of Conduct Webpage through the Share Point system, and created video clips on the overview of GC Way of Conduct in English as educational media for relevant target groups.
 - GC fostered an understanding of internal control among executives and employees of companies within GC Group through GC Way of Conduct, such as GCL, HMC, and NPC, and provided recommendations on internal control to companies within GC Group to ensure alignment with GC Way of Conduct.
 - GC built awareness and understanding of GC Way of Conduct (Culture) through GC Way of Conduct Communication Newsletters, delivered via email.

4. Senior executive nomination and development and personnel management

- The Leadership Expert House Committee was appointed, consisting of senior executives (SVP/EVP) from every function and responsible for determining the direction of talent and successor pool development to accommodate GC's needs and business growth.
- An additional leadership assessment tool for assessing global agility was developed in order to review the preparedness of managerial-level executives in the talent pool and the successor pool against the global benchmark to accommodate overseas business expansion.
- Personnel development activities were conducted in alignment with GC's personnel development strategies, consisting of the following components:
 - 1.) Learning goals that are established in connection to the critical competencies of the function/professional line of work and of the organization.
 - 2.) Learning journeys that outline critical courses for each position according to specified competencies, encompassing onboarding courses, functional courses, mandatory courses, leadership and soft skill courses, and digital competency courses.

- 3.) Course designers and internal instructors.
- 4.) Employees can access course content, learning materials, and reports on their learning development by themselves at any time through LMS and search for knowledge assets through KBS.

- GC developed and prepared for the announcement of GC Board of Directors Handbook, which offers guidelines for appointing executives as directors in GC's subsidiaries.

5. Promoting innovation and responsible business practices

- Strategic CSR activities were revised to optimize resource consumption and maximize outcomes beneficial to GC and communities.
- The GCMS framework, which is a management system for operational excellence and an organizational development tool for both operational and business aspects, was adopted. This involved delivering excellent products and services and improving the voice of the customer (VOC) and customer insight processes as well as processes for VOC management, customer relations management, customer and marketing strategy development, customer and marketing data management, and contract management.
- Cross-functional initiatives were launched, with the criteria aligned with the corporate culture "Conviction to Change: Speed to Global Mindset."
- A Digital Green Policy was developed, focusing on various aspects of eco-friendly IT and digital management and operations, such as equipment lifecycles, the use of end-user computing technologies, large-scale data processing systems, and the use of ICT as a low-carbon enabler.
- Cybersecurity

Permanent vice president-level units responsible for cybersecurity oversight were appointed. The first drill of a corporate-level crisis management and business continuity plan (OT cyberattack) was conducted. In addition, the preparation and submission of quarterly reports on cybersecurity risk management progress to the Risk Management Committee was prescribed. The procedures for disaster recovery plans and cybersecurity incident response plans were improved, with regular revisions and drills of the plans required. A data governance policy was additionally developed to serve as a framework for the management of critical data within GC, covering

aspects such as collection, usage, security, retention, and disposal of data to ensure appropriateness, efficiency, and business continuity.

- The work procedure of the commercial units was revised following the restructuring of the Marketing, Commercial and Supply Chain Function in order to establish guidelines and work processes for every unit to achieve transparency, fairness, and unified standards.
- The approval process for the Approved Customers/Suppliers List (ACL/ASL) was revised to establish a fair and transparent standard for customer qualification assessment. Approval in principles was also sought from the Corporate Credit Committee for the improvement of the process/system to enhance the efficiency of customer selection.
- Announcements were revised to align with the current structure following the restructuring of the Long Term Innovation and Corporate Venturing Capital (LIC) function into the Innovation Growth Platforms and CVC (IGC) function on August 16, 2023, as detailed below:
 - 1.) The announcements of the Technology Committee were revised, with committee members from LIC amended to IGC.
 - 2.) The announcements of the Long Term Innovation Committee (LTIC) were revised.
 - 3.) The announcements of the Investment Review Committee for corporate venture capital (CVC) research, development, and innovation and the Committee of New Business Development (CNB IC) were revised.
- Suppliers were encouraged to declare their intent to join the Thai Private Sector Collective Action Against Corruption (CAC).



6. Ensuring appropriate risk management and internal control

- CSA prioritization was undertaken by assessing process risks and categorized CSA to align with corporate risks as well as risks affecting the effectiveness of key internal controls so as to ensure that GC's risk assessment and control assessments were efficient, appropriate, and conducive to the achievement of the corporate objectives under the principles of internal control.
- GC coordinated with external agencies and the management and presented information vital to the discharge of duties of the Audit Committee, such as Deloitte (ESG Reporting Trend) and KPMG (New Global Internal Audit Standard).

7. Maintaining financial credibility and disclosure

- Financial liquidity was identified as an enterprise risk, and the minimum level of cash reserves and risk management measures were established to address scenarios where financial liquidity falls below the target. Monthly risk assessments and reporting to Monthly risk assessments and reporting to the Corporate Risk Management Department (S-RC) every month were also prescribed. Those risk assessments were integrated into the risk profile which would be reported to the Enterprise Risk Management Committee (ERMC) and the Risk Management Committee at the board level on a quarterly basis.
- Scenario cases and corresponding measures were established to anticipate and address irregular situations with potential high-level impact on the operating results (Playbook), taking into account the organization's survival under all circumstances. Measures for maintaining GC's financial liquidity were also established. The outcomes were to be regularly assessed and monitored as well as reported at board meetings on a monthly basis.
- COSO Focus Points were established as guidelines to ensure that respondents of GC's assessment form considered all relevant control and cover all key topics according to the SEC's assessment form and the COSO Internal Control Integrated Framework 2013, which would in turn ensure that GC's internal control was adequate and suitable for the achievement of its objectives and in compliance with the COSO standards.

The Board of Directors recognizes its role as a governing body of the Company. To this end, the Board has prescribed a review of the application of the Corporate Governance Code for Listed Company 2017 (CG Code) to GC's business context at least once a year as well as an assessment of CG Code compliance to ensure that the outcome is appropriate and that the development plans suitable for the business are consistently

formulated. Based on the item-by-item review and assessment results of CG Code compliance in 2023, it was found that GC successfully applied most of the items of CG Code in accordance with the Apply and Explain principle. For any item of the CG Code that GC was unable to or had yet to apply to its business, explanations were recorded as part of the Board's resolution.

Practice/Guideline	GC's practice
Item 3.1.2 The Board of Directors should determine the appropriate number of Directors to allow the efficient performance of duties, whereby the number of directors shall be no less than five and not exceeding twelve directors, depending on the size, types, and complexity of the business.	<ul style="list-style-type: none">— The Corporate Governance and Business Code of Conduct Handbook stipulates that the Board of Directors shall consist of no fewer than five Directors but no more than fifteen Directors. The Meeting No.13/2018 of the Board of Directors dated December 20, 2018, resolved that the aforesaid number of Directors was appropriate for GC's complexity and the diversity of its business types.— GC's article of association No. 12 prescribes that the Board of Directors shall consist of no fewer than five Directors but no more than fifteen Directors.
Item 4.2.1 (1) The Board of Directors should ensure that a compensation structure is in place and takes into consideration the appropriate ratio of salary, short-term operation results, such as bonuses, and long-term operation results, such as employee stock ownership plans.	<ul style="list-style-type: none">— The Company is in the process of considering the appropriate compensation structure and the connection of compensation to long-term operation results, and the stock exchange conditions that would facilitate such undertakings.

Compliance with Corporate Governance Principles in Other Areas

GC consistently complies with corporate governance standards. Relevant activities in 2023 are summarized below.

Board KPIs

The Board of Directors reviewed the Board KPIs to be implemented in 2023 to ensure their alignment with the best practices stipulated in CG Code and DJSI.

Data Governance

GC implemented a data governance procedure and standard and developed a data platform, bringing

together technologies that encompassed a wide range of duties and functionalities, from data ingestion and collection, big data storage, data management, and data preparation, all the way to data analytics and visualization. These technologies were adopted as vital tools to continuously drive GC's digital transformation.

In 2023, the aforementioned technologies were utilized to launch the first phase of data product development from 22 out of 39 datasets. The goal was to expand the capabilities of GC's advanced analytics for data scientists in each function across GC and enable them to access digital use cases and retrieve high-quality data for use in enhancing GC's competitive advantage. In the second phase in 2024, the remaining 17 datasets will undergo development to efficiently meet the demand for GC's data usage across the organization.

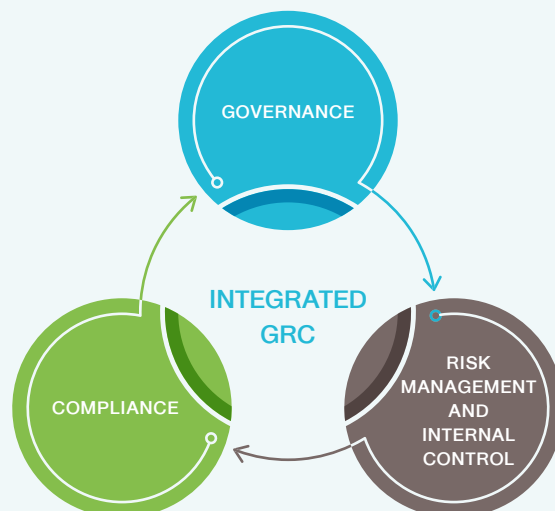
GC recognizes the importance of controlling and monitoring data products to ensure their quality, availability, and retrievability at all times to reduce the costs required for data development and avoid redundant management expenses. To this end, GC has established a procedure for ensuring data quality, data compliance with laws and GC's regulations, and data security, consisting of the following components:

1. Data governance is included in project development as part of the digital investment life cycle.
2. Data governance officers (DGO) are responsible for controlling and monitoring data to ensure its quality in collaboration with business data stewards and for inspecting the use of data products in every digital use case to prevent violations of GC's regulations and the Personal Data Protection Act B.E. 2562 (2019).
3. A data quality index is established in collaboration with data owners, encompassing data on materials, vendors, customers, equipment, plant maintenance, ready-made assets, and lab operations. For the year 2023, the required data quality index for such data was a minimum of 95%.

4. Data engineers are responsible for controlling and verifying data ingestion and collection as well as data interoperability and for establishing a data integration standard for digital use cases.
5. Informing and educating employees at all levels through communications to foster their understanding of data management and enable them to use data products correctly and safely according to the objectives of digital use cases and data scientists.
6. Encouraging employees to utilize the data catalog to conveniently search and access data sources and understand data types and formats before requesting the use of data products.

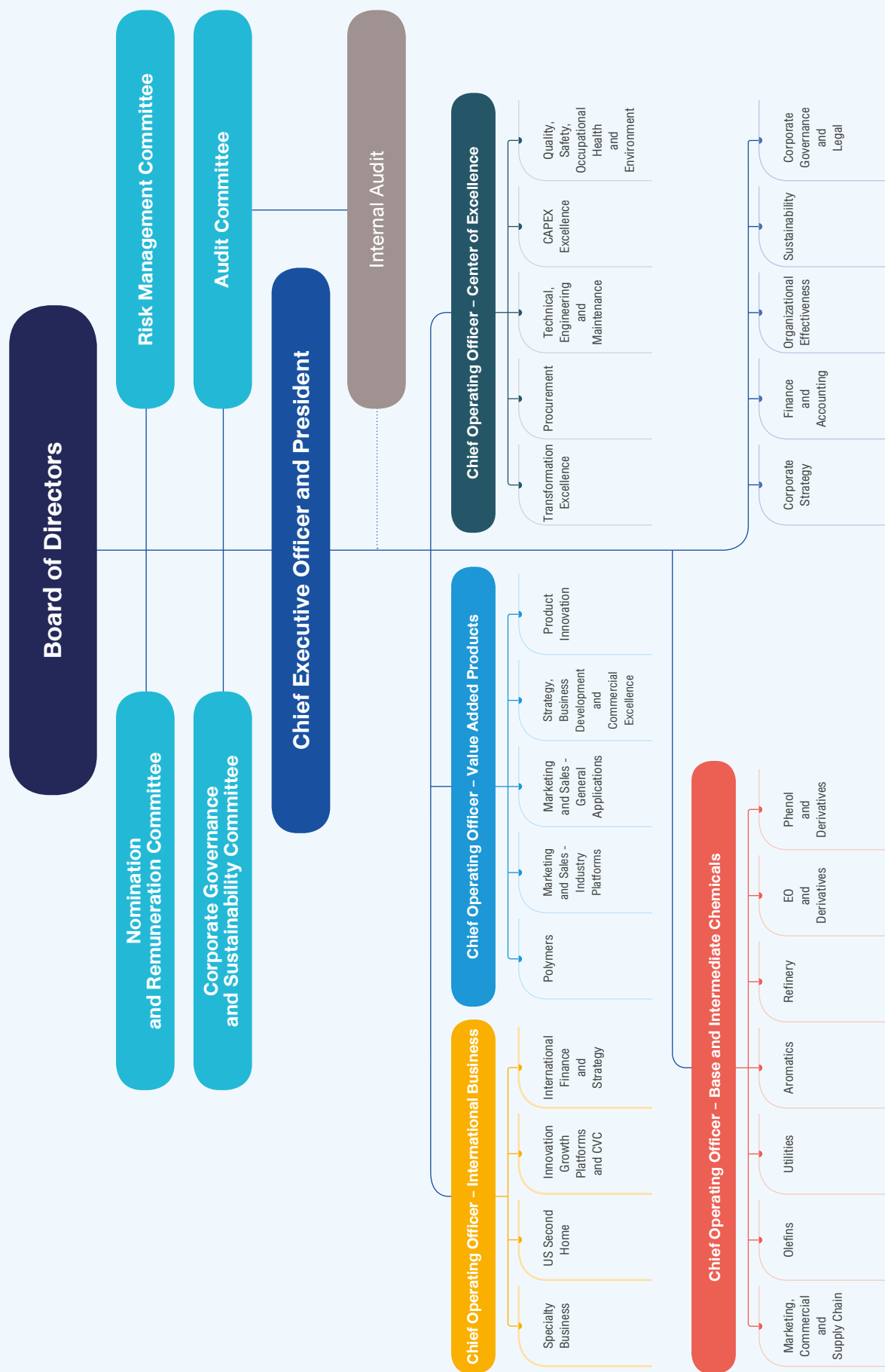
Integrated Governance, Risk Management and Internal Control, and Compliance (Integrated GRC)

GC places importance on the integration of Governance, Risk management and internal control, and Compliance (GRC), to enable the organization to achieve its business goals with efficiency, transparency, and accountability and minimize risks that may affect its business. Further details of GRC operations appear under "Internal Control."



Organization Structure

As of 1 November 2023



Board of Directors

The Board of Directors as of February 15, 2024, comprises the following members:

Name	Position	Date of appointment
1. Mr. Predee Daochai ⁽¹⁾	Chairman/Chairman of the Independent Director	Nov 15, 2023
2. Mr. Thanwa Laohasiriwong ⁽²⁾	Independent Director/Chairman of the Audit Committee	Nov 1, 2023
3. Mr. Pakorn Nilprapunt ⁽³⁾	Independent Director/Chairman of the Nomination & Remuneration Committee and Director to the Audit Committee	April 9, 2018
4. Professor Somkit Lertpaithoon	Independent Director/Chairman of the Corporate Governance and Sustainability Committee	April 9, 2018
5. Mr. Grisada Boonrach	Independent Director/ Chairman of the Risk Management Committee	June 2, 2020
6. Lieutenant General Nimit Suwannarat ⁽⁴⁾	Independent Director/Director to the Audit Committee and Director to the Nomination & Remuneration Committee	Jan 1, 2023
7. Mr. Somkiat Prajamwong	Independent Director/Director to the Nomination & Remuneration Committee	April 4, 2022
8. Mr. Surachai Achalaboon ⁽⁵⁾	Independent Director/Director to the Corporate Governance and Sustainability Committee	May 22, 2023
9. Police Colonel Dusadee Aryawut ⁽⁶⁾	Independent Director/Director to the Corporate Governance and Sustainability Committee	Nov 1, 2023
10. Mr. Patchara Anuntasilpa ⁽⁷⁾	Director/Director to the Corporate Governance and Sustainability Committee	April 7, 2023
11. Mr. Chadil Chavanalikhorn	Director/Director to the Corporate Governance and Sustainability Committee	Dec 19, 2022
12. Mr. Petai Mudtham ⁽⁸⁾	Director/Director to the Risk Management Committee	Feb 12, 2024
13. Mr. Noppadol Pinsupa ⁽⁹⁾	Director/Director to the Risk Management Committee	Jan 23, 2023
14. Mr. Cherdchai Boonchoochauy	Director/Director to the Risk Management Committee	Dec 19, 2022
15. Mr. Kongkrapan Intarajang	Director/Secretary to the Board of Directors/ Director to the Risk Management Committee/ Chief Executive Officer and President	Oct 1, 2019

Remarks:

- ⁽¹⁾ Mr. Predee Daochai, Independent Director, replaced Mrs. Watanan Petersik, effective November 15, 2023.
- ⁽²⁾ Mr. Thanwa Laohasiriwong, Independent Director, replaced Mr. Apisak Tantivorawong, effective November 1, 2023.
- ⁽³⁾ Mr. Pakorn Nilprapunt, Chairman of the Nomination & Remuneration Committee, replaced General Nithi Chungcharoen, effective January 1, 2023.
- ⁽⁴⁾ Lieutenant General Nimit Suwannarat, Independent Director, replaced General Nithi Chungcharoen, effective January 1, 2023.
- ⁽⁵⁾ Mr. Surachai Achalaboon, Independent Director, replaced M.L. Chayotid Kridakon, effective May 22, 2023.
- ⁽⁶⁾ Police Colonel Dusadee Aryawut, Independent Director, replaced Mr. Piyasvasti Amranand, effective November 1, 2023.
- ⁽⁷⁾ Mr. Patchara Anuntasilpa, Director, replaced Mrs. Pantip Sripimol, effective April 7, 2023.
- ⁽⁸⁾ Mr. Petai Mudtham, Director, replaced Mr. Sarawut Kaewtathip, effective February 12, 2024.
- ⁽⁹⁾ Mr. Noppadol Pinsupa, Director, replaced Mr. Disathat Panyarachun, effective January 23, 2023.

Directors who resigned during the period from January 1, 2023 to January 31, 2024:

Name	Position	Term of appointment
1. M.L. Chayotid Kridakon	Independent Director/Director to the Corporate Governance and Sustainability Committee	May 14, 2022 - March 21, 2023
2. Mrs. Pantip Sripimol	Director/Director to the Corporate Governance and Sustainability Committee	Nov 22, 2021 - April 7, 2023
3. Mr. Piyasvasti Amranand	Chairman/Chairman of the Independent Director	April 9, 2018 - July 11, 2023
4. Mr. Apisak Tantivorawong	Independent Director/Chairman of the Audit Committee	Jan 24, 2020 - Aug 28, 2023
5. Mrs. Watanan Petersik	Independent Director/Director to the Audit Committee/ Director to the Corporate Governance and Sustainability Committee	Sep 22, 2014 - Sep 21, 2023
6. Mr. Sarawut Kaewtathip	Director/Director to the Risk Management Committee	July 20, 2020 - Jan 3, 2024

Shares held by the Board of Directors under SEC's definition, their spouses, and their minors as of February 15, 2024:

Name	Number of Shares		
	As of January 1, 2023	As of December 31, 2023	Increase/Decrease of Shares during the Year (Shares)
1. Mr. Predee Daochai	N/A	-None-	-No change-
2. Mr. Thanwa Laohasiriwong	N/A	-None-	-No change-
3. Mr. Pakorn Nilprapunt	-None-	-None-	-No change-
4. Professor Somkit Lertpaithoon	-None-	-None-	-No change-
5. Mr. Grisada Boonrach	-None-	-None-	-No change-
6. Lieutenant General Nimit Suwannarat	-None-	-None-	-No change-
7. Mr. Somkiat Prajamwong	-None-	-None-	-No change-
8. Mr. Surachai Achalaboon	N/A	-None-	-No change-
9. Police Colonel Dusadee Aryawuit	N/A	-None-	-No change-
10. Mr. Patchara Anuntasilpa	N/A	-None-	-No change-
11. Mr. Chadil Chavanalikhorn	-None-	-None-	-No change-
12. Mr. Petai Mudtham	N/A	-None-	-No change-
13. Mr. Noppadol Pinsupa	N/A	-None-	-No change-
14. Mr. Cherdchai Boonchoochaui	-None-	-None-	-No change-
15. Mr. Kongkrapan Intarajang	-None-	-None-	-No change-

Composition of the Board of Directors

GC's Articles of Association mandate that the Board of Directors be composed of no fewer than five but no more than 15 Directors. Each Director is to serve a three-year term. At least one-third and no fewer than three Directors on the entire Board must be Independent Directors. According to good corporate governance principles, more than half of the Board of Directors must be Independent Directors. Furthermore, GC's good corporate governance principles prescribe that at least half of the Board of Directors must be residents of the Kingdom of Thailand. These Directors must also have the legally required qualifications, not possess any attributes prohibited by law and not be over the age of 70.

The composition of the Board of Directors and its members' qualifications comply with its Articles of Association, good corporate governance principles, and legal regulations. In addition, the Company's policy protects Directors from any form of gender discrimination. The Board of Directors comprises individuals from diverse fields of knowledge, skills, expertise, and professional experience which are beneficial to the Company's strategic direction and business practices.

Furthermore, each Director may hold a directorship at no more than five companies listed with the Stock Exchange of Thailand (SET) and at no more than three state enterprises or juristic persons whose shares are held by state enterprises, according to a resolution passed by the cabinet. As of February 15, 2024, the Company's Board of Directors comprises a total of 15 Directors, which is a number appropriate for its business size and type. These Directors are divided into the following categories:

- (1) 14 Non-Executive Directors.
- (2) 1 Executive Director, namely the Chief Executive Officer and President.
- (3) 9 Independent Directors (over half the number of the Board's total).

Authority and Responsibilities of the Board of Directors

The Board of Directors governs the Company's operations and ensures strict compliance with applicable laws, GC's objectives and Articles of Association, and shareholder resolutions, as well as good corporate governance principles and the Code of Best Practices of Directors of Listed Companies set forth by SET. All Directors possess the knowledge and capability needed

to perform their duties for the benefit of the Company and its shareholders. The Board's authority and responsibilities are summarized below:

- 1) Discharge its duties and oversee the Company's operations to ensure strict compliance with applicable laws, GC's objectives and Articles of Association, and shareholder resolutions, as well as good corporate governance principles and the Code of Best Practices of Directors of Listed Companies set forth by SET.
- 2) Dedicate its time and attention to establishing the Company's vision, mission, directions, and strategies as well as freely express opinions and seek useful information to determine the direction of the Company.
- 3) Review and approve key strategies and policies as well as objectives, financial goals, and corporate plans, as well as supervise and monitor the management's implementation of the Company's strategic plans in compliance with the defined directions and strategies to ensure that the management is able to achieve the Company's vision, directions and strategies with efficiency.
- 4) Establish Corporate Governance Policy and Business Code of Conduct, which appropriately outline principles and good practices for the Board, the management, and staff members, and cultivate responsibility awareness in all employees to promote an understanding of and strict compliance with these principles and guidelines, in addition to the Company's rules and regulations, to assure all stakeholders of fairness.
- 5) Exercise approval authority on various matters beyond the authority granted to the Chief Executive Officer and President in the Company's provision, namely GC Group's budget, investment, project implementation, as well as key contract entry, the appointment of Directors to replace those resigning during the year or to Sub-committee, naming of authorized Directors, and the appointment of the dates for the annual general meeting of shareholders and interim dividend payment.
- 6) Ensure that the corporate accounting system, financial reporting and auditing are credible, supervise the assessment of internal control's adequacy, and ensure that internal audits are performed efficiently and effectively.
- 7) Consider all relevant risk factors and devise comprehensive risk management guidelines, ensure that the Company's Executives are equipped with an efficient risk management system or process to mitigate risks as well as to explore business opportunities that may arise from these risks, and ensure that adequate and effective internal control is in place.
- 8) Monitor and manage all conflicts of interest as well as all connected transactions that may arise and value key transactions to maximize the benefit of shareholders and other stakeholders.
- 9) Provide appropriate channels of communication to each group of shareholders and ensure that the disclosure of information is accurate, clear, transparent, reliable, and of the highest standard.
- 10) Regularly conduct assessments and reviews of its own performance and that of the Chief Executive Officer and President.
- 11) Provide a suitable compensation system or mechanism for the Company's Executives relative to the performance of the Company to induce short-term and long-term motivation.
- 12) Act as leaders and role models in line with the Company's Corporate Governance Policy.
- 13) Assess corporate adherence to the Company's Corporate Governance Policy and Business Code of Conduct at least once a year.
- 14) Provide an appropriate, transparent, and fair nomination system for all key managerial positions. Top executives, from Executive Vice Presidents to the Chief Executive Officer and President, are appointed by the Board's majority votes.
- 15) Report to the Company any conflict of interest that its members or their affiliates may have with the management of the Company or its subsidiaries.
- 16) Attend every Board meeting, as well as every shareholders' meeting. If, under any circumstance, attendance is impossible, the Chairman of the Board must be notified in writing.
- 17) Value corporate social and environmental responsibility and promote a better quality of life for Thai people sustainably, starting with improving the standard of living of communities around the Company's plants to foster an environment where its plants and these communities co-exist in a sustainable manner.
- 18) Provide support to all anti-fraud initiatives for the purpose of progress and sustainable growth.

Moreover, the Board of Directors must obtain permission from the shareholders' meeting before acting on the following issues:

- Acquisition or disposition of an important asset or any connected transaction as prescribed by laws and the Capital Market Supervisory Board.
- Sale or transfer of the Company's entire enterprise or its essential components to other entities.
- Acquisition or transfer of an enterprise to the Company.
- Initiation, modification, or termination of all or some key lease contracts of the Company, including the assignment of lease contracts to other individuals or entry into a partnership with another entity to share profits or losses.

- Making addenda or amendments to the Company's Memorandum or Articles of Association.
- Increasing or decreasing the registered capital.
- Issuance of debentures for sale to the public.
- Dissolution of the Company or merging it with another company.
- Announcing annual dividends.
- Other activities that require approval from the shareholders' meeting as mandated by laws or the Company's Articles of Association.

This is to assure shareholders and investors that GC, by means of the Board of Directors, has defined its vision, missions, directions, and strategies as well as established effective systems for the monitoring, assessment, and supervision of the management of the Executives, and that the Board of Directors is independent from the Management and is accountable to the outcome of their performance in accordance with good corporate governance principles in the following matters:

Transactions Involving Potential Conflicts of Interest

- (1) The Board of Directors shall establish policies and guidelines for reviewing transactions that involve or may involve a conflict of interest between shareholders, Directors, Executives, and other persons, both directly and indirectly. Related-party transactions under the approval authority of shareholders must be reviewed by the Audit Committee to ensure their fairness, rationality, and benefits to the shareholders as well as their compliance with laws and SEC's regulations.
- (2) The Board of Directors ensures that the defined procedure is followed with due care on the basis of rationality and independence and that the transaction approval process is transparent and takes into account the best and full interests of the Company in compliance with SEC's regulations.
- (3) Stakeholders may not take part in the approval of such transactions. In every meeting of the Board of Directors, the Chairman of the Board of Directors shall request for the cooperation of the Company's Directors in following the policy on reviewing transactions that may involve a conflict of interest, whereby the Directors inform the meeting of their stake in order to abstain from voting or giving opinions or to leave the meeting while the agenda item related to them or involving their stake is being considered.
- (4) The Board of Directors ensures the accurate and complete disclosure of all transactions that may involve conflicts of interest in Form 56-1 One Report.

Risk Management

- (1) The Board of Directors strives to create added value and sustainability for the business in accordance with the principles of good corporate governance. To this end, the Risk Management Committee has been appointed to formulate risk management policies and ensure that the Company's risk management system and process enable the effective achievement of its objectives and comply with relevant laws and standards to minimize potential impacts on the Company's business operations in a suitable manner.
- (2) The Board of Directors inspects and reviews the operation to ensure compliance with the corporate risk management framework throughout the organization as well as monitors and provides recommendations on the management of key risks. The Board's duties also include reviewing risk management reports to ensure appropriate and adequate risk management.

Internal Control and Internal Audit

- (1) The Board of Directors values the significance of internal and has thus established an internal control system to provide assurance in the efficiency and effectiveness of the Company's operations as well as the reliability of its financial reports and compliance with relevant laws, rules, regulations, and anticorruption principles. The Board of Directors has also established an internal audit policy to serve as operational guidance for the Board itself, Executives, and all employees across GC Group as well as appointed an internal audit unit, which evaluates the adequacy and effectiveness of the Company's internal control system in response to risks independently and reports its findings to the Audit Committee and the Board of Directors.
- (2) The Board of Directors reviews the adequacy of the five components of the Company's internal control system in accordance with the COSO Standard, namely Control Environment, Risk Assessment, Control Activities, the Information and Communication, and Monitoring Activities, on a yearly basis in order to ensure the achievement of the Company's objectives and goals and the continual improvement of the internal control system.
- (3) The Board of Directors puts in place a formal and transparent system to maintain relationships with external and internal auditors. The Audit Committee is tasked with supporting their performance of duties in accordance with the Board of Directors' responsibilities in adequately evaluate the operations of GC and other companies in GC Group as well as

offering independent and objectively opinions on the internal control system and risk management.

- (4) External auditors are required to annually affirm their independence to the Audit Committee, present a non-assurance service (NAS) report to the Audit Committee for approval before providing the service, and report on all reporting methods utilized in their audit firm to ensure their independence.
- (5) External auditors have the right to review reports or other financial reports issued by the Board of Directors in conjunction with their audited financial statements and have the right to include in their reports any anomalies inconsistent with the audited financial statements.
- (6) Audit fees and other fees paid to external auditors are disclosed in Form 56-1 One Report to increase the transparency regarding the auditors' independence.

Appointment to and Termination from the Board of Directors

GC's Articles of Association provide the following guidelines for the appointment to and termination from the Board of Directors:

Appointment

The Board of Directors shall be elected annually (for replacements of directors retiring by rotations). Shareholders at a shareholders' meeting shall vote to appoint Director(s) according to the following guidelines:

- (1) Each shareholder shall have one vote per share held.
 - (2) In the event that the number of nominees for the election does not exceed the number of vacant positions, shareholders shall vote on these eligible nominees. Shareholders shall allocate all of their votes per (1) to one nominee without dividing their votes.
 - (3) In the event that the number of nominees exceeds the number of vacant positions, shareholders shall still allocate all of their votes per (1) to one nominee without dividing their votes. Nominees receiving the majority of the votes shall be appointed to the Board until there are no vacancies left. Additionally, in the event that the number of nominees with equal votes exceed the number of available positions, The Chairman of the meeting shall cast the deciding vote.
- The Board of Directors shall nominate one Director as Chairman of the Board of Directors. Decisions made during a Board meeting are based on majority votes. The Chairman shall vote only when a deciding vote is needed. In the event that a Director's position becomes vacant for any reason other than retirement

by rotation, the Board may appoint an individual who is fully qualified and does not possess any attributes prohibited by law as Director to attend the next Board meeting, unless the remaining term is less than two months. The new Director shall serve only the remaining term of his or her predecessor. This decision shall be made only with the agreement of at least three quarters of the remaining Directors.

- In the event that vacancies cause the number of Directors to fall below the quorum, the remaining Directors shall have the only authority to call for a shareholders' meeting in which shareholders shall vote to appoint new Directors to fill these vacancies only. This process must be completed within one month of the date on which the number of Directors no longer constitutes the quorum. These newly appointed Directors shall serve only the remaining terms of their predecessors.

Termination

- At each Annual General Meeting of Shareholders, one-third of the serving Directors shall retire by rotation. In the event that the number of serving Directors is not equally divisible by three, the number of Directors retiring shall be as close to one-third as possible. Directors to retire in the first and second years after Company registration shall be randomly selected; however, in later years, Directors serving the longest terms shall retire. Directors who retire by rotation may be re-elected to the Board.
- In addition to retirement by rotation, other causes for directorship termination include death, resignation, disqualification, and prohibition by law. Additionally, Directors can be terminated by a shareholders' meeting resolution or a court order.
- Resigning Directors must submit their resignation notice to the Company. Resignation is effective from the day the Company receives such notice. In addition, Directors may submit their resignation notice through the registrar. At a shareholders' meeting, shareholders may pass a resolution to force the termination of a Director before his or her term ends with three quarters of the attending and eligible shareholders' votes. Additionally, these majority votes must constitute at least half of the shares held by attending and eligible shareholders.

Independent Directors

According to the Company's corporate governance principles, more than half of the Board of Directors must be Independent Directors. Each Independent Director may serve up to three consecutive terms or up to nine years, with the term beginning from the date of first

appointment as Independent Director. These Independent Directors must possess knowledge and skill as well as be independent as per the Capital Market Supervisory Board's requirements. Additionally, they must hold no more than 0.5% of the Company's shares (a stricter regulation than the Securities and Exchange Commission's limit of 1%). The definition of Independent Director Qualification is disclosed in the Company's Corporate Governance and Business Code of Conduct Handbook and on the Company website.

Independent Directors must attend meetings regularly. They are allowed to freely express their opinions during these meetings and, to this end, are entitled to adequate access to company financial and business information. They are also tasked with protecting stakeholders' interests and preventing conflicts of interest among the Company, its executives, Board of Directors, and major shareholders.

Currently, the Company has a total of nine Independent Directors, constituting more than one-third of the Board and exceeding the legal requirement. In addition, this number is in line with the Company's corporate governance principles, which stipulate that more than half of Board members must be Independent Directors. Moreover, the Charter of Independent Directors has been established to clearly outline their duties. Under the Charter recently amended to suit the current situation, the duties and responsibilities of Independent Directors are as follows:

- Advise and provide recommendations to the Board of Directors on key issues that the Company should act upon or issues that could be beneficial to the Company, its shareholders, and other relevant stakeholders.
- Ensure the Company's full compliance with its Anti-Corruption Policy and measures.
- Value corporate social and environmental responsibility.
- Seek consultation from external, independent consultants if necessary. The expenses incurred will be borne by the Company.
- Ensure that the Company operates according to the regulations and requirements relevant to Independent Directors issued by regulatory bodies for listed companies and review the definition of an Independent Director to make sure that it is appropriate and complete according to legal requirements.
- Review the adequacy of their charter annually and propose recommended amendments, if any, to the Board of Directors for approval.
- Perform other duties as assigned by the Board of Directors, provided that these duties do not interfere with the independent nature required of Independent Directors.

Authorized Directors

According to GC's Articles of Association and Certification of Incorporation from the Department of Business Development of the Ministry of Commerce, as of February 1, 2024, the authorized signatory Directors of GC specifies that: "(1) Mr. Kongkrapan Intarajang, Chief Executive Officer, can sign and affix the Company's seal on behalf of GC; or (2) two of the following three Directors can jointly sign and affix the Company's seal on behalf of GC, namely Mr. Cherdchai Boonchoochaui Mr. Chadil Chavanalikhorn, and Mr. Noppadol Pinsupa."

Roles of the Chairman and the Chief Executive Officer and President

The Chairman of the Board of Directors and the Chief Executive Officer and President (CEO) shall not be the same person. Their duties and responsibilities are distinct and separate, as described below:

The Chairman of the Board of Directors is an Independent Director whose main role is to ensure that the Board of Directors efficiently performs its duties and in compliance with the Company's good corporate governance principles and the business code of conduct, being independent from the management. In addition, the Chairman works with CEO to determine meeting agenda but refrains from participate in day-to-day business management. The Chairman of the Board of Directors will be the chairman of both Board meetings and shareholders' meetings and is prohibited from serving on any Sub-committee as explicitly prescribed in the scope of responsibilities of the Board of Directors and Sub-committees to ensure a clear and suitable separation of duties as well as independent judgment.

The Chief Executive Officer and President is the highest-ranking executive officer whom the Board of Directors chooses and appoints from one of the Directors under the GC's Articles of Association to oversee the Company under Board-assigned policies and directions in accordance with the scope of authority set forth in GC's Articles of Association and regulations. The CEO also serves as Secretary to the Board of Directors. Furthermore, GC's Articles of Association state that the CEO is entitled to compensation and benefits for his role as the highest-ranking executive officer in addition to what he or she receives as a Director. The CEO's roles, duties, and responsibilities, as well as compensation, are published on the Company website in Thai and English.

Sub-committees

The Board of Directors at Meeting No. 1/2011, held on October 19, 2011, appointed four Sub-committees, namely the Audit Committee, the Nomination and Remuneration Committee, the Corporate Governance and Sustainability Committee, and the Risk Management Committee. Directors serving on these sub-committees possess the expertise and knowledge required to oversee specific issues that each is tasked with according to GC's Articles of Association. The charter of each Sub-committee prescribes its members' desired qualifications, terms in office, and scope of duties and responsibilities. The names of Sub-committee

members, their duties and responsibilities, the number of their meetings and attendance in these meetings are detailed below.

Serving a three-year term, Directors appointed to these Sub-committees are to perform their specific tasks with diligence and efficiency. All Sub-committees report their performance to the Board of Directors at Board meetings regularly as well as disclose their annual performance to shareholders in Form 56-1 One Report. The names and duties of each Sub-committee as of February 15, 2024, are listed below.

Audit Committee

Name	Position	Date of Appointment
1. Mr. Thanwa Laohasiriwong ⁽¹⁾	Chairman of the Audit Committee (Independent Director)	Nov 1, 2023
2. Mr. Pakorn Nilrapunt ⁽²⁾	Director to the Audit Committee (Independent Director)	April 23, 2018
3. Lieutenant General Nimit Suwannarat ⁽³⁾	Director to the Audit Committee (Independent Director)	Sep 25, 2023

Mr. Amorn Putiphrawan, Senior Vice President of Internal Audit, served as Secretary to the Audit Committee and retired on December 31, 2023. Mr. Chatchawalit Dhammasaroj was appointed Secretary to the Audit Committee to replace Mr. Amorn Putiphrawan, on January 1, 2024.

Remarks:

⁽¹⁾ Mr. Thanwa Laohasiriwong was appointed Director to the Audit Committee, replacing Mrs. Watanan Petersik, and served as Chairman of the Audit Committee in place of Mr. Pakorn Nilrapunt on November 1, 2023. Mr. Thanwa Laohasiriwong possesses sufficient knowledge and work experience in accounting and finance to review the credibility of financial statements.

⁽²⁾ Mr. Pakorn Nilrapunt was appointed Chairman of the Audit Committee, replacing Mr. Apisak Tantivorawong on September 25, 2023, and transitioned to the position of a Director to the Audit Committee on November 1, 2023.

⁽³⁾ Lieutenant General Nimit Suwannarat was appointed Director to the Audit Committee, replacing Mr. Apisak Tantivorawong on September 25, 2023.

The Audit Committee shall be comprised of at least three but not more than five Independent Directors. Each term lasts three years or until the termination of directorship, resignation, or dismissal. Members of the Audit Committee who retire by rotation may be re-appointed by the Board of Directors. Independent Directors may serve no more than nine consecutive years in office from the date of appointment. They shall also have qualifications and perform all duties in accordance with the Notification of the Securities and Exchange Commission and the scope of work prescribed by the announcement of the Capital Market Supervisory Board.

The Board of Directors has approved the Charter of the Audit Committee, which stipulates the composition, qualifications, terms of office, and scopes of duties according to good corporate governance principles. Details of the charter are disclosed in the Company's Corporate Governance and Business Code of Conduct Handbook and on the Company website.

The Audit Committee consists solely of Independent Directors, with at least one of whom being a recognized expert with experience in finance and accounting. The Board believes that the Directors can carry out their duties independently and have continuously undergone trainings to enhance their expertise for the benefit of

ensuring the credibility of the Company's financial and auditing reports, including their adherence to accounting standards, applicable laws, and other relevant standardized practices. Furthermore, the Audit Committee ensures adequate and effective internal control and risk management systems while also overseeing internal processes regarding whistleblowers and complaint submissions. The Audit Committee nominates auditors and submits dismissal recommendations to the Board in the event that the independent auditor fails or neglects to perform their duties or wrongfully performs their duties. It also reviews the suitability and effectiveness of the Company's internal audit system and oversees the functions of Internal Audit to ensure compliance with International Standards for the Professional Practice of Internal Auditing. The Audit Committee reviews the Company's compliance with securities and exchange laws, regulations of the Stock

Exchange of Thailand (SET), and other applicable laws. It also reviews connected transactions and conflicts of interest to achieve compliance with applicable laws and the requirements of the Stock Exchange of Thailand (SET) and Securities and Exchange Commission (SEC) and ensure their sensibility, the utmost benefit of the Company, and full disclosure.

In 2023, the Audit Committee convened a total of 10 meetings and one additional meeting with the external auditor, fulfilling its role according to the scope of authority and responsibilities stipulated by the Charter of the Audit Committee and as assigned by the Board of Directors. The Committee also reported its performance outcomes to the Board on a quarterly basis and subsequently disclosed its performance summary to shareholders in Form 56-1 One Report.

Nomination and Remuneration Committee

Name	Position	Date of Appointment
1. Mr. Pakorn Nilrapunt	Chairman of the Nomination and Remuneration Committee (Independent Director)	Nov 22, 2021
2. Mr. Somkiat Prajamwong	Director to the Nomination and Remuneration Committee (Independent Director)	April 4, 2022
3. Lieutenant General Nimit Suwannarat	Director to the Nomination and Remuneration Committee (Independent Director)	Jan 1, 2023

Mrs. Pilasphan Udomjarumanee, Senior Vice President of Corporate Governance and Legal, serves as Secretary to the Nomination and Remuneration Committee.

The Nomination and Remuneration Committee is composed of at least three Directors of the Board, all of whom shall be Independent Directors in line with good corporate governance principles. These Directors serve a three-year term unless their terms on the Board end or they resign or are removed from their positions.

The Board of Directors has approved the Charter of the Nomination and Remuneration Committee, which stipulates the composition, qualifications, terms of office, and scopes of duties according to good corporate governance principles. Details of the charter are disclosed in the Company's Corporate Governance and Business Code of Conduct Handbook and on the Company website.

The Nomination and Remuneration Committee is responsible for nominating qualified candidates for directorship and sub-committee member to replace

Directors retiring by rotation or fill vacancies due to other reasons as well as nominating candidates to be appointed as the Chief Executive Officer and President (CEO) in accordance with clearly defined criteria or a transparent nomination process. In this process, the Committee shall take into consideration experiences, profession, skills (the Board Skills Matrix) and specific qualifications necessary for the Company's business operation to achieve a balanced array of expertise and maximum benefits as well as utilize its own Director Pool as well as those of authoritative external agencies in conjunction when nominating candidates to the Board of Directors and/or the shareholders' meeting for appointment. The Committee is also charged with reviewing and determining remuneration for the Directors, Directors to Sub-committees, and CEO, which adheres to fair and reasonable criteria or methods, and proposing it to the Board of Directors and/or the shareholders' meeting for approval. The Committee also establishes

criteria for the annual performance assessment of the Board of Directors and CEO and assesses the performance of CEO to determine appropriate remuneration, which is then proposed to the Board of Directors for approval. Further details appear in the Charter of the Nomination and Remuneration Committee.

In 2023, the Nomination and Remuneration Committee convened a total of 10 meetings to fulfill its role according to the scope of authority and responsibilities stipulated by the Charter of the Nomination and Remuneration Committee and as assigned by the Board of Directors. The Committee also reported its performance outcomes to the Board and subsequently disclosed its performance summary to shareholders in Form 56-1 One Report.

Corporate Governance and Sustainability Committee

Name	Position	Date of Appointment
1. Professor Somkit Lertpaithoon	Chairman of the Corporate Governance and Sustainability Committee (Independent Director)	April 23, 2018
2. Mr. Surachai Achalaboon ⁽¹⁾	Director to the Corporate Governance and Sustainability Committee (Independent Director)	May 22, 2023
3. Police Colonel Dusadee Aryawut ⁽²⁾	Director to the Corporate Governance and Sustainability Committee (Independent Director)	Nov 1, 2023
4. Mr. Patchara Anuntasilpa ⁽³⁾	Director to the Corporate Governance and Sustainability Committee (Director)	April 7, 2023
5. Mr. Chadil Chavanalikikorn	Director to the Corporate Governance and Sustainability Committee (Director)	Dec 19, 2022

Mrs. Pilasphan Udomjarumanee, Senior Vice President of Corporate Governance and Legal, serves as Secretary to the Corporate Governance and Sustainability Committee.

Remarks:

⁽¹⁾ Mr. Surachai Achalaboon was appointed Director to the Corporate Governance and Sustainability Committee, replacing M.L. Chayotid Kridakon on May 22, 2023.

⁽²⁾ Police Colonel Dusadee Aryawut was appointed Director to the Corporate Governance and Sustainability Committee, replacing Mrs. Watanan Petersik on November 1, 2023.

⁽³⁾ Mr. Patchara Anuntasilpa was appointed Director to the Corporate Governance and Sustainability Committee, replacing Mrs. Pantip Sripimol on April 7, 2023.

The Corporate Governance and Sustainability Committee is composed of at least three Directors of the Board, more than half of whom shall be Independent Directors. Its Chairman shall also be an Independent Director. These Directors serve a three-year term unless their terms on the Board end or they resign or are removed from their positions.

The Corporate Governance and Sustainability Committee is responsible for establishing policies as well as supervising and promoting the implementation of sustainable development. The committee is also tasked with offering consultation and drawing up suitable and transparent operational guidelines in line with GC's good corporate governance and sustainable development principles in order to achieve an environmental, social and governance (ESG) balance, which in turn benefits the creation of value and sustainable business growth and helps foster confidence and credibility among stakeholders.

In 2023, the Corporate Governance Sustainability Committee convened a total of nine meetings, with an offsite meeting at Rayong Office on October 11, 2023, during which the Committee paid a visit to the Rayong Botanical Garden and offered clean energy-powered boat engines and upcycling life vests to the Director of the botanic garden. In addition, the Corporate Governance Sustainability Committee held two meetings with the Risk Management Committee to fulfill its role according to the scope of authority and responsibilities stipulated by the Charter of the Corporate Governance and Sustainability Committee and as assigned by the Board of Directors. The Committee also reported its performance outcomes to the Board and subsequently disclosed its performance summary to shareholders in Form 56-1 One Report.

Risk Management Committee

Name	Position	Date of Appointment
1. Mr. Grisada Boonrach	Chairman of the Risk Management Committee (Independent Director)	June 22, 2020
2. Mr. Petai Mudtham*	Director to the Risk Management Committee (Director)	Feb 12, 2024
3. Mr. Cherdchai Boonchoocha	Director to the Risk Management Committee (Director)	Dec 19, 2022
4. Mr. Noppadol Pinsupa	Director to the Risk Management Committee (Director)	Jan 23, 2023
5. Mr. Kongkrapan Intarajang	Director to the Risk Management Committee (Director)	Oct 1, 2019

Miss Kanoknan Buranapansri, Vice President of Planning and Strategy and Acting Vice President of Corporate Risk Management and Internal Control System, serves as Secretary to the Risk Management Committee.

Remark : *Mr. Petai Mudtham was appointed Director to the Risk Management Committee, replacing Mr. Sarawut Kaewtathip on February 12, 2024.

The Risk Management Committee is composed of at least three Directors of the Board, at least one of whom shall be an Independent Director. These Directors serve a three-year term unless their terms on the Board end or they resign or are removed from their positions.

The Risk Management Committee is responsible for reviewing and approving risk management policies in alignment with the Company's objectives, core targets, strategies, risk appetite to provide a unified risk management framework within which the entire GC Group operates. The Committee is also charged with establishing a framework for the management of key risks, with a particular focus on early warning signs and emerging risks that may impact GC's business operations, and overseeing the identification and ranking of risks by impact and likelihood. In connection to this, the Committee is tasked with establishing appropriate risk mitigation measures and monitoring

and assessing the effectiveness of the Company's risk management. Furthermore, the Committee offers its opinions and recommendations on possible risk issues regarding an investment project or a legally binding agenda item that is complex in nature or will impact the Company's reputation in a significant manner. It also ensures that the Company's business operations comply with relevant laws and standards.

In 2023, the Risk Management Committee convened a total of five meetings and held two meetings with the Corporate Governance and Sustainability Committee to fulfill its role according to the scope of authority and responsibilities stipulated by the Charter of the Risk Management Committee and as assigned by the Board of Directors. The Committee also reported its quarterly performance outcomes to the Board and subsequently disclosed its performance summary to shareholders in Form 56-1 One Report.



Executives

To ensure efficient organizational management and operations that adhere to the policies and directions established by the Board of Directors, the Chief Executive Officer and President (CEO), exercising the power vested in him by GC's Articles of Association, has formed the Management Committee (MC) and the Group Management Committee (GMC). Both committees are composed of top management from Senior Vice President upwards, under the CEO's direct supervision. The CEO, as head of the Company's employees, has the authority and duties to ensure that the Company operates according to the policies, plans, and budgets approved by the Board.

The MC is responsible for devising and aligning operational directions and guidelines with the Board's established policies. It reviews and offers suggestions on the Company's policies and operational guidelines in relation to marketing, commercial and supply; risk management, capital allocation and management; human resources management and development; quality, safety, occupational health, and environmental management; and social responsibility as well as matters that may cause significant changes to its Business Units and Group Performance Centers. The MC also reviews and offers suggestions on Board meeting agenda prior to presenting them to the Board at the meeting. Additionally, the MC oversees the Company's compliance with the law and regulations of external regulatory authorities as well as its own

rules and regulations and the Company's relevant legal actions to ensure that the conduct of GC's business is in compliance with good corporate governance principles and in conformity to international standards. The MC also follows up on and implements the Board's resolutions, suggestions, and opinions given at Board meetings as well as oversees and monitors diverse aspects of GC's progress as a whole and internationally.

Meanwhile, the GMC is tasked with reviewing and offering opinions and recommendations on the alignment of Company policies with those of its Group Performance Centers in relation to the operational guidelines for Group Performance Centers' production management, marketing, commercial and supply, and risk management, including human resource management and development; quality, safety, occupational health, and environmental management; and social responsibility. It also monitors the performance of Group Performance Centers and progress on innovation and technology initiatives as well as projects that contribute to the efficiency of their operations.

The MC holds at least three meetings monthly, while the GMC holds at least one monthly meeting. In 2023, the MC convened a total of 37 meetings, and GMC convened a total of 12 meetings. The Senior Vice President of Corporate Governance and Legal serves as Secretary to both committees.



Executives under the Organizational Structure as of February 16, 2024

Name	Position
1. Mr. Kongkrapan Intarajang	Chief Executive Officer and President
2. Mr. Toasaporn Boonyapipat	Chief Operating Officer - Base and Intermediate Chemicals
3. Mr. Saroj Putthammawong	Chief Operating Officer - Value Added Products Acting Senior Vice President - Marketing and Sales - Industry Platforms
4. Mr. Narongsak Jivakanun	Chief Operating Officer - International Business
5. Mr. Pirun Krimwongrut	Chief Operating Officer - Center of Excellence
6. Miss Pattaralada Sa-ngasang	Executive Vice President - Finance and Accounting
7. Mr. Chaya Chandavas	Executive Vice President - Sustainability
8. Mr. Anutin Chuaypen	Executive Vice President - Organizational Effectiveness
9. Mrs. Chananchida Wiboonkanarak	Executive Vice President - Corporate Strategy
10. Mr. Siridech Kumvongdee	Executive Vice President - Marketing, Commercial and Supply Chain
11. Mrs. Jeeranee Pimthanothai	Executive Vice President - Technical, Engineering and Maintenance
12. Mr. Pukpong Wungrattanasopon	Executive Vice President - Olefins
13. Mr. Pornsak Mongkoltrirat	Executive Vice President - Polymers
14. Mr. Kamel Ramdani	Executive Vice President - Product Innovation Acting Senior Vice President - Innovation Growth Platforms and CVC
15. Mrs. Pilasphan Udomjarumanee	Senior Vice President - Corporate Governance and Legal
16. Mr. Chatchawalit Dhammasaroj	Senior Vice President - Internal Audit
17. Mr. Sakesiri Piyavej	Senior Vice President - Quality, Safety, Occupational Health and Environment
18. Mrs. Chatsuda Kanjanarat	Senior Vice President - Transformation Excellence
19. Mr. Rachean Chanthaweekul	Senior Vice President - Procurement
20. Mr. Krit Kumpabooth	Senior Vice President - CAPEX Excellence
21. Mr. Paisarn Sarapee	Senior Vice President - EO and Derivatives
22. Mr. Sawat Trongdilokrat	Senior Vice President - Phenol and Derivatives
23. Mr. Ratchada Sawasdirak	Senior Vice President - Refinery
24. Mr. Sombat Silsangwon	Senior Vice President - Aromatics
25. Mr. Panchoak Auetanapa	Senior Vice President - Utilities
26. Mr. Thitipol Artsanchorn	Senior Vice President - Marketing and Sales - General Applications
27. Miss Kornkamol Korpaisarn	Senior Vice President - Strategy, Business Development and Commercial Excellence
28. Mr. Panod Awaiwanond	Senior Vice President - US Second Home
29. Miss Wanlapa Sophiskhuankhant	Senior Vice President - International Finance and Strategy Acting Senior Vice President - Specialty Business

Remark: Executives in numbers 1-6 are executives as per SEC's Notification Re: Determination of Definitions in Notifications relating to Issuance and Offer for Sale of Securities.

Changes in Executives from January 1, 2023 – March 1, 2024

- 1) Mr. Varit Namwong retired on December 31, 2023.
- 2) Mrs. Warawan Tippawanich retired on December 31, 2023.
- 3) Mr. Amorn Putiphrawan retired on December 31, 2023.
- 4) Mr. Paranai Waitayasewee retired on December 31, 2023.
- 5) Mr. Monton Rochvatanaboon retired on December 31, 2023.
- 6) Mrs. Wilawan Songjaroen retired on December 31, 2023.
- 7) Mr. Pirun Krimwongrut was appointed Chief Operating Officer - Center of Excellence on January 1, 2023.
- 8) Mr. Saroj Putthammawong was transferred to the position of Executive Vice President - Marketing and Sales - Industry Platforms under Value Added Products on January 1, 2023 and was appointed Chief Operating Officer - Value Added Products and Acting Senior Vice President - Marketing and Sales - Industry Platforms on January 1, 2024.
- 9) Mr. Anutin Chuaypen was appointed Executive Vice President - Organizational Effectiveness on January 1, 2023.
- 10) Mr. Siridech Kumvongdee was transferred to the position of Executive Vice President - Marketing, Commercial and Supply Chain under Base and Intermediate Chemicals on January 1, 2023.
- 11) Mr. Paisarn Sarapee was reappointed to the position of Senior Vice President - EO and Derivatives under Base and Intermediate Chemicals on January 1, 2023.
- 12) Mr. Panchoak Auetanapa was appointed Acting Senior Vice President - Utilities under Base and Intermediate Chemicals on January 1, 2023 and was appointed Senior Vice President - Utilities under Base and Intermediate Chemicals on January 1, 2024.
- 13) Mr. Kridsada Prasertsuko, Senior Vice President under Value Added Products, was seconded to Global Green Chemicals Plc. as Managing Director on January 1, 2023. He was appointed Executive Vice President under Value Added Products and seconded to Global Green Chemicals Plc. as Managing Director, effective January 1, 2024.
- 14) Mr. Kasem Leewongjaroen was appointed Acting Senior Vice President under Base and Intermediate Chemicals and was seconded to GC-M PTA Co., Ltd. and Thai PET Resin Co., Ltd. as President on January 1, 2023. He was appointed Senior Vice President under Base and Intermediate Chemicals and was seconded to GC-M PTA Co., Ltd. and Thai PET Resin Co., Ltd. as President, effective January 1, 2024.
- 15) Mr. Sombat Silsangwon was appointed Senior Vice President - Aromatics on March 1, 2023.
- 16) Mr. Prakart Buttamart was appointed Senior Vice President under Center of Excellence and was seconded to NPC Safety and Environmental Service Co., Ltd. as Managing Director, effective November 1, 2023.
- 17) Mrs. Chananchida Wiboonkanarak was appointed Executive Vice President - Corporate Strategy on January 1, 2024.
- 18) Mr. Kamel Ramdani was appointed Executive Vice President - Product Innovation and Acting Senior Vice President - Innovation Growth Platforms and CVC on January 1, 2024.
- 19) Mr. Theerapol Muenpakdee was reappointed Senior Vice President - Business Process Redesign Project on January 1, 2024.
- 20) Mr. Chatchawalit Dhammasaroj was appointed Senior Vice President - Internal Audit on January 1, 2024.
- 21) Mr. Rachean Chanthaweekul was reappointed to GC and appointed Senior Vice President - Procurement on January 1, 2024.
- 22) Mr. Krit Kumpabooth was appointed Senior Vice President - CAPEX Excellence on January 1, 2024.
- 23) Miss Kornkamol Korpaisarn was reappointed Senior Vice President - Strategy, Business Development and Commercial Excellence under Value Added Products on January 1, 2024.
- 24) Miss Wanlapa Sophiskhuankhant was reappointed to GC and appointed Senior Vice President - International Finance and Strategy on January 1, 2024 and Acting Senior Vice President - Specialty Business on February 16, 2024.
- 25) Miss Varanyanan Inthathathon was appointed Acting Senior Vice President under Base and Intermediate Chemicals and was seconded to Thai Tank Terminal Company Limited as Managing Director, effective December 1, 2023.
- 26) Mrs. Panida Chinayone was transferred to the position of Senior Vice President under Value Added Products and was seconded to GC Logistics Solutions Company Limited as Managing Director, effective January 1, 2024.

- 27) Mr. Sarawuth Nuntavadeepisarn was appointed Senior Vice President under Center of Excellence and was seconded GC Maintenance and Engineering Company Limited as Managing Director, effective January 1, 2024.
- 28) Miss Kamolwan Wongkolkitsilp was appointed Acting Senior Vice President under Value Added Products and was seconded to GC Polyols Company Limited as Managing Director, effective January 1, 2024.
- 29) Mrs. Rattiya Chandavasv was seconded to allnex Holding GmbH as Senior Vice President on February 16, 2024.

Remuneration Policy for Executive Directors and Executives

The Company evaluates the performance of its Executives annually against the pre-determined Key Performance Indicators (KPIs). These include financial performance, implementation of long-term strategic goals, personal performance, the Company's

performance and practices of other listed companies of a similar size in the same industry. The evaluation also takes into account their responsibilities, management development and overall economic conditions.

Total Remuneration for Executive Directors and Executives from the Company and its Subsidiaries

The remuneration for the Chief Executive Officer and President is appropriately determined using transparent, fair, and reasonable criteria. The position's duties and responsibilities are also taken into account in conjunction with personal performance. The Nomination and Remuneration Committee is charged with reviewing and proposing the remuneration of the Chief Executive Officer and President to the Board of Directors for approval. It should be noted that, at the highest level of the Company's management hierarchy, the Chief Executive Officer and President is awarded compensation and other benefits in addition to those received as a Director on the Board of Directors.

Total remuneration of GC and GC's Subsidiaries paid to the Executives under SEC's definition serving in 2023 (Including those who retired and resigned in 2023)

Type of Remuneration	Number of Executives	Total (Million Baht)		
		GC	Subsidiaries	Total
Total Combined Salaries	6	54	-	54
Total Combined Special Bonuses	6	13	-	13
Provident Fund Contributions	6	7	-	7
Total		74	0	74

Shares held by the Board of Directors under SEC's definition, their spouses, and their minors as of January 1, 2024

Name	Number of Shares		
	As of January 1, 2023	As of December 31, 2023	Increase / (Decrease) of Shares during the Year (Shares)
1. Mr. Kongkrapan Intarajang	-None-	-None-	-No change-
2. Mr. Toasaporn Boonyapipat	-None-	-None-	-No change-
3. Mr. Saroj Putthammawong*	N/A	4,900	-No change-
4. Mr. Narongsak Jivakanun	-None-	-None-	-No change-
5. Mr. Pirun Krimwongrut	27,033	27,033	-No change-
6. Miss Pattaralada Sa-ngasang	-None-	-None-	-No change-

Remark: *Mr. Saroj Putthammawong was appointed Chief Operating Officer - Value Added Products on January 1, 2024.

Employees

People Management and Development Policy

A management approach that strengthens both the organization and its people is a key mechanism for enhancing GC's competitiveness as well as its ability to operate its business effectively and accommodate domestic and international investment expansion, enabling the Company to grow sustainably and attain its aspiration "To be a Leading Global Chemical Company for Better Living."

GC strives to foster the organization's and its people's readiness to meet future business needs and achieve outcomes as planned. To this end, GC has developed human resource strategies to keep its human resource management consistent with its strategic directions and business goals so as to ensure effectiveness and efficiency. The three core focuses are: organization, people, and culture, and the actions taken are as follows:

1. People

GC strives to enhance the efficiency of employees as well as their competitiveness for business today and in the future in order to bolster their productivity for the company. Key activities in 2023 can be summarized as follows.

1.1 Manpower Plan Strategy

1.1.1 GC improved its work processes, focusing on end-to-end lean process improvement through the FiT project to enhance process efficiency, productivity, and agility, all of which contribute to efficient manpower optimization. The expected results of the FiT project are:

- Efficient work process managements and operating models
- Organization-wide data connectivity and greater data analysis efficiency



- Accurate, fast, and efficient decision-making process
- Skilled and knowledgeable employees with the ability to keep pace with changes.

1.1.2 GC adopted digital technology as a strategic driver of digitalization across various projects to reap added values in pursuit of 4 Smart Goals: (1) Smart Plant, (2) Smart Sales & Marketing, (3) Smart Work Process, and (4) Smart Workplace. GC also initiated technology transformation to improve and modernize its infrastructure in support of its business units in conjunction with continuous people transformation, which refers to the development of skills and abilities and a digital technology culture.

1.1.3 GC conducted manpower planning and established an appropriate manpower framework. To this end, GC carried out Strategic Workforce Planning (SWP) to determine the suitable manpower for each unit, making it possible to plan recruitment and development of skills and competencies among employees within an appropriate timeframe in line with GC's business direction and goals, thus enhancing the organization's competitiveness. In addition, GC planned and controlled its manpower ratio by reviewing the recruitment of new hires to replace resigned and retired employees to ensure suitability and adequacy for GC's business continuity and alignment with GC's situation, visions, and strategies in anticipation of digitalization for the maximum benefit of the company's business operations.

1.2 Upskill / Reskill

With regard to employees development and growth, GC has since 2021 implemented long-term strategies to steer its learning culture towards self-directed learning, in which each learner can design their own learning path, analyze and determine their areas of development, set their own learning goals, and select their own learning resources, with an option to consult their coaches or mentors during this process. Within this learning culture, GC believes that its employees will be able to enhance their skills and capabilities rapidly and in time for changes in its business operations.

GC has defined three groups of essential knowledge and skills for its employees:

- Corporate Courses: Courses on laws and GC's fundamental policies
- Leadership Learning Solutions: Courses for leadership skill development
- Functional Learning Solutions: Courses for the development of specific skills for the roles and responsibilities of each job position

GC prioritizes multimodal learning and practical applications through individual development plans (IDP) and “Anywhere, Anytime Learning,” in which personnel can engage in self-learning 24/7 through a digital system. Additionally, diverse projects are carried out to develop employees knowledge, skills, and capabilities. GC has also started conducting courses through the UP Platform, an e-learning platform makes it possible to offer a more diverse range of courses and accommodate more participants. Moreover, through this platform, employees can develop their English language skills through courses offered by VOXY, a language institute recognized by leading educational institutions worldwide.

Furthermore, GC has introduced a tool called I-List to facilitate individual development planning, enabling employees to plan and manage their learning and achieve their development goals in expected skills and career paths. Employees are empowered to design their own learning plans and easily select relevant courses for self-development at any time, representing a cultural shift where employees are responsible for planning, managing, and conducting their own learning.

To support self-directed learning, GC has created an ecosystem of development and growth for its employees, consisting of three major components:

1. Success Profile and Job to be Done: This component enables employees to compare their progress against GC's expectations, identify room for improvement, and establish their own self-development targets.
2. Development Roadmap and Blended Learning Solution. Designed by the Expert House, this component allows employees to conveniently select learning modules to design their own learning trajectory.
3. Outcome Management: This component tracks whether employees who have undergone self-development can apply their acquired skilled and capabilities to their work and produce expected deliverables, thus enabling them to see the progress of their self-development and plan the next stage of development.

Expert House has also been initiated to design learning journeys, blended learning programs, and specialized course content on technical/functional skills for each job family. Each Expert House consists of subject matter experts and instructors from both internal and external sources. The expected outcomes include an increased number of subject matter experts, enhanced employee proficiency, and learning outcomes measured in financial returns on investment (ROI). In the previous year, GC established a total of 21 Expert Houses, including Engineering and Plant Operation Expert House, Digital Expert House, and Leadership Expert House, whose deliverables collectively yielded an ROI of 360.93 million Baht.

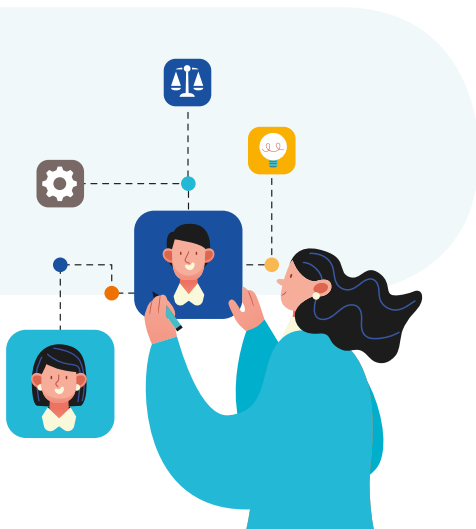
In 2023, GC also carried out other key employees development projects, including the GC Inspirational Leadership Development Program (ILP) and the GC NewGen Onboarding Camp 2023.



1.3 Recruitment Strategy

To drive its strategies towards success and operate in accordance with its Anti-Corruption Policy, GC does not employ government officials* currently in office or civil servants as regular employees. Additionally, GC focuses on recruiting and hiring employees who are equipped with new knowledge and skills in job categories essential to the business and seeks to expand hiring modes and apply technology to work processes to increase efficiency. Adjustments made the work processes to accommodate the new system in 2024 included adding an online job application channel to cater to target groups and fostering good relations with various educational institutions to offer internships and educational tours to prepare the next generation. Furthermore, GC continued the employee referral program from previous years to encourage employees to recommend qualified candidates suitable for the organization, and various projects were undertaken to enhance the corporate image among external applicants who were target groups through social media.

Remark: * The definition of government officials is based on the Anti-Corruption Policy of GC Group. <https://www.pttgcgroup.com/storage/document/cg-anti-corruption/pttgc-anti-corruption-policy-th.pdf>



1.3.1 The Synergos Project Part II campaign was launched to introduce to the general public and followers on social media channels GC's job positions, work life, and organizational culture in order to modernize the corporate image. The

project also aimed to raise awareness of the importance of upskilling and reskilling to attract and expand the applicant pool of candidates with at least 5 years of experience. For this purpose, GC created videos and announced job postings for eight main positions: Digital, Sustainability, International Business, Researchers, Business Analysts, Process Engineers, Sales, and Project Engineers, on Facebook and LinkedIn, giving GC data of 1,868 job applicants and over 1,052,602 views for the videos.

1.3.2 The GC Career project was initiated, in which employees from various job positions, such as Sales, Engineers, Researchers, Accountants, Analysts, Marketing, and Digital roles, were selected to provide insights into their job descriptions, required skills, work life, and employee care within the Company. Banners for the project were posted Facebook to foster engagement with employees, encouraging their participation in promoting a good initiative of the Company. This project helped reduce expenses in media production and enhance the efficiency of internal-to-external communication.

1.3.3 GC participated in PTT Group Career Day, an on-site even organized by PTT Public Company Limited to introduce PTT Group's businesses and vacant positions to promote awareness of the group's businesses and growth opportunities for job seekers. In this event, actors from the Synergos Project Part II in the Sustainability, International Business, and Digital Transformation functions were also invited to share their work experiences with the attendees, drawing a large number of applicants to GC's booth. As a result, GC received a total of 275 job applications for various positions, with a satisfaction rating of 86% from visitors.

1.3.4 The "GC: Hot Job of the Month" monthly campaign was held to pool vacant positions together and increase awareness of the job openings in order to attract and recruit candidates with required skills for the job vacancies. A total of 62 job positions were announced via Facebook, LinkedIn, and Line Official Account at the beginning of each month from January to October 2023, and over 4,435 applications were submitted.

Furthermore, GC continued to produce and publish content on social media, such as Facebook and LinkedIn, to educate and inspire the audience and communicate interesting facts on welfare at GC as well as portray the working atmosphere at GC. This year, the number of followers on Facebook and LinkedIn rose by more than 10% on average compared to 2022 – an indication of increased public attention towards GC.

1.4 Other support for employees

GC takes care of its employees across various aspects throughout their life cycles in a manner that is suitable for and aligned with the internal and external environments to create a positive work experience for employees, as detailed below:

1.4.1 Performance Management System

To ensure that performance assessment enhances the achievement of GC's goals, supports the learning and development and the performance improvement of individual employees, and promotes rewards and recognition, GC has integrated its performance assessment policies, beginning with establishing annual goals, performance monitoring during the year, and year-end assessment. Also, to make certain that the corporate goals are reflected on individual levels, Key Performance Indicators (KPIs) are cascaded from the company's goals to the top executives and further down to the subsequent levels, while KPI alignment is conducted within each function, and a review performance alignment is carried out internally to ensure the function is assessed to the same standard. Moreover, to ensure fairness and transparency, the company policy requires that employees and their supervisors meet for a performance check-in periodically to allow them to monitor their performance and obtain assistance regularly. This practice not only supports working from anywhere (WFA), which is one of GC's working modes, but also encourages supervisors to perform coaching duties, such as through words of appreciation, prioritization, fostering of confidence, and words of encouragement, in order to enhance employees capabilities and performance.

After the year-end assessment is conducted, supervisors compare the outcome with the results of the peer review to identify disparity, which affects the annual salary adjustment and the bonus according to the company's remuneration policy and operating results. GC has updated and improved its performance assessment system to be more user-friendly and enable assessment via mobile phones or tablets in addition to personal computers (PCs) or notebooks. GC has introduced a policy enabling employees and supervisors to review and revise the KPIs during the year to make them more dynamic and prescribed a performance assessment for employees entrusted with special assignments, with project leaders/ project managers allowed to take part in the assessment with the operators in the system. The goal is to promote rewards and recognition, boost morale, and encourage better performance as well as to promote agile and cross-function working. Furthermore, to ensure that these assessments truly lead to continuous development, GC has integrated individual development planning into the employee performance assessment system, in which employees can express their own wishes regarding their career in the next 1-3 years. Their wishes are then taken into account in the consideration of job rotations, people development, and future internal recruitment.

1.4.2 Remuneration

As a policy, GC offers competitive remuneration and benefits to its employees compared to leading companies in the same industry. The Company participates in the remuneration survey specifically for the oil and gas industry, which is GC's benchmark, conducted by the benefit and compensation consultants every year, to obtain information and maintain competitiveness. In addition, the appropriate remuneration is determined in accordance with the performance and duties to create utmost efficiency and effectiveness for both the Company and the employees. The salary structure is determined according to job level and position, taking into account fair remuneration for male and female employees. The remuneration ratio between male and female personnel in GC and its subsidiaries is 75% to 25%.

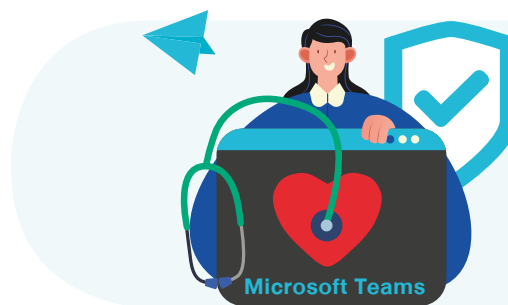
GC also provides other legally mandated welfare, such as social security and provident fund contributions, as well as welfare not required by the law. In addition, to ensure a positive life experience in the organization for all employee groups, who may have different needs, GC has revised its welfare and benefits, such as flexible benefits and healthcare benefits for parents for single employees. Furthermore, GC has studied remuneration and benefits for employees assigned overseas in comparison with leading companies both in Thailand and abroad to support GC's strategies of work scope expansion, co-investment, and investment. To support the operations of companies under GC Group, GC provides them with data on their salary structure in order to ensure their competitiveness within their industry and uniform practice across GC Group.

1.4.3 Employee Relations

To give employees a happy working life, foster employee engagement, and promote work-life balance, GC has carried out well-being projects since 2018 to take care of its employees in terms of health, wealth, and mindfulness, and such activities have been modified to accommodate WFA, as detailed below.

- GC organized a virtual meeting via Microsoft Teams to give a refresher on GC's existing medical welfare (ER ma Share).
- GC held quarterly meetings of the Welfare Committee to foster relationships and understanding between the Company and its employees; activities fostering relationships between the Welfare Committee and the Company, such as VPs Meet Welfare Committee; training sessions of the roles and responsibilities of the Welfare Committee; as well as CSR activities.
- GC offered virtual consultation with doctors through V-Health application provided by insurance companies and worked with hospitals to provide sessions with virtual teleconsultants as part of its "Telemedicine and Medication Delivery" project.
- GC organized various activities on physical and mental health via Microsoft Teams. Physical health promotion activities were namely "Keep Your Heart Health," "Stroke: A Silent Threat" and "Conquer the Office Syndrome." Mental healthcare programs

included the "Mental Health Hot Line" for employees and their families, "Spark Your Life and Overcome Obstacles," "Creating a Positive Energy amid Changes," "Persuasion Techniques," "Stress and Depression Test," "Adjusting to the Working Life." Courses on financial management were also held through various online channels, including "Finance Mentors," "Creating Wealth Through Investment Planning," and "Debt Management."



Additionally, GC boosts the morale of long-serving employees by giving long service awards for employees at each specific year of service and carrying out initiatives that will promote a happy retirement, as detailed below.

- In 2023, GC Group's turnover rate was 6.7% (GC's turnover rate was 3.2%). Exit interviews were conducted on resigning employees to further improve GC's employee care, welfare, and other matters and analyze their reasons for resigning in order to improve employee retention planning.
- Knowledge sharing sessions were organized to allow retiring employees to share their know-how and experience with current personnel. The Happy Retirement 2023 Program was also conducted to equip those retiring with financial literacy and healthcare knowledge to ensure a happy life after retirement.
- For certain employees, especially those with health issues, the Mutual Separation Program (MSP) was conducted to equip them with useful knowledge, such as healthcare, finance management, and outplacement programs.

GC recognizes the significance of enhancing the quality of life of people with disabilities and giving them opportunities to demonstrate their capabilities, earn a livelihood, develop self-reliance, depend less on families and society at large. Thus, GC strives to empower them to become a vital force in earning income for their families and driving the economy of the country, especially for people with disabilities in the working age range as defined by the Persons with Disabilities Empowerment Act, B.E. 2550 (2007), which stipulates measures to promote career advancement and protect the employment of such individuals. In 2023, GC hired 3 people with disabilities to work in various positions as stipulated in Section 33 and promote the livelihoods of 42 people with disabilities in accordance with Section 35 of the Act, thus supporting a total of 45 people. For the latter group, GC collaborated with the Rayong Association of Persons with Disabilities and the Rainbow Covenant Foundation to select 22 individuals from four municipalities to participate in the initiative and subsequently assessed their income level and engaged experts to give them knowledge that would enable them to earn a livelihood. Thanks to this initiative, their income increased 60% compared to the level before they joined the program. In addition, GC worked with 20 employees from Vulcan Coalition Co., Ltd. to develop AI to incorporate into the depression screening application MayWe, which GC employees could use. Furthermore, the Service GC project was launched to have disabled people with IT expertise to assist the operation of various units to reduce operation time. The project was piloted in the Employee Relations and Benefits Unit, in which IT experts with disabilities assisted in the reimbursement of tuition fees for GC employee's children, saving 1,274 work minutes/month, or 35% of the total work hours.

Furthermore, GC has engaged external consultants with specialized expertise to conduct annual employee engagement surveys to listen to employees' opinions on various matters. For the year 2023, the survey model was adjusted to better suit generation-related changes and evolving modes of work and ensure that the results could be used to formulate action plans that would better meet employee needs. In 2023, GC's employee engagement rate was 65%, which was in the moderate zone compared to the global benchmark, and the Company aimed to elevate the engagement rate into

the top quartile in the future. In addition, in 2023, GC adjusted enterprise-level action plans in four major areas: performance management, career & development, work life balance, and talent & staffing, under the guideline detailed below:

1. Retain: Ensuring suitable workload for employees to give them a better work-life balance by:
 - Managing manpower to allocate workload in a suitable manner.
 - Enhancing and improving meeting efficiency to allow more time for employees to manage their work and personal activities.
2. Revisit: Boosting employees' morale and empowering them to perform their duties to the best of their ability by:
 - Ensuring culture alignment so that all employees share the same goals and work methods.
 - Fostering networks and rapport so that all employees are motivated to drive the organization forward.
3. Reskill: Equipping employees with capabilities that will enable them to drive the organization by
 - Developing supervisors into people managers for efficient team development.
 - Reviewing career paths to plan professional development and advancement.

After implementing the enterprise-level action plans to elevate employee engagement rates and adjusting the survey model, GC communicated with employees across the organization through Microsoft Teams to ensure they understood the significance of participating employee engagement surveys and providing recommendations beneficial to the Company. In addition, to make personnel aware that GC valued their voice, action plans were devised to address their needs and further foster their engagement to the organization.



2. Organization

GC strives to cultivate a Fit, Fast, Flexible & Effective approach to work and has thus established its “Ideal Organization” goals in line with its business strategies both at present and in the future. Key activities in this regard in 2023 can be summarized as follows.

2.1 Organizational Restructuring in Alignment with Long-term Strategies

GC has restructured itself into an “Ideal Organization” in alignment with its long-term strategies. As GC has significantly expanded its scope of operation, particularly with regard to High-Value Products (HVPs) and international business expansion, it has researched and designed a new organizational structure that would be on par with global leading companies in the industry to optimize its processes, better cater to customer needs in each business unit, enhance operational efficiency and efficacy, as well as reduce short-term and long-term costs. In support of this restructuring and ensuing shifts, change management has been implemented to create a smooth transition, minimize risks and potential impacts, and foster employees preparedness, thus ensuring that the executives and employees can take on new duties without problems.

2.2 Work from Anywhere (WFA)

GC has instituted working from anywhere (WFA) as a standard mode of work for office employees, starting from 2023 onwards. This is to ensure that GC’s work practices are flexible, agile, and adaptable to changing circumstances and accommodate the new normal and that GC can attract new generations who prioritize work flexibility and the ability to achieve work-life balance. Furthermore, GC regularly conducts surveys to gather employees’ feedback on various aspects of work, well-being, and self-development, so that employees can work from anywhere efficiently and achieve a work-life balance.

3. Culture

GC drives GC SPIRIT 4 Core Behaviors through communication, day-to-day activities, and fundamental systems in order to foster an understanding among employees and enable them to adopt the behaviors as

part of their daily life and propel the Company towards its goal: “To be a Leading Global Chemical Company for Better Living.”

In 2023, GC continued to strengthen its efforts to drive the organizational culture among employees at all levels, with all the executives serving as role models and inspirational leaders through various activities. An example of such activities was a GC SPIRIT 4 Core Behaviors review workshop for GMC-level. The theme for the fostering of the organizational culture for the years 2023-2024 was also changed to “Conviction to Change: Speed to Global Mindset,” which was an extension of the previous year’s theme “Global Mindset.” In addition, GC developed an action plan where GMC-level shared their stories to cultivate GC SPIRIT 4 Core Behaviors based on the theme “Conviction to Change: Speed to Global Mindset” within their functions through GMC Leadership Showcases, where they communicated GC’s vision, missions, and business direction to educate and inspire employees and effect tangible changes in elevating the Company’s operation towards international standards, with emphasis placed on change, speed, and the global mindset as drivers of success in achieving business goals in a continuous and sustainable manner.

In addition to the executives, who served as role models to ensure the continuous and efficient advancement of the organizational culture, GC also had a robust GC SPIRIT Committee and Change Agents, who joined hands to carry out various activities, such as Change Agent Onsite Outing, in which Change Agents familiarized themselves with each other, exchanged their experience, and acknowledged the policy for advancing the organizational culture and the culture theme for the year 2023. They were also given guidelines on planning and conducting initiatives for driving GC SPIRIT 4 Core Behaviors in their departments and functions. Another series of activities was Change Agent Chit-Chats, which consisted of Chit-Chat by Line of Business, Special Chit-Chat by Special Guest, and CA Showcase, in which Change Agents gathered and exchanged their perspectives, opinions, as well as approaches and examples from each function that could be applied to produce tangible changes in their departments and functions.

In terms of communication with employees at all levels, GC developed an additional GC SPIRIT 4 Core Behaviors E-Learning material in the format of an animation to make it more accessible, with the goal of enhancing the knowledge and understanding of GC SPIRIT 4 Core Behaviors and effective implementation throughout the organization. Additionally, GC organized a Culture Camp for four batches of employees who joined the Company during the COVID-19 pandemic (from June 2019 to June 2022), amounting to 204 participants in total. The goal was to promote employee reconnection and understanding of GC SPIRIT 4 Core Behaviors and the “Conviction to Change: Speed to Global Mindset” culture theme.

Furthermore, to gauge the success of its organizational culture advancement initiatives and ensure that the cultivation of its organizational culture was in accordance with the defined roadmap and produced tangible organization-wide results, GC conducted a culture survey and a 360-degrees 4 Core Behaviors assessment, which involved supervisors, direct subordinates, coworkers, and external stakeholders, in order to reflect perspectives and behaviors related to the adoption of

GC SPIRIT 4 Core Behaviors more clearly and accurately through those in contact with the individuals assessed. The results were analyzed to identify room for improvement and inform employee development. In addition, GC organized the GC SPIRIT Award – a platform where Change Agents could present their achievements in driving the organizational culture within their functions – and carried out cross functional initiatives for a fourth consecutive year to create a space where employees from different functions could develop projects together, take advantage of the diverse backgrounds and expertise of their teammates to propose new ideas to promptly meet the needs of internal and external customers, and put the Global Mindset to practice in their work. The cross functional initiatives also helped reduce costs for GC.

GC strives to promote a happy work life, better living, as well as safety and occupational health for its employees and has always been committed to improving and enhancing its organizational and employees capabilities as people are the most valuable resources for GC’s strong and sustainable growth.



Employees

As of December 31, 2023, GC Group hired a total of 11,202 employees, which can be divided by function as follows:

1. Direct reports to Chief Executive Officer and President	20 employees
2. Corporate Strategy	51 employees
3. Finance and Accounting	198 employees
4. Organizational Effectiveness	178 employees
5. Sustainability	66 employees
6. Corporate Governance and Legal	43 employees
7. Internal Audit	26 employees
8. Direct Reports to Chief Operation Officer - Center of Excellence	1,182 employees
9. Transformation Excellence	71 employees
10. Procurement	94 employees
11. Technical, Engineering and Maintenance	456 employees
12. CAPEX Excellence	137 employees
13. Quality, Safety, Occupational Health and Environment	166 employees
14. Direct reports to Chief Operating Officer - Base and Intermediate Chemicals	377 employees
15. Marketing, Commercial and Supply Chain	144 employees
16. Refinery	294 employees
17. Aromatics	301 employees
18. Olefins	699 employees
19. EO and Derivatives	155 employees
20. Phenol and Derivatives	191 employees
21. Utilities	238 employees
22. Direct reports to Chief Operating Officer - Value Added Products	753 employees
23. Polymers	429 employees
24. Marketing and Sales - Industry Platforms	132 employees
25. Marketing and Sales - General Applications	44 employees
26. Strategy, Business Development and Commercial Excellence	46 employees
27. Product Innovation	120 employees
28. Direct reports to Chief Operating Officer - International Business	4,537 employees
29. Specialty Business	11 employees
30. US Second Home	10 employees
31. Innovation Growth Platforms and CVC	26 employees
32. International Finance and Strategy	7 employees

Total Remuneration Paid to Employees in 2023

Type of Remuneration	Total (Million Baht)
Salaries, Bonus, Wages, and Other Welfares	28,636
Provident Fund Contributions	1,097
Post-employment Benefits	722
Other Long - Term Employee Benefits	22
Total	30,477

The number of GC and Subsidiaries employees joining the provident fund scheme accounts for 81% of all employees. Through its provident fund committee, GC selects a provident fund manager who is a signatory of the Investment Governance Code for Institutional Investors (I Code) and takes into consideration past investment performance.

Other Important Information

Company Secretary, Chief Accountant, Head of Internal Audit, and Head of Corporate Compliance

Company Secretary

In pursuant to the Securities and Exchange Act (No. 4) B.E. 2551 (2008), Sections 89/15 and 89/16, the Board of Directors at Meeting No. 10/2019 held on August 19, 2019, appointed Mrs. Pilasphan Udomjarumanee, Senior Vice President of Corporate Governance and Legal, as Company Secretary. By law, the responsibilities of Company Secretary include the preparation and safekeeping of important company documents, including the register of directors, meeting notices, Board and shareholders' meeting minutes, Form 56-1 One Report, and conflicts of interest forms filled by Directors and Executives. The Company Secretary is in charge of organizing Board and shareholders' meetings and submitting copies of reports on Directors and Executives interests to the Chairman of the Board of Directors and the Chairman of the Audit Committee. The Company Secretary also advises the Board and Executives on the rules and regulations they should familiarize themselves with, organizes training and orientation for current and new Directors, as well as provides them with information essential to their performance of duties as Directors. Moreover, the Company Secretary oversees compliance with laws, regulations and resolutions passed in Board and shareholders' meetings, as well as collaborates with relevant agencies on compliance. The Company Secretary has undergone training courses necessary for her to duly perform her roles. The qualifications of the Company Secretary are disclosed in Attachment 1 "Details of Directors, Executives, Controllers, and Company Secretary."

Chief Accountant

GC appointed Mrs. Ratana Warinpramote as Vice President - Financial Accounting 1, effective August 1, 2023, and Miss Duantip Wuttichartkriengkrai as Vice President - Financial Accounting 1 from January 1, 2023 to July 31, 2023, to oversee the Company's accounting and ensure its compliance with relevant standards, laws, and regulations. The qualifications of the Chief Accountants are disclosed in Attachment 1 "Details of Directors, Executives, Controllers, and Company Secretary."

Head of Internal Audit

The Audit Committee meeting No. 8/2017 convened on September 18, 2017 approve the appointment of Mr. Amorn Putiphrawan as Senior Vice President of Internal Audit, effective January 1, 2018. As Mr. Amorn Putiphrawan retired in December 2023, the Audit Committee meeting (Special) No. 1/2023 on September 17, 2023 appoint Mr. Chatchawalit Dhammasaroj as Senior Vice President of Internal Audit, effective January 1, 2024, responsible for evaluating and enhancing the internal control effectiveness, supervising the operations of the internal audit function to be in accordance with the objectives and the international standards, including objectivity and independence for consulting on the company and report directly to the Audit Committee. The qualifications of the Head of Internal Audit are disclosed in Attachment 3 "Details of the Heads of the Internal Audit and Compliance Units".

Head of Corporate Compliance

GC appointed Miss Darawadee Denpaibul as Acting Vice President of Corporate Governance, effective February 16, 2024, and Mrs. Rattana Nakasiri as Vice President of Corporate Governance from October 15, 2015 - December 31, 2023. The responsibilities include overseeing corporate compliance, promoting corporate governance in business practices, and ensuring that the Executives and employees of GC Group comply with laws, rules, and regulations in countries where GC operates. The qualifications of the Head of Corporate Compliance are disclosed in Attachment 3 "Details of Heads of the Internal Audit and Compliance Units."

Heads of Investor Relations and Contact Information

Vice President – Corporate Finance & Investor Relations

Miss Pornsook Limsathit
Tel : 02-265-8670
e-Mail : pornsook.l@pttgcgroup.com

Division Manager – Investor Relations

Mr. Paween Chiasakul
Tel : 02-265-8665
e-Mail : paween.c@pttgcgroup.com

Audit fee and non-audit fee of the audit firm and its affiliates

Audit fee

GC and its subsidiaries paid the audit fee to:

- KPMG Phoomchai Audit Ltd., the auditor of GC and its subsidiaries, for the fiscal year 2023 totalling Baht 10,339,700. Of this amount, GC paid Baht 3,789,800 and its subsidiaries paid Baht 6,549,900.
- The audit firm and its affiliates for the fiscal year 2023 totalling Baht 126,657,980.

Non-audit fee

GC and its subsidiaries paid the non-audit fee for performing agreed-upon procedures in connection with the requirements of the Board of Investment (BOI), transfer pricing services, tax and business consulting services and other audits by agreed-upon procedures to:

- KPMG Phoomchai Audit Ltd., the auditor of GC and its subsidiaries, for the fiscal year 2023 totalling Baht 1,090,000 and incomplete services in the fiscal year 2023 that will be paid in the future totalling Baht 430,000.
- The audit firm and its affiliates for the fiscal year 2023 totalling Baht 37,116,429 and incomplete services in the fiscal year 2023 that will be paid in the future totalling Baht 13,759,852.



Board of Directors



1. Mr. Predee Daochai

Chairman
and Chairman of the Independent Director



2. Mr. Thanwa Laohasiriwong

Independent Director
and Chairman of the Audit Committee



3. Mr. Grisada Boonrach

Independent Director
and Chairman of the Risk Management Committee



4. Professor Somkit Lertpaithoon

Independent Director
and Chairman of the Corporate Governance
and Sustainability Committee



5. Mr. Pakorn Nilprapunt

Independent Director,
and Chairman of the Nomination & Remuneration Committee,
and Director to the Audit Committee



6. Lieutenant General Nimit Suwannarat
Independent Director,
Director to the Audit Committee,
and Director to the Nomination & Remuneration Committee



7. Mr. Somkiat Prajamwong
Independent Director
and Director to the Nomination & Remuneration Committee



8. Mr. Surachai Achalaboon
Independent Director
and Director to the Corporate Governance
and Sustainability Committee



9. Police Colonel Dusadee Aryawuit
Independent Director
and Director to the Corporate Governance
and Sustainability Committee



10. Mr. Patchara Anuntasilpa
Director
and Director to the Corporate Governance
and Sustainability Committee



11. Mr. Petai Mudtham
Director
and Director to the Risk Management Committee

Board of Directors



12. Mr. Noppadol Pinsupa

Director
and Director to the Risk Management Committee



13. Mr. Chadil Chavanalikhorn

Director
and Director to the Corporate Governance
and Sustainability Committee



14. Mr. Cherdchai Boonchoocha

Director
and Director to the Risk Management Committee



15. Mr. Kongkrapan Intarajang

Director,
Secretary to the Board of Directors,
Director to the Risk Management Committee,
and Chief Executive Officer and President

GC Executives



1. Mr. Kongkrapan Intarajang
Chief Executive Officer and President



2. Mr. Toasaporn Boonyapipat
Chief Operating Officer -
Base and Intermediate Chemicals



3. Mr. Saroj Putthammawong
Chief Operating Officer - Value Added Products
Acting Senior Vice President - Marketing and Sales -
Industry Platforms



4. Mr. Narongsak Jivakanun
Chief Operating Officer - International Business



5. Mr. Pirun Krimwongrut
Chief Operating Officer - Center of Excellence

GC Executives

Reporting Chief Executive Officer and President



6. Miss Pattaralada Sa-ngasang
Executive Vice President - Finance and Accounting



7. Mr. Chaya Chandavasul
Executive Vice President - Sustainability



8. Mr. Anutin Chuaypen
Executive Vice President - Organizational Effectiveness



9. Mrs. Chananchida Wiboonkanarak
Executive Vice President - Corporate Strategy



10. Mrs. Pilasphan Udomjarumanee
Senior Vice President - Corporate Governance and Legal and Company Secretary



11. Mr. Theerapol Muenpakdee
Senior Vice President - Reporting to Chief Executive Officer and President, Business Process Redesign Project



12. Mr. Chatchawalit Dhammasaroj
Senior Vice President - Internal Audit

Reporting Chief Operating Officer-Base and Intermediate Chemicals



13. Mr. Siridech Kumvongdee
Executive Vice President -
Marketing, Commercial
and Supply Chain



14. Mr. Pukpong Wungrattanasopon
Executive Vice President -
Olefins



15. Mr. Ratchada Sawasdirak
Senior Vice President -
Refinery



16. Mr. Paisarn Sarapee
Senior Vice President -
EO and Derivatives



17. Mr. Sawat Trongdilokrat
Senior Vice President -
Phenol and Derivatives



18. Mr. Panchoak Auetanapa
Senior Vice President -
Utilities



19. Mr. Sombat Silsangwon
Senior Vice President -
Aromatics



20. Mr. Kasem Leewongjaroen
Senior Vice President -
Base and Intermediate Chemicals
Secondment as President,
GC-M PTA Company Limited
and Thai PET Resin
Company Limited



21. Miss Varanyanan Inthathathon
Acting Senior Vice President -
Base and Intermediate Chemicals
Secondment as Managing Director,
Thai Tank Terminal Company Limited

GC Executives

Reporting to Chief Operating Officer-Value Added Products



22. Mr. Pornsak Mongkoltrirat
Executive Vice President - Polymers



23. Mr. Saroj Putthammawong
Acting Senior Vice President - Marketing and Sales - Industry Platforms



24. Mr. Kamel Ramdani
Acting Senior Vice President - Innovation Growth Platforms and CVC



25. Mr. Thitipol Artsanchorn
Senior Vice President - Marketing and Sales - General Applications
Secondment as Managing Director, GC Marketing Solutions Company Limited



26. Miss Kornkamol Korpaisarn
Senior Vice President - Strategy, Business Development and Commercial Excellence



27. Mr. Kridsada Prasertsuko
Executive Vice President - Value Added Products
Secondment as Managing Director, Global Green Chemicals Public Company Limited



28. Mrs. Panida Chinayone
Senior Vice President - Value Added Products
Secondment as Managing Director, GC Logistics Solutions Company Limited



29. Miss Kamolwan Wongkolsilp
Acting Senior Vice President - Value Added Products
Secondment as Managing Director, GC Polyols Company Limited

Reporting to Chief Operating Officer-International Business



30. Mr. Kamel Ramdani
Executive Vice President -
Product Innovation



31. Miss Wanlapa Sophiskhuankhant
Senior Vice President -
International Finance
and Strategy
Acting Senior Vice President -
Specialty Business



32. Mr. Panod Awaiwanond
Senior Vice President -
US Second Home

Reporting to Chief Operating Officer-Center of Excellence



33. Mrs. Jeeranee Pimthanothai
Executive Vice President -
Technical, Engineering
and Maintenance



34. Mrs. Chatsuda Kanjanarat
Senior Vice President -
Transformation Excellence



35. Mr. Rachean Chanthaweekul
Senior Vice President -
Procurement



36. Mr. Sakesiri Piyavej
Senior Vice President -
Quality, Safety,
Occupational Health
and Environment



37. Mr. Krit Kumpabooth
Senior Vice President -
CAPEX Excellence



38. Mr. Prakart Buttamart
Senior Vice President -
Center of Excellence
Secondment as
Managing Director,
NPC Safety
and Environmental Service
Company Limited



39. Mr. Sarawuth Nuntavadeepisarn
Senior Vice President -
Center of Excellence
Secondment as Managing Director,
GC Maintenance
and Engineering
Company Limited

Corporate Governance Report

Summary of the Board of Director's Performance for the Year 2023

Nomination, Development, and Performance Assessment of the Board of Directors

Nomination and appointment of Directors, Independent Directors, and the Chief Executive officer and President (CEO)

The Nomination and Remuneration Committee, consisting of three Independent Directors, as prescribed in its Charter, is responsible for nominating and selecting qualified candidates with no prohibited characteristics as stipulated by applicable laws and regulations in accordance with the Director nomination and appointment criteria and procedure and proposing the list of candidates to the Meeting of the Board of Directors and/or the General Meeting of Shareholders (details of the criteria, procedures, and guidelines for the nomination and appointment of Directors, Independent Directors, and the Chief Executive Officer and President appear under "Policy and Practices for the Board of Directors"). In 2023, the Nomination and Remuneration Committee performed its duties in nominating and appointing Directors, Independent Directors, and Sub-committee as detailed below:

Nomination and appointment of Directors to replace Directors retiring by rotation: At the 2023 Annual General Meeting of Shareholders, held on April 7, 2023, five Directors were due to retire by rotation, namely Mr. Grisada Boonrach, Mrs. Pantip Sripimol, Mr. Chadil Chavanalikhikorn, Mr. Cherdchai Boonchoochaay, and Mr. Sarawut Kaewtathip. Shareholders were given an opportunity to nominate qualified candidates for the vacant positions prior to the AGM from September 15 to December 31, 2022. However, there were no submissions of candidates from shareholders. The Nomination and Remuneration Committee, excluding

members with a conflict of interest, thus nominated and selected qualified candidates in accordance with the Director nomination and appointment criteria and procedure and resolved to nominate Mr. Patchara Anuntasilpa to replace the Director retiring by rotation and nominate, Mr. Grisada Boonrach, Mr. Chadil Chavanalikhikorn, Mr. Cherdchai Boonchoochaay, and Mr. Sarawut Kaewtathip to be re-elected as Directors for another term. The Board of Directors and the AGM resolved to approve the appointment of these candidates as Directors as instructed by the Nomination and Remuneration Committee.

The provisions in GC's Articles of Association regarding shareholders' meetings and voting state that shareholders shall cast all of their votes on their voting cards to vote one nominee for directorship at a time in order to ensure alignment with corporate governance principles.

Nomination and appointment of Directors to fill vacancies in cases other than retiring by rotation: Five Directors resigned/vacated office during the year, namely M.L. Chayotid Kridakon, Mr. Piyasvasti Amranand, Mr. Apisak Tantivorawong, Mrs. Watanan Petersik, and Mr. Sarawut Kaewtathip. To ensure the Board's uninterrupted discharge of duties according to the roles and responsibilities assigned, the Nomination and Remuneration Committee nominated and selected qualified candidates in accordance with the Director nomination and appointment criteria and procedure, taking into consideration qualifications in compliance with applicable laws, regulations, GC's articles of association and corporate governance principles, as well as the candidates' knowledge and expertise and the Board Skills Matrix. The Committee also considered its own Director Pool as well as those of reliable external agencies, such as the State Enterprise Policy Office (SEPO) and the Thai Institute of Directors Association (IOD). The Committee nominated candidates to replace Directors who had resigned, namely Mr. Surachai Achalaboon, Police

Colonel Dusadee Aryawuit, Mr. Thanwa Laohasiriwong, Mr. Predee Daochai, and Mr. Petai Mudtham. The Board of Directors resolved to approve the appointment of these candidates as Directors as instructed by the Nomination and Remuneration Committee.

Nomination and appointment of members of Sub-committees: The Nomination and Remuneration Committee reviewed and nominated qualified Directors in accordance with the Director nomination and appointment criteria and procedure as well as the charter of each Sub-Committee to propose at the meeting of the Board of Directors for appointment as members of Sub-committees, namely, the Audit Committee, the Corporate Governance and Sustainability Committee, the Nomination and Remuneration Committee, and the Risk Management Committee. The Board of Directors resolved to approve the appointment of the candidates as Directors as instructed by the Nomination and Remuneration Committee.

Review of Independent Director qualifications: Of GC's 15 Directors, a total of nine were Independent Directors, exceeding the requirement set forth in Notification of the Capital Market Supervisory Board No. Tor Jor. 39/2559 Re: Application for Approval and Granting of Approval for Offering of Newly Issued Shares under the Securities Exchange Commission (SEC), which stipulated that the number of Independent Directors shall be at least one-third of the total number of Directors but shall not be lower than three. All

Independent Directors were fully qualified as defined by GC's Independent Director qualification requirements, the charter of Independent Directors, and the notification of the Capital Market Supervisory Board, and were able to express opinion independently in compliance with relevant criteria and corporate governance principles.

Development of Directors, Executives, and Company Secretary

Development and Training for Directors

GC has put in place a process to support the consistent development of its Directors. In 2023, the Company carried out the following activities:

- Orientation for new Directors: Newly appointed Directors were required to attend the board orientation, which included a presentation on GC's nature of business, business data and practices, as well as applicable rules and regulations, corporate governance principles and the business code of conduct, and useful information for the position. Additionally, the Company prepared handbooks and other documents required to perform their roles, namely the strategic plan, the Company's Articles of Association, Memorandum of Association, Form 56-1 One Report, related rules and regulations, and GC's Corporate Governance and Business Code of Conduct Handbook.

- GC encouraged Directors to participate in the following programs/seminars required for their duties:

Director	Program/Institute
1. Mr. Chadil Chavanalikhorn	Director Certification Program (DCP), Class 340/2023 Thai Institute of Directors Association (IOD)

- GC organized a training session for the Board of Directors as a whole on the topic of "What's and Why's for Board of Directors to Guide a Refining and PET-Chem Company," hosted by the Petroleum Institute of Thailand, in order to inform the Board of the trends in the business landscape in the next normal era, principles for analyzing and monitoring the situation in the petrochemical industry and

refinery business, as well as the assessment and formulation of measures to address risks that may impact the business operation for use in establishing GC's strategic direction and action plans, supervising the operation, and seeking opportunities for business expansion to ensure GC's competitiveness.

- GC hosted a talk for the Board of Directors on the topic of Decarbonization Roadmap & 5Y Plan GC, led by GC's senior executives to keep the Directors informed of GC's decarbonization guidelines and targets according to its Decarbonization Pathways for use in supplementing the formulation of GC's strategic plans for sustainability.

Training for Executives and Company Secretary

GC consistently encourages its Executives and the Company Secretary to pursue further education and participate in training programs to acquire knowledge beneficial to their duties as well as their roles in supporting GC and the Board of Directors, as detailed below.

- GC conducted training programs for Executives from the Senior Vice President level upward and Executives serving as Directors and Executive Directors of companies under GC Group. The topics are as follows:
 - Topic 1: Financial Statements for Directors by EY Corporate Advisory Services Co. Ltd. The objective was to foster an understanding of accounting principles, enable the participants to read and understand financial statements as well as raise questions and provide more beneficial insights to the Board of Directors regarding the accounting reports in the financial statements, and identify potential risk issues based on analysis in the financial statements in accordance with their fiduciary duties in safeguarding the interests of GC and its shareholders.
 - Topic 2: Risk Management for Directors by EY Corporate Advisory Services Co. Ltd. The objective was to foster an understanding of the principles of risk management and the analysis of key issues from the perspective of the Board of Directors as well as a good risk management framework and appropriate methods for overseeing each type of risk so that the participants could apply them in supervising GC's risk management alongside business management.

In addition to the aforementioned training programs, GC has developed training programs for Executives at all levels. Further details appear under "Employees."

- GC encouraged the Company Secretary to attend training programs to support the Board of Directors. In 2023, the Company Secretary attended programs offered by the Thai Institute of Directors Association (IOD), namely the Anti-Corruption Practical Guide (ACPG), Class 64/2023 and the Board Nomination & Compensation Program (BNCP), Class 16/2023; and other in-house programs, namely Financial Statements for Directors and Risk Management for Directors, hosted by EY Corporate Advisory Services Co. Ltd.

Board Performance Assessment

Board of Directors

GC has prescribed annual board performance assessments, conducted through an online system to allow the Board of Directors to participate in the review of their annual performance and obtain guidelines for auditing their performance according to good corporate governance principles. Three assessment forms are utilized: group assessment, self-assessment, and cross-assessment (individual assessment of other directors). The Board of Directors may engage external consultants to establish guidelines and provide suggestions on board performance assessment every three years to ensure compliance with CG Code and the Dow Jones Sustainability Index (DJSI) criteria. In 2023, 15 Directors underwent performance assessments. A summary of the outcomes is given below.

Group Assessment: The group assessment form comprised six main sections: 1) Board policy, 2) Board performance, 3) Board structure (composition and qualifications), 4) Board style, 5) Board meeting, and 6) Board development. **The average group assessment score was 99.1%.**

Self-assessment (Assessment of Individual Directors):

The assessment form comprised three main sections: 1) Directors' knowledge and expertise, self-development, and teamwork, 2) Board performance of duties, and 3) dedication of time and meeting attendance.

The average self-assessment score was 97.2%.

Cross-assessment (Individual Assessment of Other Directors):

The assessment form comprised three main sections: 1) the Director's knowledge and expertise, self-development, and teamwork, 2) Board performance of duties, and 3) dedication of time and meeting attendance. **The average cross-assessment score was 99%.**

Sub-committees

Annual performance assessments, both at committee (group) and individual levels, have been prescribed for all four Sub-committees. In 2023, every Sub-committee reviewed and revised the assessment questionnaires and criteria to ensure alignment with good corporate governance practices.

(1) Audit Committee

The group assessment of the Audit Committee comprised two parts. The first part pertained to its composition, covering the topics of the Audit Committee's Charter, qualifications, meetings, learning, and data access; and the second part pertained to its performance of duties, covering the topics of roles and responsibilities and performance reporting to the Board.

The individual assessment comprised the following topics: knowledge and expertise, discharge of duties, and meeting attendance.

The average score of the group assessment was **99.3%**, and the average score of the individual assessment was **97.5%**.

(2) Nomination and Remuneration Committee

The group assessment comprised the following topics: composition and qualifications, performance of duties, guidelines for Directors, meeting attendance, reporting and performance evaluation.

The individual assessment comprised the following topics: knowledge and expertise, performance of duties, guidelines for Directors, and dedication of time and meeting attendance.

The average score of the group assessment was **99.6%**, and the average score of the individual assessment was **98.9%**.

(3) Corporate Governance and Sustainability Committee

The group assessment comprised the following topics: composition and qualifications, performance of duties, guidelines for Directors, meeting attendance, reporting and performance evaluation.

The individual assessment comprised the following topics: knowledge and expertise, performance of duties, guidelines for Directors, and dedication of time and meeting attendance.

The average score of the group assessment was **98.1%**, and the average score of the individual assessment was **91.9%**.

(4) Risk Management Committee

The group assessment comprised the following topics: composition and qualifications, roles and responsibilities, and meeting attendance.

The individual assessment comprised the following topics: responsibilities, adherence to business ethics and code of conduct, and dedication of time to duties and self-development.

The average score of the group assessment is **99.8%**, and the average score of the individual assessment is **99.8%**.

Meeting Attendance and Remuneration of Individual Directors

Board of Directors' Meetings

The date and time of the Meetings of the Board of Directors are scheduled in advance for the entire year, with the agenda items of each meeting clearly established. The Meeting of the Board of Directors is scheduled for the fourth Monday of every month. Special meetings of the Board of Directors may be held as appropriate and necessary. Members of the Board of Directors will receive a meeting invitation, draft minutes of the previous meeting, and supplementary information for the agenda of the meeting for consideration at least 7 days prior to the date of the meeting. For convenience and reduced paper usage, such documents are delivered to each Director via the D-Join system (Digital Join Application), which a data security system put in place. In 2023, the Board of Directors convened a total of 16 meetings, consisting of 14 pre-scheduled meetings and two special meetings. Directors who had other engagements and could not be in attendance were required to notify the Chairman of the Board of Directors and the Corporate Secretary, specifying the necessity for the absence. The Chairman informed the meeting of such matter at the beginning of each meeting.

The Chairman of the Board of Directors presides over the meeting and gives all Directors an opportunity to participate in the meeting and express their opinions independently. At each meeting, at least two-thirds of the total number of Directors must be present to form a quorum, and the quorum must be maintained while votes are cast. The Chairman may allow Directors to attend the meeting via electronic means, whereby the meeting must be carried out in accordance with the security criteria and standards for electronic meetings pursuant to applicable laws and regulations issued by

relevant government agencies. In casting votes, each Director shall have one vote, and a resolution of the meeting shall require a simple majority of votes. The Chairman of the Meeting shall have a casting vote in case of an equality of votes. The Board of Directors manages any conflicts of interest of the relevant persons with due circumspection, fairness, and transparency and discloses such information in full. In the event that a Director has a conflict of interest in the matter being considered, the Director shall not take part in any decision-making on the matter.

When the meeting is concluded, the Company Secretary is responsible for preparing the minutes of the meeting to be approved in the next meeting and signed by the Chairman of the Board of Directors for verification. The approved minutes, along with supplement documents, are stored systematically both as hard copies and in an electronic format in accordance with the Company's confidentiality level for ease of reference.

Furthermore, in accordance with corporate governance principles, the Board of Directors prescribes meetings of non-Executive Directors to allow them to provide opinions and guidelines for the management and business operation of the Company as well as meetings of Independent Directors, where they can exchange opinions and review their roles and discharge of duties every year. In 2023, one meeting of non-Executive Directors (July 24, 2023) and one meeting of Independent Directors (November 20, 2023) were convened. Summaries of such meetings are submitted to the Board of Directors for acknowledgment.

The number of the Meetings of the Board of Directors, Independent Directors, Non-executive Directors and Sub-committee held in 2023 and Director's attendance are shown in the table below.



Director's Meetings (As of December 31, 2023)

Name	Meetings in 2023										2023 Annual General Meeting of Shareholders
	Board of Directors			Independent Directors	Non- Executive Directors	Audit Committee	Nomination and Remuneration Committee	Corporate Governance and Sustainability Committee	Risk Management Committee	Corporate Governance and Sustainability Committee and Risk Management Committee	
	16 Times	Physical Meetings	e-Meetings	1 Time	1 Time	10 Times	10 Times	9 Times	5 Times	2 Times	
1. Mr. Predee Daochai	2/2	2/2	-	1/1	-	-	-	-	-	-	-
2. Mr. Thanwa Laohasiriwong	2/2	2/2	-	1/1	-	3/3	-	-	-	-	-
3. Mr. Pakorn Nilprapunt	16/16	6/16	10/16	1/1	1/1	10/10	10/10	-	-	-	1/1
4. Professor Somkit Lertpaithoon	16/16	6/16	10/16	1/1	1/1	-	-	9/9	-	2/2	1/1
5. Mr. Grisada Boonrach	16/16	5/16	11/16	1/1	1/1	-	-	-	5/5	2/2	1/1
6. Lieutenant General Nimit Suwannarat	16/16	6/16	10/16	1/1	1/1	3/3	9/10	-	-	-	1/1
7. Mr. Somkiat Prajamwong	16/16	6/16	10/16	1/1	1/1	-	10/10	-	-	-	1/1
8. Mr. Surachai Achalaboon	9/9	3/9	6/9	1/1	1/1	-	-	6/6	-	2/2	-
9. Police Colonel Dusadee Aryawut	2/2	2/2	-	1/1	-	-	-	2/2	-	-	-
10. Mr. Patchara Anuntasilpa	11/11	4/11	7/11	-	1/1	-	-	6/6	-	2/2	-
11. Mr. Chadil Chavanalikkorn	16/16	6/16	10/16	-	1/1	-	-	9/9	-	2/2	1/1
12. Mr. Noppadol Pinsupa	16/16	6/16	10/16	-	1/1	-	-	-	4/4	2/2	1/1
13. Mr. Cherdchai Boonchoocha	15/16	4/16	11/16	-	1/1	-	-	-	5/5	2/2	1/1
14. Mr. Kongkrapan Intarajang	16/16	7/16	9/16	-	-	-	-	-	5/5	2/2	1/1

Directors who resigned in 2023-2024

1. M.L. Chayotid Kridakon	4/4	-	4/4	-	-	-	-	1/3	-	-	-
2. Mrs. Pantip Sripimol	4/4	-	4/4	-	-	-	-	3/3	-	-	1/1
3. Mr. Piyasvasti Amranand	8/8	3/8	5/8	-	-	-	-	-	-	-	1/1
4. Mr. Apisak Tantivorawong	11/11	5/11	6/11	-	1/1	7/7	-	-	-	-	1/1
5. Mrs. Watanan Petersik	10/11	4/11	6/11	-	1/1	7/7	-	4/5	-	2/2	1/1
6. Mr. Sarawut Kaewtathip	16/16	3/16	13/16	-	1/1	-	-	-	5/5	2/2	1/1

Remark:

Directors who could not attend meetings due to other engagements and had notified the Chairman of the Board of Directors in advance of such meetings.

Remuneration of Directors

The Board of Directors has set up a fair and reasonable remuneration policy for its Directors in accordance with good corporate governance principles. The Nomination and Remuneration Committee determines suitable remuneration for Directors based on the Company's financial standing, the economic circumstances relevant to the Company's business, the principles and policies approved by shareholders, the responsibilities of the Board of Directors, the annual board performance assessment results, and the practices of other SET-listed companies of a similar size in the same industry.

Directors appointed to Sub-Committees are entitled to additional remuneration due to their additional responsibilities.

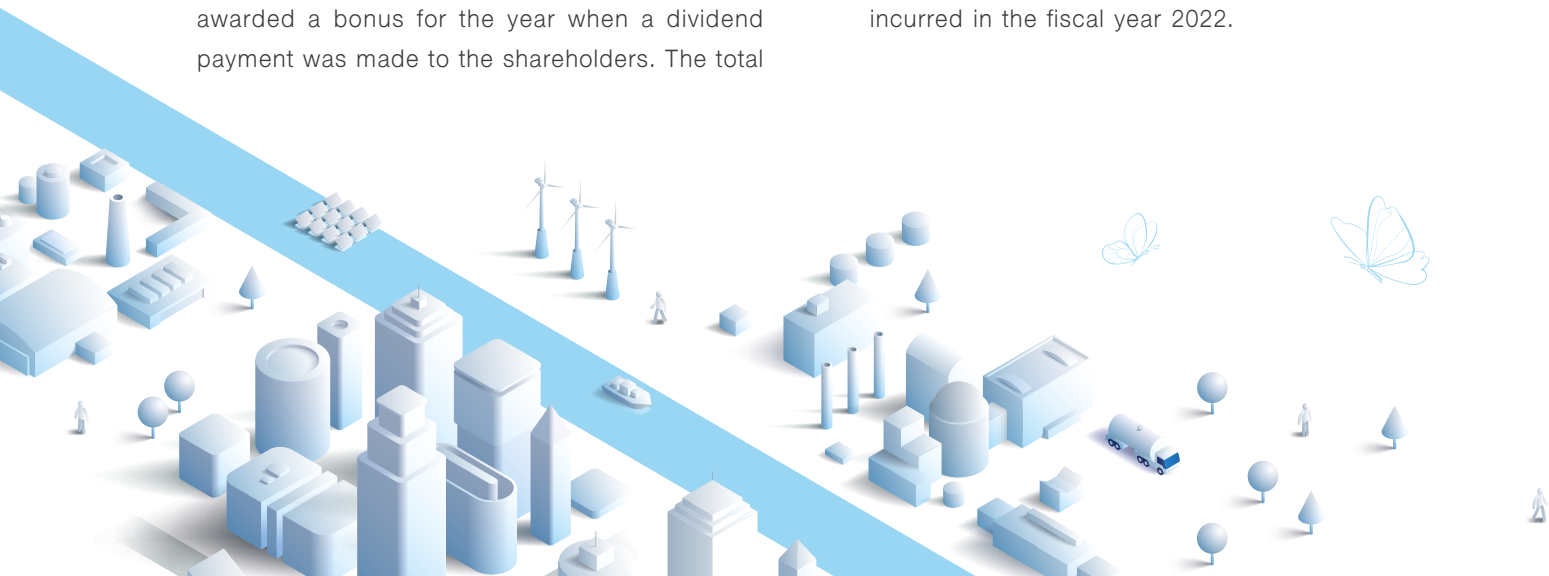
Directors' remuneration must be approved by the shareholders. At the 2023 Annual General Meeting of Shareholders, held on April 7, 2023, the shareholders passed a resolution approving the 2023 remuneration of Directors and Directors to Sub-Committees and their bonus for the year 2023 as follows:

(1) Remuneration for the Board of Directors and Sub-committees

Type of Remuneration	Remuneration Rate
1. Board of Directors	Monthly Remuneration — Chairman Baht 62,500 / Month — Director Baht 50,000 / Month / Director Remuneration for Meeting Attendance — Chairman Baht 50,000 / Meeting — Director Baht 40,000 / Meeting / Director
2. Sub-committees — Audit Committee — Nomination and Remuneration Committee — Corporate Governance and Sustainability Committee — Risk Management Committee	Remuneration for Meeting Attendance — Chairman Baht 56,250 / Meeting — Director Baht 45,000 / Meeting / Director
3. Others	-No other benefits-

(2) With regard to the bonus for the year 2022, in accordance with the resolution of the 2023 Annual General Meeting of Shareholders, held on April 7, 2023, the Board of Directors as a group was to be awarded a bonus for the year when a dividend payment was made to the shareholders. The total

sum of this bonus equaled 0.30% of the year's net profit and up to Baht 60 million. In 2023, GC refrained from paying annual bonuses for the Board of Directors due to the net operational losses incurred in the fiscal year 2022.



Remuneration for Individual Directors for 2023

Name	Monthly Remuneration for GC Directors (Baht)	Remuneration for Meeting Attendance (Baht)	Remuneration for Sub-Committees Meeting Attendance (Baht)				2022 Bonus paid in 2023 (Baht)*	Total (Baht)
			Audit Committee	Nomination and Remuneration Committee	Corporate Governance and Sustainability Committee	Risk Management Committee		
1. Mr. Predee Daochai	95,833.33	50,000.00	-	-	-	-	-	145,833.33
2. Mr. Thanwa Laohasiriwong	100,000.00	40,000.00	168,750.00	-	-	-	-	308,750.00
3. Mr. Pakorn Nilprapunt	600,000.00	640,000.00	450,000.00	562,500.00	-	-	-	2,252,500.00
4. Professor Somkit Lertpaithoon	600,000.00	640,000.00	-	-	675,000.00	-	-	1,915,000.00
5. Mr. Grisada Boonrach	600,000.00	640,000.00	-	-	-	393,750.00	-	1,633,750.00
6. Lieutenant General Nimit Suwannarat	600,000.00	600,000.00	135,000.00	450,000.00	-	-	-	1,785,000.00
7. Mr. Somkiat Prajamwong	600,000.00	640,000.00	-	450,000.00	-	-	-	1,690,000.00
8. Mr. Surachai Achalaboon	366,129.03	320,000.00	-	-	360,000.00	-	-	1,046,129.03
9. Police Colonel Dusadee Aryawuit	100,000.00	40,000.00	-	-	90,000.00	-	-	230,000.00
10. Mr. Patchara Anuntasilpa	440,000.00	400,000.00	-	-	360,000.00	-	-	1,200,000.00
11. Mr. Chadil Chavanalikikorn	620,967.74	640,000.00	-	-	495,000.00	-	-	1,755,967.74
12. Mr. Noppadol Pinsupa	564,516.13	600,000.00	-	-	-	270,000.00	-	1,434,516.13
13. Mr. Cherdchai Boonchoochaay	620,967.74	600,000.00	-	-	-	315,000.00	-	1,535,967.74
14. Mr. Kongkrapan Intarajang**	600,000.00	640,000.00	-	-	-	315,000.00	-	1,555,000.00

Directors who resigned and retired by rotation in 2023-2024 and earned remuneration in 2023

1. General Nithi Chungcharoen***	-	40,000.00	-	-	-	-	-	40,000.00
2. M.L. Chayotid Kridakon***	133,870.97	200,000.00	-	-	90,000.00	-	-	423,870.97
3. Mrs. Pantip Sripimol****	160,000.00	200,000.00	-	-	180,000.00	-	-	540,000.00
4. Mr. Piyasvasti Amranand***	397,177.42	450,000.00	-	-	-	-	-	847,177.42
5. Mr. Apisak Tantivorawong***	395,161.29	480,000.00	393,750.00	-	-	-	-	1,268,911.29
6. Mrs. Watanan Petersik***	435,000.00	440,000.00	315,000.00	-	315,000.00	-	-	1,505,000.00
7. Mr. Sarawut Kaewtathip*****	600,000.00	640,000.00	-	-	-	315,000.00	-	1,555,000.00
Grand Total	8,629,623.65	8,940,000.00	1,462,500.00	1,462,500.00	2,565,000.00	1,608,750.00	-	24,668,373.65

Remarks: The Company provides a corporate vehicle for the Chairman throughout his term for corporate-related activities only.

* The Company refrained from paying annual bonuses for the Board of Directors due to the net operational losses incurred in the fiscal year 2022.

** Remuneration for directorship only; Executive remuneration is not included.

*** Five Directors resigned/vacated office in 2023, namely Mrs. Watanan Petersik, who resigned as an Independent Director, effective September 22, 2023; Mr. Apisak Tantivorawong, who resigned as an Independent Director, effective August 29, 2023; Mr. Piyasvasti Amranand, who vacated office as an Independent Director, effective July 12, 2023; M.L. Chayotid Kridakon, who resigned as an Independent Director, effective March 22, 2023; and General Nithi Chungcharoen, effective January 1, 2023.

**** One Director was due to retire by rotation at the 2023 Annual General Meeting of Shareholders, namely Mrs. Pantip Sripimol, who retired on April 7, 2023.

***** One Director resigned in 2024, namely Mr. Sarawut Kaewtathip, effective January 4, 2024.

Remuneration Received by Those Serving as Independent Directors of a Parent Company

GC's Independent Director who served as Independent Directors of PTT Public Company Limited received remuneration as follows:

Name-Surname	PTT Public Company Limited (PTT)				
	Position	Remuneration for the Year 2023			
		Meeting Allowance (Including Monthly Allowance) (Baht)	Sub-Committee Meeting Allowance (Baht)	Bonus 2023 (Baht)	Total (Baht)
M.L. Chayotid Kridakon	Independent Director Chairman of the Enterprise Risk Management Committee	330,000	112,500	805,022.27	1,247,522.27

Directors' Remuneration for Directorship at Major Subsidiaries

The Company's Directors hold directorships at subsidiaries to ensure that their businesses are operated in compliance with GC Group's policies.

Name	Position	Total Remuneration
PTTGC International Private Limited (100% owned subsidiary)		
Mr. Kongkrapan Intarajang	Chairman	Baht 375,000
Global Green Chemicals Public Company Limited (GC holds a shareholding of 72.29%)		
Mr. Kongkrapan Intarajang	Chairman	Baht 988,661

Governance of Subsidiaries and Affiliates

The Board of Directors has implemented the following governance mechanisms for overseeing the management and operation of GC's subsidiaries and affiliates to protect the Company's interests and investments.

- GC has designated the Chief Executive Officer and President as an authorized person in accordance with GC's regulations on human resources management, whereby the CEO is authorized to nominate Executives or other persons for consideration to serve as Directors in companies under GC Group as stipulated in GC's subsidiaries Articles of Association, joint venture agreements, or shareholders' agreements. The qualifications of the candidates that are taken into consideration include the roles and responsibilities, experience, and expertise. The candidates must be fully qualified and must not possess any prohibited characteristics stipulated by any laws, regulations, or requirements relevant to directorship.
- GC enriches the knowledge and capabilities of the Executives in GC Group and those assigned to take directorship in other companies under GC Group by organizing annual training programs so as to ensure that their preparedness and capacity to apply GC's policies to companies in GC Group in a manner that is suitable, compliant with laws, rules and regulations, and in accordance with potential changes in situations and trends.
- Ensuring that any major policies of companies under GC, such as Corporate Governance Policy, Corporate Compliance Policy, Finance, Accounting, Tax and Budget Policy, Quality, Security, Safety, Occupational Health, Environment and Business Continuity Policy, Human Resources Management Policy, Sustainability Management Policy, Risk Management Policy and Internal Control Policy, as well as any another relevant policies, are in

compliance with regulations of the Securities and Exchange Commission and Stock Exchange of Thailand and any other relevant laws.

- 4) GC has established GC Way of Conduct to serve as guidelines for the operation and governance of companies in which GC holds shares through personnel assigned to serve as Directors or Executives or assigned to supervise such companies, including GC's internal units which are responsible for supervising companies under GC Group, so as to ensure that the operation of such companies is consistent with that of GC, has the same standard, transparency and good governance system that keeps the business operation across GC Group and drives the business towards sustainability.
- 5) GC has implemented multi-level governance, in which companies under GC Group are required to establish their Way of Conduct guidelines in line with those of GC for use in governing companies in which they hold shares, so as to establish a uniform operational standard across GC Group.
- 6) In 2023, GC promoted and enhanced the implementation of GC Way of Conduct as detailed below.
 - GC reviewed and improved GC Way of Conduct by applying various international standards, GC's operational standards, and best practices to the governance of companies under GC Group. GC also reviewed the group-level management of key activities as well as governance to ensure suitability for the risks, types of business, business models, and locations of such companies to maintain alignment with GC Group's investment objectives and business strategies.
 - GC established and communicated GC Way of Conduct 2023 to units which are responsible for the management and governance of companies under GC Group and coordinators for the implementation of GC Way of Conduct among such companies in order to advance the adoption of GC's operational standards among them.
 - GC prescribed GC Way of Conduct implementation assessments in order to monitor compliance and establish operational standards in different areas for GC Group.
 - GC prescribed that GC Way of Conduct implementation progress be monitored and reported to Executives on a yearly basis.

- GC Way of Conduct Webpage was developed on the Share Point system. The GC Way of Conduct Handbook was also published both in Thai and English in an e-Book and video formats to serve as a learning tool that offers an overview of GC Way of Conduct to every relevant party in GC. In addition, GC Way of Conduct Communication Newsletters were also distributed to foster awareness and understanding and strengthen GC Group's management approach.

Ensuring Compliance with Corporate Governance Policy and Practices

GC considers good corporate governance a priority and has thus established and included relevant policies and practices in its Corporate Governance and Business Code of Conduct Handbook. The Company also promotes its adoption to foster confidence among GC's stakeholders.

In 2023, GC conducted various activities to ensure compliance with the corporate governance practices of GC Group, and based on monitoring, it was found that GC fully complied with the practices, as summarized below.

Disclosure of Information and Transparency

GC is committed to transparent and timely disclosure of accurate and complete information, financial and non-financial, to stakeholders in conformity to applicable laws, rules, and regulations via the SET Link and the Company's website at www.pttgcgroup.com. Its Investors Relations (IR) and Corporate Secretary (CS) Departments are in charge of information disclosure and addressing inquiries. GC carried out the following:

- Disclosure of Material Information in Form 56-1 One Report:
 - Financial Information: GC's financial statements are audited by a professional auditor for the accuracy of their material information and conformance to financial auditing standards. Each set of financial statements has been approved by the Audit Committee and the Board of Directors before their disclosure to shareholders and the public. The Board of Directors' statement on the accountability of its financial reports is disclosed alongside the auditor's report in Form 56-1 One Report.

- Non-financial Information: Non-financial information includes the operating structure of GC Group, risk management, business operations for sustainability, corporate governance, and material information about the Board of Directors, Sub-committees, Executives, and employees.
- Channels for the Disclosure of Material Information in Thai and English:
 - The SETLink system by Stock Exchange of Thailand.
 - GC's regularly updated website, www.pttggroup.com, where channels for contacting the Board and other divisions are also fully and clearly displayed.
 - Information and updates were disclosed to stakeholders via e-mail, exhibitions, press release and other activities through media, such as newspapers, television, and social media.
- The Investor Relations Department serves as the center of communication, where essential information is made known to shareholders, institutional and minor investors, analysts, and relevant regulatory

authorities. It also oversees the quality of financial reporting processes and essential information that could affect the price of its securities, such as financial statements, performance results, earnings reports and quarterly and annual Management Discussion and Analysis (MD&A). These are all indicators of the Company's financial standing, performance, and future trends. The Investor Relations Department also manages the disclosure of information via the SET Community Portal to foreign and domestic investors to ensure fairness. Furthermore, an Investor Relations Code of Conduct has been established to determine the roles and best practices that enable investor relations officers to treat all shareholders equitably.

In 2023, GC's Executives met with shareholders, financial analysts, investors, and employees through activities, including both virtual and in-person meetings, in order to regularly present GC's performance. These activities included analyst meetings, domestic and international roadshows, and retail-investor events. GC also welcomed investors who visited the Company. Below is a summary of these events:

Investor Meetings	
Domestic meetings	9 times
Meetings aboard	11 times
Investor meetings through virtual roadshows / conferences	10 times
Meetings at the Company	11 times
Meetings with financial analysts	4 times
Telephone conferences	18 times
Information Disclosure	
Disclosure via SET Portal and Company Website	21 times
Activities	
Bondholder activity	1 time
Basic training with financial analysts	2 times
Analyst meeting / Fund site visits	4 times

Investors or interested persons may contact the Company via the following five channels for more information:

- (1) Mail : Investor Relations Department, PTT Global Chemical Public Company Limited
555/1 Energy Complex, Building A, 18th Floor, Vibhavadi Rangsit Road
Chatuchak, Bangkok 10900
- (2) Phone : 66 (0) 2265-8400 ext. 8670, 8665, 8533, and 8534
- (3) e-Mail : ir@pttggroup.com
- (4) Fax : 66 (0) 2265-8500
- (5) Website: www.pttggroup.com

In addition, the Company offers swift and convenient communication via e-mail. The e-mail address is displayed on the Company website under "Corporate Governance". Shareholders, investors, and the public may contact the Board of Directors or the Chairman of the Corporate Governance and Sustainability Committee directly. They may also contact the Company Secretary for company information at cg@pttgcgroup.com.

Environmental, Occupational Health, and Safety Management

PTT Global Chemical Public Company Limited (GC) has set a clear vision for occupational health and safety and environmental management in order to drive safety and excellence as well for people and its plants everywhere. To this end, the following targets have been established:

- Safety: Personal safety statistics are in the first quartile of the International Association of Oil & Gas Producers (IOGP), with zero process safety event (PSE).
- Occupational health: Employees are in good health and are supported to work from anywhere.
- Environment: GC has environmental friendly operation, achieves Net Zero emissions, and is ranked among the top 5 on the Dow Jones Sustainability Index (DJSI).

In pursuit of these targets, GC has established a Quality, Safety, Security, Occupational Health, Environment, and Business Continuity Policy (QSHEB Policy) in alignment with international standards (ISO 45001, ISO 14001, Process Safety Management: PSM) and the operational framework of the Global Reporting Initiative (GRI Standard) to demonstrate its commitment to safety, security, occupational health, and the environment. The policy consists of six items as detailed below.

Quality, Security, Safety, Occupational Health, Environment, and Business Continuity Policy

PTT Global Chemical Public Company Limited (GC) aspires to be the Leading International Chemical Company that harnesses innovation and environmentally

friendly technology in striving towards becoming the role model organization that constantly develops and sustainably grows with determined responsibility to the economy, society, and environment in which we are present. GC is committed to continually enhancing our effectiveness in the management of Quality, Security, Safety, Occupational Health, the Environment, and Business Continuity. This policy covers the entire operation of the Company involving all executives, employees, related personnel at all levels, vendors, and contractors, and adheres to the following principles:

1. Observe and adhere to legal requirements in Quality, Security, Safety, Occupational Health, the Environment, and Business Continuity, as well as international standards, rules, regulations, and related requirements.
2. Manage Quality throughout the entire organization by employing Quality, Knowledge, and Productivity Management tools, to satisfy our customers' requirements while advancing innovations that are environmentally friendly.
3. Manage risks to prevent hazards, work-related illnesses, loss from accidents, injuries, property damages, and promoting personal safety and a B-CAREs Safety Culture, as well as Process Safety Management (PSM), to assure and care for the Safety of all.
4. Exercise awareness and alertness for security threats and setting up emergency management guidelines to protect the lives of company staff, assets, information, and business continuity.
5. Exercise due care in occupational health and work-place environment and promoting a good health and work-life balance.
6. Identify, evaluate, analyze, prioritize environmental issues, and develop action plans for the prevention and reduce detriment to the environment and ecosystem, preserve biodiversity via an integrated environment management system encompassing energy, air, water, and waste management, as well as efficient and sustainable resources utilization in accordance with Circular Economy principles, to optimize resources utilization throughout the supply chain. Maintain efficiency in reduction of greenhouse gasses and improving adaptation to climate change with intent on reducing net greenhouse gas emissions to zero (Net Zero) by 2050. Focus on fortifying an environmental culture through communication and encouragement to all employees and stakeholders to be conscientious of and contribute to GC's environmental culture.

Executives, employees, related persons at all levels, vendors and contractors must be accountable for achieving objectives and goals of GC, as well as being a role model in the development and perpetuation of the Quality, Security, Safety, Occupational Health, Environmental, and Business Continuity Management System. Sufficient resources shall be provided to enable participation and contribution by all executives, employees, related personnel at all levels, vendors and contractors, in the adoption of policies and putting them into action through development and training, and communicating these policies to all related parties to achieve internal and intra-organizational collaboration, for the sustainability of the organization henceforth.

In 2023, GC established the following strategies and guidelines for environmental, occupational health, and safety management to achieve its defined goals.

1. **Safety Management** is categorized into two types

1.1) **Personal Safety**

Personal safety is a critical aspect in GC's business operation. To better control accident statistics and strive towards the goal of being ranked in the first quartile by the International Association of Oil & Gas Producers (IOGP), GC has adopted the concept of operational discipline (OD) according to the DuPont methodology as well as engineering control strategies to manage inappropriate safety measures, which may result in worker injuries and have impacts on stakeholders across the value chain. To this end, GC has initiated various personal safety projects, as outlined below:

— **Early Detection of Low-Performance Contractors**

GC has strengthen its contractor safety management by implementing a process to detect low-performance contractors early in order to prevent severe accidents involving contractors, which account for 90% of all accidents. The following steps have been undertaken:

- Strengthen inspection and daily performance assessment conducted by supervisors and area owners.
- Conducting weekly coaching and feedback sessions for low-performance contractors.
- Incorporating performance results into the joint evaluation process of suppliers with the procurement team (quarterly and annually).

— **Hand-Injury Reduction Through Engineering Control**

GC has taken steps to mitigate risks for operators, focusing on developing special tools for various engineering maintenance tasks. The following additional measures have been implemented:

- Identifying job groups with high risks for hand injuries, categorized into six equipment groups: flange removal and assembly tools, hydraulic flange spreaders, flange alignment tools, pipe handling equipment, and grating lifting equipment.
- Enhancing oversight by stipulating the mandatory use of special equipment in the six equipment groups in the terms of reference (TOR) of every contract; and adding a requirement on the use of special tools for contractor selection and performance evaluation.

— **On-site Execution Strengthening Through Permit to Work and Operational Discipline (OD)**

GC has strengthened its on-site execution through permit to work and operational discipline, placing emphasis on ensuring that key players understand and adhere to critical steps. In addition, an e-Permit system has been developed and deployed, while digital systems have been introduced to lock out/tag out (LOTO) and job safety environment analysis (JSEA) in order to improve the efficiency of control processes and monitoring.

1.2) **Process Safety**

GC has been working actively since 2017 to elevate its process safety standards by applying various innovations as well as developing and improving all of its successful pilot projects. The process safety projects implemented by GC include the following:

— **Strengthening Bowtie Barrier Validation**

GC has introduced a bowtie analysis to the assessment of potential hazards and accidents and impacts of catastrophic events or Major Accident Events (MAE). GC has intensified the assessment of the effectiveness of each bowtie by verifying the data accuracy and completeness and integrated the bowties into the internal audit of the annual process safety management in accordance with the regulations of the Industrial Estate Authority of Thailand (IEAT). The goal is to ensure that the established measures are in place to prevent accidents in the manufacturing process.

— Electronic Field Risk Assessment (e-FRA)

GC has implemented a field risk assessment system to assist in developing the capabilities of workers to identify risks in the production process. Digital technology has been utilized to develop an e-FRA to record and monitor risk mitigation analyze production process risks, and formulate measures to prevent major accidents efficiently.

— Strengthening the PSM Committee and Inspirational Leadership Program (ILP)

GC has enhanced its Process Safety Management (PSM) and Inspirational Leadership Program (ILP) by reviewing the readiness of the Plant PSM Committee, both in terms of governance processes and capability to ensure proper and robust oversight in accordance with the established standards, while also fostering felt leadership to drive a safety culture.

As a result of these intensified efforts in safety and occupational health management, the total recordable injury rate (TRIR) and lost time injury frequency rate (LTIFR) in 2023 remained in the first quartile of the IOGP. Meanwhile, process safety events showed a downward trend. Every work-related injury or accident was also investigated to identify root causes and implement effective corrective and preventative measures in order for GC to achieve the goal of becoming a zero-accident organization.

2. Occupational Health

GC places great importance on the health of its employees and strives to continuously develop towards international standards. To this end, it has adopted the Health Performance Index (HPI) by IPIECA-IOGP, which is a system for assessing occupational health management. Occupational health projects carried out by the Company include the following:

— GC Health Care System (GCHS)

GC has adopted technology to enhance and integrate systems in order to enhance every aspect of employee health care and ensure they can access medical services and health information anytime and anywhere. GC also analyzes such data so as to develop appropriate health care and health promotion programs for employees. Programs under this system include E-Health Book, Health Risk Assessment, and Telemedicine.

— Ergonomics-related Projects

GC promotes ergonomics knowledge and awareness among employees to encourage behavioral changes. In addition, the Company has acquired software to support risk assessment and provided suitable equipment to improve employee health and reduce the rate of ergonomics-related treatment.

In 2023, as a result of the intensified efforts in occupational health management, GC employees enjoyed easier access to their health information, while the health data was successfully collected and analyzed to develop health promotion guidelines and projects better suited to employees to promote a healthy workplace and healthy living.

3. **Environmental Management** is divided into two components.

3.1) Maintaining Environmental Leadership According to DJSI Assessment Criteria

GC prioritizes minimizing impact on the environment and biodiversity in its business operations to maintain environmental leadership according to the assessment criteria of DJSI. Therefore, it has applied the 5Rs (Reduce, Reuse, Recycle, Refuse, Renewable), which are its strategies for fostering the organizational culture, to environmental management, while also creating a balance between resource management and sustainable business operations. Operational eco-efficiency initiatives undertaken by GC include the following.

— Resource and Waste Management

GC strives to optimize its resource and waste management, covering every process from product development to manufacturing, in order to maximize efficiency and benefits, minimize any waste and pollutants generated, and recover used and discarded materials for utilization in process area and administrative area through the following initiatives:



Waste Management

For More Information:

<https://sustainability.pttgcgroup.com/en/environment/waste-management/waste-management-target-and-performance>

- Waste optimization initiatives include the at-source reduction of wastewater destined for disposal from tank cleaning in the oil refinery area, which involves reviewing the wastewater management process and the wastewater quality and changing the disposal method by diverting to an internal treatment system instead of external disposal. As a result, GC has been able to reduce wastewater disposal by over 140 tons.
- Green turnaround projects include removing heat insulation with minimal damage, storing heat insulation in appropriate containers, and preparing storage areas to keep the insulation material dry, all of which align with the concept of the circular economy. In 2023, GC has been able to reuse heat insulation materials at an average rate of over 50%.
- GC has carried out a zero industrial waste to landfill project since 2015. The project has since been expanded into an initiative to reduce and divert office waste from landfills to refuse derived fuel (RDF) production.

– Air Quality Control

GC has carried out projects to control air pollution within both operation areas and fence lines to comply with legal requirements and international standards. The Company also works with the government sector as a representative of the petrochemical industry to establish environmental management guidelines as well as applies innovation through an environmental taskforce to maximize effectiveness, with the ultimate goal of establishing a strong environmental management network. Relevant initiatives undertaken are as follows.

- GC has established guidelines for controlling the release of benzene vapors and 1, 3-butadiene in alignment with the existing Code of Practice (CoP) in collaboration with five petrochemical industrial estates and a port in Map Ta Phut.
- GC has joined the environmental taskforce of the Petrochemical Group under the Federation of Thai Industries to study predictive emission monitoring systems (PEMs) and ensure that GC's environmental management is in

compliance with the law as well as to apply innovative pollution reduction technologies to maximize efficiency through the cooperation between the government and petrochemical operators.

– Water Management

GC has ensured its preparedness for water crisis brought on by climate change and strives to contribute to the achievement of the UN SDG 6: Clean Water and Sanitation. To this end, it focuses on sustainable water management both internally and externally as detailed below.

- Internal: GC has appointed a Water Management Taskforce to oversee water management and prepare measures to effectively address water crisis and maximize water efficiency in production in a timely manner both in the short and long term. In addition, GC has carried out projects to optimize water efficiency in production, such as the utilization of the wastewater reverse osmosis (WWRO) technology to treat and recover wastewater for use in the manufacturing process, which can reduce the consumption of raw water by over 2 million cubic meters on average per annum.
- External: GC has joined the Keyman Water War Room, which consists of the Royal Irrigation Department, the Industrial Estate Authority of Thailand, the Provincial Waterworks Authority, the Federation of Thai Industries, and business owners, to track the water situation in source water reservoirs as well as establish and implement plans to achieve sustainable water management measures in the eastern region.

3.2) Proactive Environmental Management Towards Net Zero

GC places emphasis on addressing and mitigating climate change impacts and has set the goal of achieving Net Zero emissions for scope 1 and 2 by 2050 to maintain its climate leadership in accordance with the assessment criteria of the Carbon Disclosure Project (CDP). To this end, it has adopted an integrated single platform for environmental data and applied data from environmental impact assessments across product life cycles in its



Air Quality Control

For More Information:

<https://sustainability.pttgcgroup.com/en/environment/air-quality/emissions-reduction-target-and-performance>



Water Management

For More Information:

<https://sustainability.pttgcgroup.com/en/environment/sustainable-water/sustainable-water-strategy-target-and-performance>

proactive environmental management, which is implemented through the following initiatives to produce concrete results. The example projects include the following:

— Enhancing the GHG inventory database

GC has created a greenhouse gas (GHG) inventory and reports its GHG emissions and reductions both for the organization and its products through a carbon management platform in order to track and compare the emissions of each business unit against the benchmark. The Company also monitors the performance and establishes measures, as detailed below.

- Elevate GC's GHG inventory database to encompass all scopes of emissions, namely Scope 1 Direct GHG emissions, Scope 2 Energy indirect GHG emission, and Scope 3 Other indirect GHG emission across all sites.
- Integrate the GHG inventory database across the product life cycles, encompassing material acquisition, production and distribution process across the value chain.

— Product Stewardship

GC focuses on creating low-carbon products through a product life cycle strategy and conducts life-cycle assessments (LCA). As such, its products across all categories have been certified with various environmental labels, such as the Carbon Footprint of Products (CFP), Carbon Footprint Reduction (CFR), and the Carbon Footprint of

Circular Economy Product (CE-CFP) labels by the Thailand Greenhouse Gas Management Organization (Public Organization) (TGO) as well as the Water Footprint (WF) label by the Water and Environment Institute for Sustainability, the Federation of Thai Industries in order to enhance the competitiveness of the Thai industrial sector in the global market and prepare for ASEAN and international trade measures in the long term.

Thanks to its initiatives to expand and integrate its sustainable environmental management across its networks across all sectors, GC has earned the top score for environmental management in the Dow Jones Sustainability Indices (DJSI) in the chemical business Sector for a fifth consecutive year. GC has also been placed on the A-list, which is the highest tier, in climate change and water security assessments based on the Carbon Disclosure Project's (CDP) assessment framework in pursuit of its 2050 Net Zero goal.

IT Governance and Cybersecurity

GC has adopted COBIT 5 (IT Framework); ISO standards, namely ISO 27001, ISO 27701, and ISO 22301; and TQA (Thailand Quality Award) in its information technology (IT) and cybersecurity management through its Integrated Management System (GCMS) and has been utilizing GC Way of Conduct in establishing GC Group's IT standards. GC also places emphasis on the different aspects of management, namely the quality and availability of data and information, the standard control and specifications of hardware and software, IT and cybersecurity, and availability in case of emergency. The implementation consists of two components as follows:

Management Levels: The management is divided into three levels:

1. Governance Level

- The Audit Committee is responsible for overseeing and auditing IT and cybersecurity to ensure the suitability and adequacy of the operation.
- GC Group's Digital and IT Steering Committee (DISC) is responsible for defining the group's digital and IT direction, policies, and goals to ensure uniformity and the level of standard comparable to that of leading international companies in the same industry, with the Chief Executive Officer and President serving as the chairman of DISC.



Net Zero

For More Information:

<https://sustainability.pttgcgroup.com/storage/document/net-zero/20211119-pttgc-gc-s-decarbonization-pathways.pdf>

- The Digital & IT Investment Management Committee (DIM) is responsible for reviewing the objectives of investment projects, technology selection, and returns on investment.
- The Enterprise Risk Management Committee (ERM) is responsible for overseeing the identification and management of risks to keep them within the organization's risk appetite.
- The Information Security Management System Committee (ISMS Committee) is responsible for ensuring that GC's information security, cybersecurity, and cloud security are consistent with the international standards and keeping risks within the risk appetite.

2. Management Level

- The Enterprise Architecture Committee (EA Committee) is responsible for the management of the Company's IT structure to ensure its alignment with usage requirements and currency as well as maximum utilization.
- The Management Level undertakes its oversight duties through data and information management policies, such as policies on Information Security (IS), Cybersecurity, Cloud Security, Service Level Agreement (SLA), Secure System Development Life Cycle (SSDLC), and Data Protection.

3. Operation Level

- Establishing systems, procedures, and services for users; publishing and storing them on the internet as reference for users; and sending out IT updates via email every two weeks, except emergencies, for which users will be given an immediate notification.
- Assessing IT resource risk every year to ensure the resources are sufficient to protect the accuracy, integrity, reliability, and currency of data and information.
- Monitoring performance both internally and externally to validate the work processes; using the results to further improve the Company's IT management and services and keep IT security up to date; and reporting progress to Executives and responsible Sub-committees regularly.

Management Processes: The management processes are divided into three categories.

1. Information Security and Cybersecurity Governance

To establish clear operational directions and ensure transparent management from policy to operation levels, GC governs and manages its information security and personal data management system in compliance with the ISO/IEC 27001:2022 and ISO/IEC 27701:2019 standards and the cybersecurity framework developed by the US National Institute of Standards and Technology (NIST).

GC's information security and cybersecurity governance comprises policies, reference standards, procedure handbooks, and software, which cover five areas of operation, namely identification, protection, detection, response, and recovery.

In addition, GC has appointed Senior Vice President – Transformation Excellence to serve as Chief Information Security Officer (CISO) of the Company, with the following roles:

1. To serve as Chairperson of the Information Security Management System Committee (ISMSC).
2. To establish information security goals and policies in line with GC's strategic plans.
3. To develop information security policies, standards, processes, and guidelines to maintain the confidentiality, integrity, and availability of GC's information.
4. To coordinate, control, and report cybersecurity incidents to GC's top executives and the National Cyber Security Agency (NCSA).

2. Information Security and Cybersecurity Control

GC has established information security, cybersecurity, and personal data management policies and measures in line with the international ISO/IEC 27001 and ISO/IEC 27701 standards to bolster the security and stability of its information security and cybersecurity management system as well as prevent misuse in violation of the Computer-related Crime Act and the Personal Data Protection Act. In 2023, GC updated its certification for information security management systems from ISO/IEC 27001:2013 to ISO/IEC 27001:2022 and maintained its certification for its personal data protection management system in compliance with the ISO/IEC 27701:2019 standard, with the scope as described below:

1. Infrastructure as a Service - On-Premise.
2. Infrastructure as a Service - Cloud.
3. Cyber Zone / Internet Zone Network.
4. Applications Supporting Recruitment Process, such as SAP HCM and Success Factor.
5. External Recruitment Process.

GC has also ensured its preparedness by conducting drills of cyber threat management plans and assessing cyber-attack risks. Additionally, GC fosters knowledge of safe IT usage and awareness of cyber threats, cyber thefts, and data privacy through infographics and e-learning materials. The aim is to empower employees, contractors, suppliers (both feedstock and non-feedstock suppliers), customers, and entities or individuals operating on behalf of GC throughout the supply chain to apply this knowledge to their work and daily lives. In addition, to monitor risks and create warning signals, GC has established key risk indicators (KRI) encompassing three dimensions: personnel, business, and technology.

3. Information Security and Cybersecurity Auditing and Monitoring

GC engages third parties to conduct reviews and audits of its information security and personal data management systems and guidelines in line with ISO/IEC 27001:2022 and ISO/IEC 27701:2019 on an annual basis. In the past year, the assessment revealed that GC's information and cyber processes and infrastructure were up to standard and that no non-compliance was detected.

GC's key IT and cybersecurity management activities in 2023 can be summarized as follows:

- **Data and Information Availability:** GC has established data and information usage plans in line with its corporate strategic plans and surveyed the needs of all business groups to formulate IT strategic plans. In addition, a Data Recovery site (DR Site) has been set up for 24-hour backup of important information, which can be readily retrieved. GC has also formulated disaster recovery plans for the main data system in accordance with business continuity management standards (ISO 22301), along with recovery procedures for handling an emergency that impacts the main data system. Additionally, IT disaster recovery drills are conducted every year.

- **Standard Control and Specifications of Hardware and Software:** GC has introduced policies to control hardware and software standards, which require, for instance, the replacement of IT equipment every three years and the installation of a server monitoring system that notifies administrators via SMS and e-Mail upon detecting irregularities for prompt troubleshooting.

- **Data Security and Cybersecurity System Optimization:** Due to greater use of digital technology both in production systems and operation networks with internet connectivity and the new mode of work among employees known as working from anywhere, there have been greater risks of cyber threats, such as theft of key data and possible unplanned shutdowns of vital system, which could affect GC's business continuity, credibility, as well as corporate image and reputation.

In 2023, as a result of these initiatives, GC was able to efficiently safeguard its data and that of its business partners, as reflected through the indicators: (1) zero IT security breach and (2) zero employee and customer affected by IT security breaches.

Insider Information

An Insider Information Policy has been established and included in the Corporate Governance and Business Code of Conduct Handbook. It has also been published on the Company's website for shareholders' ready access. Directors, Executives, and employees are constantly reminded to comply with the policy, under which they are prohibited from using material insider information not yet publicly disclosed for personal gain or the benefit of others, for trading GC's securities, or in a manner that either directly or indirectly harms the interests of GC. The details of the policy appear under "Policy and Practices Related to Shareholders and Stakeholders."

In 2023, GC oversaw and monitored the compliance of its use of insider information with relevant laws as well as its policies and practices. In addition, all Executives and employees were informed of the matter via e-Mail and required to learn about insider information policies and practices as well as signed a statement acknowledging their obligations via GC's Hook Acknowledgement & Learning System.

Furthermore, the Board of Directors has been informed of the GC's insider information policies and practices through e-Mails sent by the Company Secretary. In 2023, no Directors, Executives, or relevant employees violated such policies and practices. In addition, it was not found that any Directors or Executives traded securities during GC's blackout period. Changes in the shareholding of the Board of Directors, Executives, their spouses, and their minors appear under "Board of Directors" and "Executives."

Prevention of Conflicts of Interest

GC prioritizes the interests of the Company and its stakeholders in its business operation as an important policy and has thus established best practices to demonstrate its commitment to transparency and accountability. Under these practices, it is the duty of GC's Directors, Executives, and employees at all levels, including related persons and people with business relations, to avoid involving in a conflict of interest or acting in such a manner that may bring about a conflict of interest. In case such avoidance is impossible, responsible units must supervise the transaction to ensure its transparency for the best interests of the Company.

GC has established standards and guidelines for delivery of duties and engagement in activities that may involve stake or conflicts of interest, as follows:

1. Refrain from any action that will cause one to have stake or conflicts of interest with the Company, such as by contacting with trade partners of the Company, exploiting an opportunity or information received in one's capacity as an employee for personal benefits, operating a business which competes with the Company, and engaging in external work in a manner that affects the work in their purview.
2. In case the Company's employee or its related person must enter a transaction with the Company for the benefit of the Company, the undertaking of such transaction must be on an arm's-length basis with normal commercial terms.
3. The consideration and disclosure of any stakes, connected transactions, or conflicts of interest must be carried out strictly and carefully in accordance with applicable laws and regulations of the Security

and Exchange Commission and the Stock Exchange of Thailand, whereby the Director, Executive and/or employee having conflicts of interests must be excluded from the review of the transaction. If it is necessary for such person to provide information and details to supplement the review, such person shall not vote nor give any opinion in the consideration for the approval of such transaction for the sake of the independence of the review.

4. A business transaction must be carried out with honesty, integrity, reasonability, and independence within the scope of corporate governance and in the best interest of the Company.
5. In the event of an undertaking or circumstance that may cause or deem to give rise to conflicts of interest with the Company, the aforesaid transaction must be reported using the form specified by the Company and filed to the supervisor through the chain of command and to Corporate Governance Department of PTT Global Chemical Public Company Limited or must be reported through the electronic system designated by Corporate Governance Department without delay in order to initiate a review process to determine whether conflicts of interest against the Company are involved and what further process should involve.

In addition, GC places importance on reporting, regardless of the possibility of the incidents leaning towards involving conflicts of interest, and has required the submission of annual reports as well as reports of any conflicts of interest arising during the year.

GC's activities for the prevention of conflicts of interests in 2023 are summarized below:

- GC conducted follow-ups and successfully achieved 100% submission of annual conflict of interest disclosure reports by GC Groups' Executives and employees through its intranet system.
- GC conducted follow-ups and successfully achieved 100% submission of annual conflict of interest disclosure reports by its directors using its conflict of interest reporting form.
- Ensuring that the Directors and Executives under the definitions as prescribed in the Notification of the Capital Market Supervisory Board declare the

record of Conflict of Interest upon taking office for the first time. Such record of Conflict of Interest is also to be reviewed annually or whenever there is any amendment upon the record during the year.

- GC conducted follow-ups and successfully had 100% of its Executives and employees learn about policies and practices on the prevention of conflicts of interest and sign a statement acknowledging their obligations on its Hook Acknowledgement & Learning System.
- The Internal Audit Function conducted audits on GC's procedures and communications as well as random audits on transactions that may involving conflicts of interest on a quarterly basis and found that they were in compliance with relevant practices.
- GC reviewed and improved the Related Party Transaction Manual to ensure completeness and compliance with the Company's current guidelines.
- GC organized training sessions on related-party transactions and the acquisition and disposition of assets for GC Group's business coordinators in order to communicate the criteria, steps, and procedures for carrying out a related-party transaction between GC or a company in GC Group (in which GC holds over 50% of shareholding) and a person with relations to GC according to GC's Related Party Transaction Manual.
- GC created an RPT Monitoring Dashboard for overseeing, monitoring, and reviewing internal transactions considered related-party transactions as well as for compiling a list of coordinators in different units within GC with related-party transaction risks in order to put in place appropriate internal control procedures and measures. The list of GC's related parties must be taken into consideration before transactions are carried out in order to ensure correct and full compliance with GC's criteria and Related Party Transaction Manual.

Anti-corruption

GC Group places great importance on anti-corruption efforts and strives to comply with laws against fraud and corruption as well as bribery of both Thai and foreign public officials or officers of private organizations. The Company also seeks to cultivate anti-corruption consciousness in its employees at all levels to combat corruption of all forms.

To this end, GC has established an Anti-corruption Policy and included it as part of GC Group's Corporate Governance Policy to ensure that GC Group's operations comply with the policy and establish an operational standard for Directors, Executives, employees, and other persons acting in the interest of GC. Any non-compliance with the policy of GC Group will result in disciplinary action and penalties as stipulated by relevant laws.

Principles

All Directors, Executives, employees, contractors, and any other persons acting in the interests of GC Group have the duties to comply with applicable anti-corruption laws, rules, and regulations as well as GC's Corporate Governance and Business Code of Conduct Handbook, policies, rules, practices, and guidelines; perform their duties with transparency; and refrain from any act which can demonstrate intent to commit fraud or corruption. They are also prohibited from requesting, committing, or condoning corruption for their personal benefits or the benefits of related persons, including friends and acquaintances. They must also be ready for an audit by an auditor or a relevant competent authority at all times. GC's subsidiaries may consider adopting such policies and measures to their own operation as deemed appropriate.

GC's Anti-corruption Measures

1. GC has appointed an Anti-corruption Committee, responsible for ensuring that GC's anti-corruption measures are implemented efficiently in accordance with the Company's commitment as a member of the Thai Private Sector Collective Action Against Corruption (CAC).
2. GC reviews, examines, and improves its anti-corruption measures and reports to the Corporate Governance and Sustainability Committee annually in order to measure their effectiveness as well as improve their alignment with the ever-changing corruption risks.
3. GC has prescribed corruption risk assessments and set up preventive measures against risks in operational control, environmental control, and financial control, as well as measures for document storage.

4. GC has established guidelines for auditing internal control relevant to the recording of financial transactions, the preparation of books of account, and the safeguarding of information. Any material issues detected are reported to the Board of Directors.
5. As a policy, GC is politically neutral and does not provide financial support, resources, or other assets either directly or indirectly to politicians or political parties or other political groups for the benefit of such politicians or political parties or groups.
6. As a policy, GC does not make any facilitation payment to ease its business activity either directly or indirectly and does not engage in or accept any act in exchange for business facilitation.
7. GC has established suitable and clear criteria for the hiring of government officers in order to prevent such hiring to be in exchange for undue benefits and has established measures to disclose information related to such hiring to the general public for transparency.
8. GC has established human resource management policies and procedures regarding nomination and selection, performance evaluation, remuneration, and promotion that reflect its anti-corruption commitment.
9. GC shall not demote, discipline, or cause any adverse effect on personnel who refuse to be involved in fraud or corruption, even though such refusal may cause GC Group to lose business opportunities. This policy is clearly communicated to all personnel.
10. GC consistently organizes training on anti-corruption actions and awareness for its personnel.
11. GC communicates its anti-corruption policies and practices to its subsidiaries, affiliates, other companies in which GC has controlling power, customers, suppliers, business partners, and stakeholders, as well as to the general public through various communication channels in order to keep them informed and enable them to adopt the anti-corruption measures.
12. GC adopts GC Group's No Gift policy to align with the Anti-Corruption Policy on the receiving/giving of gifts, organizing of banquets, or any other forms of benefits. This serves as guidelines to ensure that GC employees can conduct themselves appropriately.
13. The implementation of Anti-corruption Policy is in accordance with the guidelines specified in the Corporate Governance and Business Code of Conduct Handbook, as well as other regulations, policies, rules, and guidelines defined by the Company.
14. GC reviews its Anti-corruption Policy every three years to coincide with the re-certification of the Thai Private Sector Collective Action Against Corruption (CAC) or at an appropriate interval in accordance with the amendments of applicable laws, regulations, and rules. Any revision is proposed to the Board of Directors for consideration and approval.

Disciplinary Actions

1. GC has put in place disciplinary actions for Directors, Executives, or employees who do not comply with its Anti-corruption Policy. These include the discharge of Directors from office and other disciplinary actions in accordance with the rules on disciplinary actions for Executives and employees; and legal actions in accordance to the applicable laws, rules, regulations, and corporate governance practices related to such act.
2. In the event that a person related to GC Group, or any customer, supplier, or business partner does not comply with the anti-corruption measures, GC Group may consider terminating any transaction with such person.

GC declared its intention to join the Thai Private Sector Collective Action Against Corruption (CAC) on July 18, 2012 and was first certified as a member on July 4, 2014. It was recertified for the third time on June 30, 2023.

In 2023, GC carried out activities that demonstrated its commitment to anti-corruption efforts. A summary is provided below:

- GC revised the Anti-corruption Committee (ACC) appointment order and expanded ACC's roles and responsibilities to include fraud risk-related activities and the annual provision of recommendations on activities or transactions with corruption risks (transaction monitoring) in addition to the existing responsibilities, which included reviewing GC's anti-corruption measures and corruption risk assessments currently deployed in the operational

processes, updating the self-assessment forms, reference documents, and corruption risk assessment table, and preparing working papers.

- GC developed and deployed the Automated CAC Checklist to improve the work process and optimize the development of a database of GC's implementation of anti-corruption measures as well as monitor, process, analyze, and verify data and provide recommendations on the CAC Checklist through an online system.
- GC prescribed the quarterly auditing of items or transactions with the government sector with potential corruption risks (transaction monitoring), conducted by the corporate governance management unit as the second line. In 2023, no transaction involving corruption risks was detected.
- GC supported its subsidiaries in applying as a member of CAC by providing assistance and recommendations in their declaration of intention in becoming CAC members, organizing training on execution of an anti-corruption self-assessment procedures, and offering recommendations on CAC recertification.
- GC consistently provided training, knowledge, and communications.

Internal Activities

- GC organized a training program entitled "Anti-corruption for Executive Program: Fraud Risk Management in Practice for DM" for division managers within GC Group to enhance their understanding of their role in anti-corruption efforts in the organization and enable them to assess corruption risks and establish appropriate control measures for their units in the control self-assessment (CSA) system of their company. The training was led by Mr. Thodsaporn Rattanastip, Executive Vice President - Fraud Management, Risk Management Section, Bank of Ayudhaya Plc.
- GC organized a Fraud Risk Assessment Workshop for GC's corporate sustainability function to foster their understanding of corruption risk assessments and suitable internal control. The workshop was also added to the CSA Connect System through the collaboration between the corporate governance management unit and the internal control unit.

- GC held a mandatory program entitled "Hook Acknowledgment and Learning" through its e-Learning system for employees at all levels across GC Group for them to learn about good corporate governance and compliance with laws, rules, regulations, and GC's business code of conduct.
- GC communicated GC's Corporate Governance and Business Code of Conduct through Hook Talk video clips on a monthly basis at the Town Halls and before various internal meetings, using the tone at the top. Topics included conflicts of interest, related-party transactions, respect for human rights, political rights, complaint handling and whistleblower protection measures, anti-corruption, anti-money laundering, and GRC principles.

Activities for External Stakeholders

- GC joined the CAC Change Agent Program to expand its network of business transparency to its suppliers. A total of 11 suppliers declared their intention to join the program in 2023, thus earning a CAC Change Agent Award for a second consecutive year. GC also encouraged its suppliers to become CAC members and communicated its Anti-corruption Policy to them through annual supplier conferences, for which the assessment score for corporate governance and compliance communication was 91%.
- GC informed all business partners of GC Group's No-Gift Policy, under which GC would not request/receive any gift, reward, entertainment, or other forms of benefits from its business partners to avoid acts that might lead to discrimination or a conflict of interest and to jointly uphold operational transparency and efficiency.
- GC published on GC's website and put up signs across its headquarters in clearly accessible spots to communicate the No-Gift Policy to all visitors and the general public.
- GC provided channels for external parties to submit inquiries and recommendations regarding corporate governance and business code of conduct via e-Mail to the Corporate Governance Department at cg@pttgcgroup.com.

- GC Group's Executives and employees participated in the following activities with external agencies:
 - GC participated in the 2023 Anti-corruption Day, held under the concept "WHAT THE FACT?: Search ACTAi for Answers" by the Anti-Corruption Organization of Thailand (ACT) on September 6, 2023, at Krung Thep Aphiwat Central Terminal to empower GC Group's Executives and employees in spearheading anti-corruption endeavors.
 - GC participated in the 2023 International Anti-corruption Day (Thailand) entitled "Zero Tolerance Towards Corruption," held by the Office of the National Anti-Corruption Commission (NACC) virtually on December 8, 2023, to demonstrate the commitment of GC Group's Executives and employees to transparent and corruption-free business practices.
- GC put in place whistleblowing channels for the reporting of policy violations or corruption, along with whistleblower protection measures. (Further details appear under "Whistleblowing.")
- GC prepared the 2023 anti-corruption performance report to track the implementation of its anticorruption measures and plans for the year 2024, which was submitted to the Corporate Governance and Sustainability Committee, the Audit Committee, and the Board of Directors for acknowledgment.

In 2023, GC participated in the Thai Chamber of Commerce Business Ethics Standard Test Awards 2023 (21st TCC BEST Awards), organized by the Thai Chamber of Commerce Anti-Corruption and Ethics Promotion Committee to encourage business operators to apply corporate governance principles to organizational management to ensure the prosperity and sustainability of the business. GC was honored with a plaque of honor from the Thai Chamber of Commerce on December 6, 2023. Additionally, it received an Anti-Corruption Award 2023 from the Anti-Corruption Foundation. The prestigious accolade was presented to organizations with outstanding and evident anti-corruption achievements that adhered firmly to corporate governance principles and integrity, demonstrated honesty and transparency, served as a role example, and made positive contribution to society.

Whistleblowing

GC recognizes the important roles of all stakeholders in its Corporate Governance. Whenever they witness any violation of the Business Code of Conduct, any form of fraud and corruption, or any other case, all stakeholders may submit a report, notification, or complaint directly to either the Chairman of the Corporate Governance and Sustainability Committee, the Head of Internal Audit, or the Company Secretary, or via the GC-provided complaint channels, or any other channels that they trust.

Chairman of the Corporate Governance and Sustainability Committee, Head of Internal Audit, Company Secretary

: PTT Global Chemical Public Company Limited
555/1 Energy Complex, Building A, 18th Floor
Vibhavadi Rangsit Road, Chatuchak
Bangkok 10900

e-Mail : whistleblower@pttgcgroup.com

Website : www.pttgcgroup.com

Whistleblowing Policy Procedure

GC has formulated and announced the following Whistleblower Policy:

- (1) Complaint Screening: The responsible department screens the essential information under the established policy. The complaints may be anonymously filed as long as they provide clear reasons and sufficient evidence. If the whistleblower has provided his or her name or contact information, he or she will be notified by the Company.
- (2) Investigation: For valid complaints, the Chief Executive Officer and President will appoint an investigation committee under GC work regulations to conduct an investigation and fact-finding as well as to determine disciplinary action according to GC's work regulations so as to ensure fairness to all parties.
- (3) Reporting: Once the complaint has been dealt with, the whistleblower will be notified of the outcome if the contact information is provided. The outcome will also be reported to the Corporate Governance and Sustainability Committee and the Audit Committee.

Whistleblower and Witness Protection

Whistleblowers or witnesses who collaborate in the investigation will be provided with the following protection under the Whistleblower Policy:

- (1) Whistleblowers or informants may choose to file a complaint anonymously of their own volition as a whistleblower protection measure.
- (2) A whistleblower, a stakeholder, or any person who cooperates in good faith in the investigation will be protected from retaliation (non-retaliation).
- (3) Information of the whistleblower or of any persons involved will be kept strictly confidential according to GC's regulations on information classification and security of confidential documents.
- (4) The Company will formulate suitable mitigation measures for the whistleblower or the affected party.

Complaint Statistics

In 2023, the Company received a total of 32 complaints*, divided into seven categories as follows:

Category	Number of complaints	on Corrective Action
Business Code of Conduct	1	— 1 case of no violation
Non-compliance	3	— 2 cases of no violation — Verbal warning for 1 case
Fraud or Corruption	3	— 1 case of no violation — 1 case of disciplinary action — Disciplinary committee appointed for 1 case
Use of Insider Information	None	
Conflicts of Interest	None	
Voice of Customer	22	— 16 cases resolved
Voice from Community	1	— 1 case resolved
Employee	2	— 1 case of disciplinary action — Disciplinary committee appointed for 1 case
Safety, Occupational Health, and Environment	None	

Remark: * Data as of December 31, 2023

Audit Committee Report

The Audit Committee has held the meetings, the details of which are as set out in "Meeting Attendance and Remuneration of Individual Directors."

In this regard, details of the performance of the Audit Committee in 2023 are as set out in "Audit Committee Report."

Summary of Other Sub-committees' Performance

The other Sub-committees of the Company consist of the Corporate Governance and Sustainability Committee, the Nomination and Remuneration Committee, and the Risk Management Committee. Details on the number of meetings of these Sub-committees and the meeting attendance of each individual member appear under "Meeting Attendance and Remuneration of Individual Directors."

Details on the performance of duties of these Subcommittees for the year 2023 appear under "Report of the Corporate Governance and Sustainability Committee", "Report of the Nomination and Remuneration Committee" and "Report of the Risk Management Committee."

Report of the Audit Committee

PTT Global Chemical Public Company Limited (GC) has appointed the Audit Committee, whom, together with the Internal Audit Function operating in accordance with the Internal Audit Charter, provides support to the activities of Audit Committee as well as promotes GC's good corporate governance, effective risk management and internal control, compliance with business-related laws and regulations, as well as the disclosure of information and the issuance of the Form 56-1 One Report, to further enhance the trust and confidence of the stakeholders.

The Audit Committee consists of three independent directors with in-depth expertise and wide range experience in accounting, finance, law, etc. The Audit Committee independently and objectively executes its duties as prescribed by the Audit Committee Charter and as entrusted by the Board of Directors, in alignment with the announcements of the Stock Exchange of Thailand, the best practice guidelines for the Audit Committee, and the Corporate Governance Code for Listed Companies.

The Audit Committee supports to enhance the quality of internal audit to ensure the reliability of internal control system for GC and its subsidiaries as well as to empower the Internal Audit Function to support the operations of the Company in pursuit of the business objectives and to create value for the organization through the activities, considering the maximum benefits of stakeholders. A summary of the key activities of the Audit Committee in 2023 is provided below.

- Granting approval to the internal audit approach and principles through Assurance and Advisory services in the areas of good corporate governance, risk management, and internal control in order to support the achievement of domestic and international business objectives of GC and its subsidiaries. Supporting the Internal Audit Function in developing internal audit approaches that uplift the quality of the internal audit and add value to the organization, such as a strategy-based auditing approach, as part of the key drivers in supporting the business to achieve GC's sustainable growth in alignment with its strategic direction.
- Encouraging the adoption of Data Analytics techniques within the Internal Audit Function to improve the efficiency and comprehensiveness of operational audits by presenting data analysis through Analytics Dashboards and Visualized Reports, which can lead to beneficial recommendations to the business operation, while the Analytics Dashboards can also be utilized to consistently monitor the internal control of key business processes of GC and its subsidiaries. Supporting the Internal Audit Function in expanding the utilization of Advanced Analytics, such as Process Mining and Machine Learning, in key business processes to analyze anomalies that meet pre-defined criteria of the Detection Rules, with the ultimate goal of developing an automated audit system capable of promptly detecting and providing recommendations for internal control improvements in a timely manner.
- Promoting the continuous development of essential knowledge and skills for the new age internal audit practices among the personnel in the Internal Audit Function and establishing a Competency Development Framework enabling the Internal Auditors to be expertise in specific areas, such as Business Acumen and Digital & Data acumen, and the development of other auditing skills for internal audit professional practices.
- Highlighting the significance of governance and internal control across both domestic and international companies within GC Group, such as by assigning GC's internal auditors to conduct audit activities on key internal control processes in collaboration with GC Group's internal auditors from domestic and international companies and reporting to the Audit Committee regularly; encouraging the Internal Audit Function to develop Internal Control Questionnaires (ICQ) for companies in GC Group to assess the adequacy of internal control to further augment the trust and confidence in their internal control as well as to review anomalies and prevent potential frauds that may occur; and providing recommendations for improving and developing the internal control system to enhance effective implementation and comprehensive coverage of risks across companies

in GC Group. Providing assurance that the corporate sustainability governance coverages of all business facets in Environmental, Social, and Governance dimensions; fostering confidence in GC's Sustainability Report; as well as emphasizing on the monitoring and ensuring preparedness at both strategic and operational levels in accordance with New Sustainability Standards and New Regulations, such as The EU's Carbon Border Adjustment Mechanism (CBAM), The International Sustainability Standards Board's International Financial Reporting Standards (ISSB: IFRS S1 & S2), etc.

In 2023, the Audit Committee convened a total of ten meetings. A summary of its key activities is given below.

1. Review of financial reports

The Audit Committee oversaw the preparation of the Management financial reports in a timely manner and conducted reviews of significant financial information, including quarterly and annual financial statements, items with potential conflicts of interest in and among various business groups, material issues, and special items. Additionally, the Audit Committee communicated with and considered clarifications from the Auditor and the Management on a regular basis to assure that the financial report was accurate, transparent, complete, and reliable, and that the information disclosed in the notes to the financial statements was sufficient and compliant with financial reporting standards and related laws. The Audit Committee thus approved the financial report that had been reviewed, audited, and given unqualified opinions by the Auditor. Upon detecting any anomalies or any suspicious circumstances in the financial statements that may significantly affect the rights of shareholders, the Audit Committee will promptly conduct an investigation along with strengthening internal control system as well as periodically report progress to the Securities and Exchange Commission until the completion of the process.

In addition, the Audit Committee reviewed and approved the Non-Assurance Services (NAS) provided by the Auditor to assure that the scope of services would not impact the auditor's independence. The Audit Committee also had an exclusive meeting with the Auditor without the presence of the Management to independently deliberate the reception and provision of information from the Management, review of significant information for the preparation of the financial report, Key Audit Matters, follow-up on on-time implementation of the new financial reporting standards and also related Sustainability Standards, as well as independence in carrying out their duties and responsibilities.

2. Review of risk management

The Audit Committee acknowledged information on the corporate risk management from the report presented to the Board of Directors meeting and reviewed the risk management from the report by the Internal Audit Function, so as to ensure that GC and its subsidiaries had efficiently identified significant risks issues that might impact the company's operations and had put in place effective risk management, assigned corresponding responsible parties, with appropriate and sufficient risk management measures that comprehensively covered all short- and long-term risks.

3. Review of internal control

The Audit Committee conducted a review of the internal control systems of the Company both domestic and international from the internal audit reports, and the progress report by the Management on the Audit Committee's recommendations and a review of accounting and financial internal controls by the Auditor without any no significant issues or discrepancies that could have an impact on the financial statement. The Audit Committee also reviewed the adequacy and effectiveness of the internal control according to the Securities and Exchange Commission internal control assessment conducted by the Management. The results revealed no significant issues or discrepancies that could have an impact on the Company's main objectives. This provides reasonable assurance that the Company has adequate, effective, and appropriate internal control system that can support to the business operations to the achievement of the envisioned goals and objectives of the Company and its subsidiaries.

4. Review of corporate governance

The Audit Committee reviewed corporate governance practices of GC and its subsidiaries through summary report of complaints and inappropriate behavior report from whistleblower and other channels. In addition, GC and its subsidiaries shall have proper policies and procedures in place for dealing with complaints and protecting whistleblowers appropriately. The Audit Committee also reviewed the progress report on anti-fraud and anti-corruption measures, which oversaw the comprehensive disclosure of information in accordance with the regulations of the Stock Exchange of Thailand, this ensures that the Company's business operations are complied with good corporate governance principles, creating sustainably value for the Company. Furthermore, the Audit Committee also promoted the participation of the company's subsidiaries to join the Thai Private Sector Collective Action Against Corruption (CAC) and reviewed the Self-evaluation Form related to anti-corruption measures, as well as recommended that the Company undertake additional anti-corruption activities and serve as a role model in term of good corporate governance for listed companies in order to build trust among stakeholders.

5. Supervision of internal audit

The Audit Committee oversaw GC's internal audit function to ensure that it is independence, objective, and adding value for GC and its subsidiaries through its activities, as well as encouraged the adoption of technology to uplift the quality of internal audits and continuously updating on any change in New Global Internal Audit Standards. In addition, the Audit Committee conducted a quality assessment of internal auditing in accordance with International Professional Practices Framework and the Internal Audit Maturity assessment on a regular basis by a qualified external assessor whom has no conflicts of interest to ensure the results of Quality Assessment Review (QAR). The Audit Committee also approved the Internal Audit strategies, Goals and Annual Audit Plan based on a Risk-Based Approach together with support the development of internal audit's capabilities, working experiences, and business insights, besides consider sufficient and appropriate capital resources of the Internal Audit Function. Furthermore, the Audit Committee reviewed and acknowledged internal audit findings from internal audit reports, provided insights, recommendations, and monitored the resolution of significant findings on a regular basis.

6. Review of compliance with applicable laws

The Audit Committee reviewed the business operations of the Company to assure compliance with Securities and Exchange Act, Stock Exchange Commission (SEC) regulations, and industry-related laws, the environmental, and personal data protection laws, and other domestic or international laws related to the operations of Company and its subsidiaries through the reports of the Internal Audit Function. The Committee also directed the monitoring of new domestic and international laws that might become applicable and impact to the Company and its subsidiaries both domestic and international businesses in the future so as to comply the GC's operations with new international laws and standards.

7. Review of the appointment of the Auditors

The Audit Committee considered appropriateness of selection criteria for auditor and scrutinized qualified auditors based on their qualifications, capabilities, auditing experience, auditing methodology, performance, and independence according to the code of Ethics for Professional Accountants set by the Federation of Accounting Professions, in compliance with the regulations of the Securities and Exchange Commission, including appropriate remuneration fees. The Audit Committee then proposed the appointment of the Auditor to the Board of Directors with the proposed remuneration fees for their consideration and approval, to be submitted to approval in the Annual General Meeting of Shareholders.

In 2023, the Shareholders approved the appointment of KPMG Phoomchai Audit Company limited (KPMG) as the Auditor of the Company for the year 2023.

8. Consideration related-party transactions and transactions that may constitute conflicts of interest for adherence to laws and regulations of the Stock Exchange of Thailand

The Audit Committee reviewed and provided an opinion on the related-party transactions or transactions that are or may have significant conflicts of interest, by considered on the reasonableness of the transactions, details, and the identification of the contract counterparty and relevant risks such as Legal Risks, Financial Risks that materially impact on the Company's financial position, Operational Risks; particularly International Business Transaction Risks, and New Business Expansion Risks. The Audit Committee also encouraged the Company to set up systems or processes for collecting related-party transactions or transactions that might constitute conflicts of interest in order to monitor anomalies or the transactions have been intentionally to avoid the regulations, as well as to monitoring transaction progress and ensured that information was disclosed completely, accurately and appropriately in accordance with the regulations of the Stock Exchange of Thailand to shareholders on a regular basis. In cases of suspected misconduct transaction or Stock-Price Manipulation, the Audit Committee will take promptly action to prevent and suspend such transactions and report to The Securities and Exchange Commission, Thailand without delay.

In 2023, no significant related-party transactions or transactions deviating from contractual obligations that required information disclosure in accordance with the regulations of the Stock Exchange of Thailand. A review of the audit report by the Internal Audit Function regarding related-party transaction review revealed no significant issues that could impact the achievement of the Company's major objectives. Additionally, the Audit Committee did not receive any report of discrepancies through the review of the disclosure of related-party transactions by the Auditor.

9. Others

The Audit Committee scrutinized financial reports on the Company's fundraising and investment activities, such as asset valuation and the issuance of debentures, etc. The Committee also oversaw and monitored the capital management plan from fundraising process to assure that the financial plan is aligned with the objectives, and appropriately disclosed information to shareholders.

The Audit Committee has continually reviewed accounting and financial knowledge and the Audit Committee Charter on an annual basis to ensure alignment with the principles, best practices and guidelines as prescribed by the Securities and Exchange Commission and has reported the Audit Committee's performance to the Board of Directors at regular intervals. Furthermore, the Audit Committee conducted both whole group and individual assessments of performance and reported the results to the Board of Directors to further uplifting and improving the performance of the Audit Committee.

The Audit Committee duly performed duties as prescribed by the Audit Committee Charter and as delegated from the Board of Directors in its entirety on the basis of objectivity, independence with consideration to the stakeholders on an equal basis.

The Audit Committee has thus concluded that the financial report prepared by the Company is accurate and reliable, with sufficient disclosure of information in accordance with generally accepted accounting and financial reporting standards, complying to related laws, rules, and regulations relevant to business operations; that the Company upholds good corporate governance, adequate and appropriate risk and internal control management, internal audit activities. The Audit Committee also continue monitoring new regulations, new international standards, and emerging risks relevant to business operations and strategic goal for preparedness in handling potential short- and long-term impacts.

The Audit Committee wishes to express gratefulness to the Board of Directors, Executive Officers, the Auditor, and all related entities for the strong collaborative support throughout 2023.

On Behalf of the Audit Committee

(Signed) Thanwa Laohasiriwong

(Mr. Thanwa Laohasiriwong)

Chairman of the Audit Committee

Report of the Corporate Governance and Sustainability Committee

Dear Shareholders,

The Corporate Governance and Sustainability Committee places great emphasis on ensuring GC's compliance with corporate governance and sustainable development guidelines and has continuously strived to achieve an Environmental, Social, and Governance (ESG) balance in line with international standards. The Corporate Governance and Sustainability Committee comprises its Chairman, Professor Somkit Lertpaithoon, and its members, namely Mr. Patchara Anuntasilpa, and Mr. Chadil Chavanalikhorn, Mr. Surachai Achalaboon, and Police Colonel Dusadee Aryawut.

In 2023, the Committee performed its duties as stipulated in the Corporate Governance and Sustainability Committee Charter and executed tasks as assigned by the Board of Directors. The Committee held a total of nine meetings and convened two additional meetings with the Risk Management Committee. A summary of its activities is provided below.

1. Corporate Governance

1.1 Ensuring Compliance with Requirements, Laws, Rules, Regulations, and Best Practices

- Overseeing and monitoring GC Group's corporate governance to ensure compliance with international standards and criteria set forth by domestic regulatory agencies.
 - Overseeing the organization of the 2023 Annual General Meeting of Shareholders via an electronic means (e-AGM) to ensure compliance with applicable AGM-related laws, corporate governance principles, and best practices. To this end, GC received the "Excellent" assessment score of 100 on the 2023 AGM checklist from the Thai Investors Association (TIA) for a 12th consecutive year.
 - Offering guidelines for establishing criteria for allowing shareholders to propose meeting agenda items and nominate candidates for election as Director of the Company in advance of the 2024 Annual General Meeting of Shareholders.
 - Supervising GC's disclosures to ensure their timeliness and the completeness and accuracy of the material information disclosed in accordance with the criteria stipulated by regulators, i.e., Form 56-1 One Report, Integrated Sustainability Report, and other information published on the Company's website. As a result, in 2023 GC received an "Excellent" rating on the Corporate Governance Report of the Thai Listed Companies (CGR) of Thai Institute of Directors Association (IOD) for a 12th consecutive year.
 - Monitoring and providing recommendations on corporate governance assessments by external regulators, such as the Corporate Governance Report of Thai Listed Companies (CGR) and the AGM Checklist.
 - Reviewing the appropriateness of the adoption of the Corporate Governance Code for Listed Companies 2017 (CG Code), providing comments and suggestions to the Board of Directors to improve and develop their performance of duties in accordance with the business situation and context, and disclosing relevant information in Form 56-1 One Report.
 - Successfully encouraging 10 business partners to join CAC declaration, thus earning GC a CAC Change Agent Award; and monitoring the progress of GC's subsidiaries in becoming members of the Thai Private Sector Collective Action Against Corruption (CAC).

- Ensuring the compliance of GC's operations with relevant laws, rules, and regulations.
 - Promoting compliance management optimization in line with ISO37301 Compliance Management System by preparing a compliance handbook and monitoring the compliance of GC's internal functions and subsidiaries.
 - Overseeing and monitoring the handling of complaints received through the Whistleblower channel to ensure compliance with the Whistleblower Policy; and monitoring complaints received through other channels in other areas, namely the environment, communities, vendors, customers, shareholders and investors, and employees through quarterly reports.
- Promoting GRC (Governance, Risk management and internal control, and Compliance) operations in accordance with the GRC FiT 2.0 project, which seeks to integrate and optimize GRC management processes to achieve alignment with international standards and best practices, reduce redundancies in the work processes; and introducing technology to support the operations to systematically connect GRC activities.

1.2 Ensuring Compliance with Corporate Governance Policy and Practice in GC Group

- Overseeing and monitoring the effectiveness of compliance with the Corporate Governance policy/ Corporate Governance & Business Code of Conduct Handbook and other relevant manuals, such as the Related Party Transaction Manual.
- Consistently promoting the improvement and development of Corporate Governance management guidelines and practices, such as by developing an RPT Monitoring Dashboard for overseeing, monitoring, and reviewing related party transactions within GC, establishing transaction monitoring criteria for use in considering transactions with fraud and corruption risks, and developing an E-Legal Library to serve as a single platform for information on the laws relevant to the Company's business operations.
- Encouraging the development of a single database of complaints received through the whistleblower channel and data on acts of non-compliance to enable the preparation of statistical data for compliance analysis and management planning; and providing recommendations and monitoring the progress of the processing of complaints received through the whistleblower channel and other channels in such areas as the environment, communities, vendors, customers, shareholders and investors, and employees.
- Providing support, recommendations, and guidelines on the establishment of operational standards on corporate governance and compliance for companies in GC Group in alignment with GC Way of Conduct, such as by offering suggestions on the improvement of Vencorex Holding's Code of Conduct; organizing sessions to communicate GC Group's guidelines for corporate governance and compliance to PTTGC International (Netherlands) B.V. and GC International Corporation; contributing to the development of the English version of GC Way of Conduct videos; and providing consultation to companies in GC Group on becoming CAC members.
- Providing consultation to overseas subsidiaries on developing their own whistleblowing policies and channels and complaint handling procedures to ensure management consistency across GC Group.

- Promoting consistent compliance management across GC Group by communicating operational guidelines, compliance management across GC Group, and future action plans to domestic and overseas companies in GC Group through annual meetings for compliance operators.
- Promoting the fostering of an ethical behavior standard and an integrity culture by supporting relevant training and communication for employees at all levels throughout the year in online formats through various platforms of the Company, such as Microsoft Teams and the e-learning system.
- Promoting on-site workshop training on fact-finding techniques and practices and fostering knowledge and understanding on complaint handling among Vice President-level executives across GC Group to enhance the trust and confidence of the personnel in the Whistleblower system.
- Overseeing, monitoring, and advising on GC's stakeholder stewardship, requiring units and functions responsible for each group of stakeholders to report a summary of previous activities and a future plan that is consistent with GC's policies and practices.
- Reviewing policies and practices in the Corporate Governance and Business Code of Conduct Handbook to ensure that they are up to date, congruent with domestic and international standards, and appropriate for application across the company.
- Overseeing the outcomes of GC's anti-corruption measures for 2023 and approving GC's anti-corruption plan for 2024 to ensure its consistency with relevant regulations, such as the criteria issued by CAC and the NACC Integrity Award under the Office of the National Anti-Corruption Commission (NACC).
- Reviewing and approving GC's corporate governance plan for 2024 to serve as guidelines for executing, monitoring, and assessing GC Group's corporate governance performance in a tangible manner.

2. Sustainable Development

Supervising and monitoring GC's sustainable development to ensure alignment with both GC's business directions and international standards and achieve a balance among the Environmental, Social, and Governance (ESG) aspects.

- Overseeing GC's short-term and medium-term sustainable development operational plan to maintain alignment with its goals and strategies as well as establishing and monitoring sustainable development indicators to ensure consistency with its goals and an ESG balance in accordance with the Sustainable Development Goals (SDGs).
- Providing comments and recommendations on decarbonization action plans involving impacts from external factors and providing support in advancing relevant policies for efficient implementation in alignment with the Company's goals.
- Promoting the creation of added value to the business on the basis of circular economy principles and prioritizing business restructuring initiatives that can enhance GC's competitiveness.
- Promoting the revision of material issues as well as operational processes to better align with the situation, stakeholder expectations, and emerging global challenges, and providing suggestions on undergoing sustainable development ranking by an external organization.
- Providing comments and recommendations on sustainable development assessment and ranking by external agencies and proposing guidelines for improving sustainability operations to achieve alignment with assessment criteria and maximize benefits for GC and its stakeholders. As a result, GC was ranked number one in the Chemicals Sector on DJSI for a fifth consecutive year

3. Reporting the Performance, Assessment, and Development of Directors

- Reporting the performance and assessment results (group assessment and self-assessment) of the Corporate Governance and Sustainability Committee for 2023 to the Board of Directors for acknowledgment.
- Reviewing the Corporate Governance and Sustainability Committee Charter to ensure alignment with the roles and responsibilities and any applicable criteria and practices.
- Reviewing the Corporate Governance and Sustainability Committee's assessment forms (group assessment and self-assessment) to ensure alignment with the Corporate Governance and Sustainability Committee Charter and compliance with the criteria and practices prescribed by international standards and domestic regulatory agencies.
- Considering and providing comments on the employment of former executives from the level of Chief Operating Officer (COO) upward.
- Continuously ensuring Director development under good corporate governance principles by encouraging Directors to attend training courses of the Thai Institute of Directors Association (IOD). The Corporate Governance and Sustainability Directors attended a lecture entitled ESG Reporting Updates & Linkages to Financial Reporting, organized by Deloitte Touche Tohmatsu Co., Ltd.
- Pre-setting the dates for its meetings for the entire year of 2024 to consider and acknowledge the Company's performance and report/provide any recommendations to the Board of Directors and the Management.

The Corporate Governance and Sustainability Committee places great importance on ensuring GC's strict compliance with the Corporate Governance Policy and Business Code of Conduct. The Corporate Governance and Sustainability Committee is also committed to continually enhancing corporate governance practices on par with international standards and believes that good corporate governance and sustainable development are vital factors in promoting operational efficiency and business sustainability, which will enable GC to earn the confidence of its stakeholders as well as international recognition.

On behalf of the Corporate Governance and Sustainability Committee

(Signed) Somkit Lertpaithoon

(Professor Somkit Lertpaithoon)

Chairman of the Corporate Governance
and Sustainability Committee

Report of the Nomination and Remuneration Committee

Dear Shareholders,

In 2023, the Nomination and Remuneration Committee comprised three independent directors to ensure the independent performance of duties as well as checks and balances in accordance with good corporate governance principles, namely Mr. Pakorn Nilprapunt, serving as the chairman of the Committee, Mr. Somkiat Prajamwong and Lieutenant General Nimit Suwannarat, both serving as members of the Committee.

The Nomination and Remuneration Committee performed its duties and provided suggestions and opinions on criteria and guidelines for the nomination and selection of Directors and Sub-committee members and for the performance assessment and remuneration of GC's Directors and Chief Executive Officer and President (CEO) in accordance with the roles and responsibilities stipulated in its charter, and executed tasks fully as assigned by the Board of Directors. In 2023, the Committee held a total of ten meetings. A summary of its activities is given below.

1. Nomination and Selection of Directors and Sub-committee Members

- Reviewing the criteria and procedures for the nomination and appointment of GC's Directors to ensure completeness, suitability, and compliance with laws, regulations, and best practices for the selection and appointment of Directors and Sub-committee members.
- Reviewing and revising the Board Skills Matrix and the definitions of the areas of expertise, adding fields such as energy security, financial technology and digital economy, environmental and international trade laws, and international politics to ensure suitability, comprehensiveness, and alignment with the assessment criteria of SEC's Corporate Governance Code for Listed Companies 2017 (CG Code), IOD's best practice of the Nomination Committee, the Dow Jones Sustainability Indices (DJSI), and the Global Industry Classification Standard (GICs), which will be taken into consideration in the selection of Directors and Sub-committee members to ensure board diversity with respect to knowledge, skills, and experience beneficial to strategic directions and business approach. The Board of Directors approved the revision as instructed by the Committee.
- Reviewing and creating GC Director Pool for use in nominating and comparing qualified candidates for GC's independent directorship.
- Nominating and selecting qualified candidates to replace Directors who are due to resign by rotation at the 2023 Annual General Meeting of Shareholders, to present to the Board of Directors and the Annual General Meeting of Shareholders for consideration and approval under the criteria and procedures for the nomination and appointment of GC's Directors. The Committee took into consideration the qualifications required by applicable laws and regulations, GC's Articles of Association, good corporate governance principles, and the Board Skills Matrix. The Committee also considered its own Director Pool as well as those of external agencies, namely the State Enterprise Policy Office and the Thai Institute of Directors Association (IOD). Shareholders were also given over three months period prior to the AGM to nominate candidates for vacant positions. Since there were no submissions of candidates from shareholders, the Committee resolved to nominate Mr. Patchara Anuntasilpa to be elected as Director in replacement of a retiring Director as well as nominate Mr. Grisada Boonrach, Mr. Chadil Chavanalikhikorn, Mr. Cherdchai Boonchoochauy, and Mr. Sarawut Kaewtathip to be re-elected as Directors for another term. The candidates possessed all the required qualifications and did not have any prohibited characteristics according to relevant laws and regulations. They also possessed knowledge,

competency, and experience that aligned with GC's strategic directions and business approach. The Board of Directors and the 2023 AGM thus resolved to approve the appointment of these candidates as Directors as instructed by the Committee.

- Nominating and selecting qualified candidates to replace Directors who resigned during 2023, namely Mr. Surachai Achalaboon, Police Colonel Dusadee Arayawut, Mr. Thanwa Laohasiriwong, and Mr. Predee Daochai. The Board of Directors approved the appointment of the candidates as Directors as instructed by the Committee.
- Nominating Directors to fill vacant positions on four Sub-committees, namely the Audit Committee, the Nomination and Remuneration Committee, the Corporate Governance and Sustainability Committee, and the Risk Management Committee and presenting a list of candidates to the Board of Directors for consideration and approval under the criteria and procedures for the nomination and appointment of GC's Directors. The Committee took into consideration the qualifications of each Directors in accordance with relevant laws and regulations of the Securities and Exchange Commission (SEC) and the Stock Exchange of Thailand (SET), GC's Articles of Association, and the charters of Sub-committees. The Board Skills Matrix and specialized experience that could benefit their role on the Sub-committees were also taken into account.

2. Performance Assessment of the Board of Directors and Chief Executive Officer and President

- Reviewing Board performance assessment forms, namely group assessment, self-assessment, and peer-assessment, for the year 2023 to ensure comprehensiveness, suitability, and alignment with DJSI assessment criteria, the ASEAN Corporate Governance Scorecard, CG Code, IOD's Board Toolkit, as well as the current Board performance of duties.
- Monitoring the reporting of the Board performance for 2023 and establishing the Board's key performance indicators (Board KPIs) for 2024, ensuring their alignment with DJSI's assessment criteria and CG Code.
- Considering the 2023 performance assessment form of the Chief Executive Officer and President (CEO KPIs) and assessing his performance to determine suitable and fair remuneration.

3. Remuneration of Directors, Sub-committee Members, and Chief Executive Officer and President

- Determining and proposing the 2023 remuneration for the Board of Directors and for members of each Sub-committee to the Board of Directors and the Annual General Meeting of Shareholders (AGM) for consideration and approval. The proposed remuneration was determined in accordance with good corporate governance principles, based on GC's operating results, the current economic situation relevant to GC's businesses, the principles and policies approved by shareholders, the duties and responsibilities of the Board of Directors, the results of Board performance assessment, compared to the remuneration of Directors working at other listed companies of a similar size in the same industry and at other companies under the PTT Group. The Board of Directors and the 2023 AGM resolved to approve the Board's remuneration as instructed by the Committee.
- Determining the remuneration of the Chief Executive Officer and President (CEO) for 2023 based on transparent, fair, and reasonable criteria, taking into account his annual performance pursuant to the assessment of CEO KPIs.

4. The Committee's Meeting, Assessment, and Reporting of the Performance

- Pre-setting the dates for its meetings for 2024. In these meetings, the Committee will consider and acknowledge the Company's performance and reports as well as providing recommendations to the Board of Directors and the Management.
- Reviewing the Nomination and Remuneration Committee Charter to ensure completeness, suitability, and alignment with good corporate governance principles and the current performance of duties.
- Reviewing the Committee's performance assessment forms, namely group assessment and self-assessment, for 2023 to ensure their comprehensiveness, suitability, and alignment with the Nomination and Remuneration Committee Charter and the current performance of duties.
- Reporting the Committee's performance and assessment results for 2023 to the Board of Directors for acknowledgment before disclosing them in Form 56-1 One Report.

The Nomination and Remuneration Committee has performed its duties with accountability, ethics, and independence in accordance with good corporate governance principles in order to ensure that the procedures for the nomination and selection of Directors and Sub-committee members as well as the performance assessment and remuneration of GC's Directors and Chief Executive Officer and President (CEO) are transparent, accountable, fair, and compliant to applicable laws and regulations. This is to help optimize the effectiveness of the Board composition as well as the diversity and alignment of the Board's knowledge, skills, expertise and experience with GC's strategic directions and business approach for the purpose of steering GC's operation towards the established goals in a sustainable manner and fostering confidence among the shareholders, investors, and all stakeholders.

On behalf of the Nomination and Remuneration Committee

(Signed) Pakorn Nilprapunt

(Mr. Pakorn Nilprapunt)

Chairman of the Nomination and Remuneration Committee

Report of the Risk Management Committee

Dear Shareholders,

2023 marked another year in which GC was faced with a series of complex, unpredictable, and unavoidable business events and circumstances, including geopolitical conflicts such as the ongoing Russia-Ukraine conflict and the war between Israel and Hamas, as well as concerns over an impending economic recession, all of which led to high volatility in product prices and spreads. To address this, GC implemented a number of measures to manage and minimize the impact of these risks on the achievement of its objectives in different dimensions so as to overcome crises, maintain its competitiveness, and achieve sustainable growth.

The Risk Management Committee consistently monitored and provided comments and suggestions on GC's risk and crisis management measures covering short-term and long-term key risks as well as emerging risks that may affect the business in the future in order to ensure GC has in place an effective risk management system, which can mitigate impacts of such risks as well as bring business opportunities and create value to the business and stakeholders sustainably.

In 2023, the Risk Management Committee performed its full duties within its scope of roles and responsibilities as prescribed in its charter. The Committee convened a total of five meetings to review, provide comments and suggestions on, and acknowledge agenda items, as summarized below.

- Monitoring and providing comments and suggestions on the progress of GC's corporate risk management, which consisted of a summary of external factors, risk trends, a summary of GC's corporate risks for the years 2023 and 2027, and risk management measures; and reporting the performance of the Risk Management Committee to the Board of Directors for acknowledgment on a regular basis to ensure the adequacy, suitability, and timeliness of GC's measures and gain opportunities to generate value for the business in a sustainable way.
- Providing recommendations and monitoring the outcome of commodity hedging for price and spread risk management as well as FX hedging on a monthly basis to ensure that the measures were flexible and suitable for the situation.
- Providing comments and recommendations on the risk management measures of significant large-scale investment projects as supplementary data for the Board of Directors in their decision-making process.
- Reviewing the risks and corresponding management measures for the year 2024 and 2028 to ensure GC's ability to maintain such risks within its risk appetite as well as alignment with the established risk management policy, economic circumstances, industrial trends, and sustainable business practices, with the ultimate goal of ensuring that GC's capability to achieve its strategic and business goals under more volatile and complex circumstances.
- Reviewing data on risk management and risk factors in Form 56-1 One Report to instill confidence among shareholders in GC's risk management guidelines and analysis of significant risks that could impact the achievement of its strategic and business goals as well as the adequacy of its management measures.
- Reviewing the Risk Management Committee Charter, the risk management policy, the risk appetite, and the risk management frameworks and practices, consisting of management frameworks for corporate risks, price and spread risks, foreign exchange risks, subsidiaries risks, and investment risks, to ensure their applicability to the business circumstances and flexibility for proper implementation.



In addition, the Risk Management Committee held two meetings with the Corporate Governance and Sustainability Committee in 2023 to exchange opinions and suggestions on the strategic direction of GC's decarbonization roadmap and track the progress of the Company's sustainability activities.

For the year 2024, the Committee will continue to monitor the business landscape, carry out risk identification and prioritization, and prescribe adequate risk management measures to ensure that GC has suitable and effective risk management and capability to maintain risks within the risk appetite, which will enable GC to achieve business goals and sustainable value in the long-term.

On behalf of the Risk Management Committee

(Signed) Grisada Boonrach

(Mr. Grisada Boonrach)

Chairman of the Risk Management Committee

Internal Control and Connected Transactions

Internal Control

PTT Global Chemical Public Company Limited (GC) implements an Internal Control System in accordance with the international standards of the Committee of Sponsoring Organizations of the Treadway Commission (COSO) to achieve internal control objectives relating to operations, reporting, and compliance with laws and regulations.

At the Board of Directors Meeting No. 2/2024 held on February 12, 2024, GC's system was evaluated based on an internal control assessment report prepared by executives following the Securities and Exchange Commission's (SEC) guidelines. Together with the results of the Audit Committee's internal control review, the Board of Directors viewed that GC's internal control was adequate and effective for its businesses. No significant problems or material shortcomings were detected that could interfere with the achievement of internal control objectives. GC's Internal Control System functioned properly in an adequate manner. The operation and process were efficiently managed with sufficient numbers of qualified and competent employees. In addition, GC implemented a monitoring system to ensure the achievement of business objectives with effective and efficient operations, reliable reporting, and compliance with applicable laws and regulations as well as the safeguarding of GC's assets against misuse or unauthorized use by the Board of Directors, executives, and employees.

In 2023, GC improved its internal control procedures and processes to increase efficiency, optimize resource utilization, and promote a sound internal control system that enhances the robustness and speed of risk identification. In accordance with COSO, GC's Internal Control System consists components as follows:

1. Control Environment

The Board of Directors and executives strive to promote a corporate culture that focuses on integrity and ethics. They also govern business conduct to ensure alignment with the organizational vision and mission along with a sufficient and appropriate control environment as detailed below.

- The Board of Directors establishes the Corporate Governance Policy, Business Code of Conduct, Corporate Compliance Policy, and Anti-Corruption Policy and Guidance, setting out preferred practices for the Board of Directors, executives, and employees. Executives and employees are required to provide their signatures in Hook Acknowledgement & Learning System to acknowledge the Corporate Governance and Business Code of Conduct Handbook and pledge their compliance with the policy, principles, and business ethics. The Company also places emphasis on communicating these policies, subsequent penalties and arranging an online system for reporting any potential conflict of interest annually to executives and employees. GC has also expanded the online system to subsidiaries to strengthen good corporate governance.
- GC continuously builds awareness of the Ethic and Business Code of Conduct among executives and employees through training courses, orientation, e-Mail communications, video clips, and other activities such as Hook Talk video clip, conducted by top management in order to communicate the Ethics and Business Code of Conduct to employees and promote a good corporate governance culture. In addition, GC has published the corporate governance principles and code of conduct on the Company's website to communicate them to suppliers/vendors, joint-venture partners, and company representatives and encourage them to operate their businesses with integrity. In 2023, GC conducted "Fraud Risk Management in Practice

training” for executives and relevant employees across GC Group to enhance awareness and understanding of fraud risk assessment, fostering transparent and verifiable working processes.

- The Board of Directors is independent from executives and responsible for supervising overall operations as well as expressing views on the direction of the formulation of business strategies and operating plans. Furthermore, the Board of Directors regularly monitors GC’s performance and its sub-committees to ensure that GC achieves its objectives and goals. GC regularly reviews its operating goals and adjusts its business practices accordingly to align with current situations, focusing on competitiveness, decarbonization as well as creating business growth opportunities. In addition, GC is committed to drive long-term sustainable business practices, which focus on the Environment, Society, and Governance (ESG) in accordance with the Sustainable Development Goals (SDGs) by applying the circular economy principles and providing a clear pathway to improve people’s quality of life through a transition to a low-carbon business, with the goal of reducing net greenhouse gas emissions to zero (Net Zero) by 2050.
- GC’s corporate structure is grouped into business units and functions to ensure efficient business operations and good governance, with checks and balances put in place to ensure duties and responsibilities are delegated appropriately. Furthermore, all employees acknowledge their roles, authorities, responsibilities, and accountabilities.

- GC has clearly defined the qualifications for all positions, forming the foundation for recruitment and personnel development. These standards are in alignment with corporate culture and are supported by effective processes and systems for both internal and external recruitment. Succession plans are in place for key management positions to ensure business continuity. GC has a performance management system that encourages regular communication and monitors performance targets on a quarterly basis. The performance targets are also subjected to revision to ensure fair rewards and motivate employees. GC has also utilized the 360-degree evaluation as a tool for evaluating employee performance against GC SPIRIT 4 Core Behaviors. As the Company aims to be an organization of learning, it encourages all employees to enhance their capabilities and knowledge through the e-Learning platform “UP”, allowing easy access to vital knowledge for all personnel. In 2023, GC developed modern, concise e-learning content tailored to meet the needs of its employees. GC has continuously developed Expert House as a mechanism to help employees maximize their potential through continual self-directed learning to develop required knowledge in response to changes in the business. Furthermore, in 2023, GC appointed the Leadership Expert House Committee. This committee is tasked with setting directions, policies, and guidelines for talent and successor development, including the creation of a Leadership Competency Model and a Talent Development Program. These initiatives are designed to cultivate leadership skills in line with



evolving business needs and the Company's future direction. In addition, GC values the well-being, both physical and mental, of its employees and ensures that they have a good quality of living and a positive work experience by conducting employee engagement and satisfaction surveys to continuously design and improve a healthy work environment.

- GC has established the Internal Control Policy, stipulating that all employees shall be accountable for their internal control activities. The policy is consistently communicated to executives and employees through training courses, public communication, and other activities to ensure everyone has an accurate understanding of their roles and responsibilities in relation to the internal control system. In addition, GC has implemented the Three Lines Model, which is an international best practice, as a framework for governance. It defines the job owner's function as the first line of defense to ensure compliance with the policies and guidelines. The Internal Control, Corporate Risk Management, Corporate Governance Corporate Compliance, and other support divisions, the second line of defense, are responsible for managing and supporting other functions so as to bring their operations up to the established standard. Lastly, the Internal Audit, the third line of defense, is tasked with auditing other functions to ensure the proper and suitable internal control implementation and strengthen corporate governance and risk management.

- GC applies Governance, Risk Management & Internal Control and Compliance principles (GRC) to its business processes to ensure efficient and effective operations. The Company has also appointed GRC personnel to work closely with major business units to strengthen and ensure GRC integration. Additionally, GRC Health Check survey is annually conducted to assess the understanding and compliance of employees, and the results are subsequently used to analyze and plan GRC execution to improve efficiency. Furthermore, the Company regularly issues communications through various channels, such as GRC Newsletter, tone at the top communication in CEO townhalls, as well as new learning programs developed for self-learning through the e-Learning Platform "UP" for executives and all employees in GC Group. In 2023, GC defined the GRC character, which aligns with GC SPIRIT 4 Core Behaviors, with the goal of deepening employees' understanding of GRC attributes and integrating them into the organizational behavior and culture. In addition, GC organized a GRC roadshow to reinforce the practical application of GRC principles in daily operations, while also fostering understanding and confidence in its whistleblower system. Recognizing the importance of ongoing GRC knowledge development, GC has also established a GRC web portal. This portal serves as a comprehensive resource, offering extensive GRC information to support the executives and employees throughout the organization.



2. Risk Assessment

The Board of Directors and executives place great emphasis on risk management to ensure the achievement of both short-term and long-term goals. The Risk Management Committee is appointed by the Board of Directors, while the Enterprise Risk Management Committee and taskforces are appointed by the Chief Executive Officer & President to manage business risks and specific issues to directly enhance management agility and allow the close monitoring of various situations. GC's risk management is structured as such to ensure suitability, efficiency, and effectiveness.

GC has announced a Risk Management Policy and has implemented Integrated Enterprise Risk Management systematically and continuously throughout the organization according to such international risk management frameworks and guidelines as ISO 31000 and COSO ERM 2017. In 2023, GC revised its investment risk management procedure to align with the organization's decarbonization goals. Risk assessment is also conducted in various aspects, including current business-related risk factors, future business-related risk factors, emerging risk factors, and the potential for fraud and corruption, and mitigation plans were developed accordingly. Risk factors and mitigation plans are reviewed and monitored regularly to ensure alignment with short-term and long-term GC's goals. GC has also developed Key Risk Indicators (KRIs), which are linked to Key Performance Indicators (KPIs), to evaluate the Company's short-term and long-term goals, monitor changes in risk factors, and efficiently manage risk in a timely manner. In 2023, GC developed the Risk Register platform, a centralized tool for recording and automatically tracking risk management progress, thereby ensuring effectiveness in risk management.

In addition, GC has established a business continuity management system at both corporate and business unit levels, including within GC Group, in accordance with ISO 22301 international standard. GC has defined guidelines that are consistent with the business continuity management policy and prescribed annual drills of the business continuity plan (BCP) at both business unit and corporate levels. Events that could

disrupt business operations and affect business continuity are simulated to ensure that GC is well prepared to cope with such crises effectively. The results of the drills are utilized to improve preemptive plans. In 2023, GC conducted a BCP drill at the corporate level involving simulations of a cyberattack on GC's computer system that controlled plant operations.

Details are described under "Risk Management".

3. Control Activities

GC has defined control activities to mitigate risks resulting from failure to achieve its goals and ensures that the residual risks are within an acceptable level. These include:



- GC has prescribed preventive and detective control in alignment with internal control principles, such as segregation of duties and delegation of authority, to ensure checks and balances. GC has also established policies and guidelines to identify transactions involving or potentially involving a conflict of interest, as well as operational activities for the management of related party transactions. These measures are taken to ensure that the business is operated in a transparent, fair, and auditable manner for the utmost benefit of the organization.
- GC has established rules, regulations, policies, and manuals in writing as well as a clear scope of authority of the Chief Executive Officer & President, executives, and employees at each level, along

with clearly defined operational procedures to serve as guidance. Furthermore, implementation is reviewed regularly to ensure compliance with such rules, regulations, policies, and manuals.

- GC has implemented SAP GRC – Access Control to control crucial processes to ensure that SAP operating system access rights are in accordance with best practices on the segregation of duties. GC also uses automated audit to detect and follow up on irregular transactions and notify designated officers to promptly rectify problematic transactions. Moreover, GC has continuously introduced digital tools to enhance operational efficiency and effectiveness, ensuring accuracy, precision and transparency. For instance, the implementation of Robotics Process Automation (RPA) in the procurement process, and blockchain technology in bank guarantees, accounts payable, and accounts receivable, significantly minimizes time, work processes, and errors. In 2023, GC developed a Vendor Management System (VMS) to centralize vendors management activities, covering tasks from registration and evaluation to the monitoring of improvements. Additionally, GC has developed a Purchase Order Tracking Web Application for accurate, complete and effective tracking of order statuses.



- GC has appointed the Information Security Management System Committee (ISMSC) to supervise and support operations and ensure compliance with ISO/IEC 27001 and ISO/IEC 27701 standards, as well as to oversee the development of information security, cyber security, and cloud security frameworks that meet international standards. The committee is also tasked with establishing an Information Technology Security Policy, which encompasses robust IT general controls for the development and significant computer system changes. This policy also emphasizes the importance of data backup, data recovery, and regular testing. In addition, GC conducts assessment in adherence to the NIST Cybersecurity Framework (CSF), which assists organizations in planning timely threat prevention, detection, and response without interrupting the business operation. Furthermore, GC regularly organizes cyberthreat prevention training sessions and issues communications to all employees to update its data security standards. In 2023, GC performed a vulnerability test at the application level to identify potential vulnerabilities that might lead to system attacks or takeovers.
- GC has developed the governance process “GC Way of Conduct” which is regularly communicated to and the implementation of which is regularly monitored among subsidiaries in GC Group, to ensure compliance with GC’s policies, guidelines, and business strategies. Assessments are conducted to evaluate the effectiveness of the implementation and identify areas for further improvement. The progress of this program is regularly reported to top management for acknowledgment. In 2023, GC developed a GC Way of Conduct Webpage, serving as a central hub for learning and data collection for GC Group subsidiaries in Thailand and abroad.

4. Information and Communication

GC values the quality of its information and communication systems, which play a vital role in supporting the effectiveness of its Internal Control System. GC’s approach to information and communication management is detailed below.

- GC has established information classification and guidelines for the storage of vital and controlled documents, including operational information from both internal and external sources. This is to ensure the accuracy, completeness, adequacy, and prompt availability of GC's vital information.
- GC has implemented SAP ECC 6.0 in processing key business data to eliminate a large number of legacy systems and enhance the efficiency of reporting to the management.
- GC has developed various programs to centralize data management, storage, and linkage in order to maximize data utilization and ensure data availability for further use or future reference. An example includes the compilation of data on various process improvement projects and GC's investments in the "IdeaMANI" (Multi Access for New Initiatives). In 2023, the Company developed a Chatbot powered by generative AI, an advanced artificial intelligence language model, to enhance work processes and assist in accessing organizational information. This technology operates within the Company's environment and ensures robust security against internal information breaches. Additionally, employees have been trained in the ethical usage of this tool, ensuring its appropriate and effective utilization.
- GC has announced a personal data protection policy and appointed a dedicated unit responsible for data protection. Additionally, GC has implemented a personal data management system within GC Group and issued handbooks on personal information management in compliance with the Personal Data Protection Act B.E. 2562 to provide clear guidance for efficient implementation.
- GC has prescribed data governance to ensure the efficiency of data acquisition, utilization, availability, and management for confidentiality. The Company focuses on four components to ensure sustainable data governance and management, consisting of 1) defining and implementing data governance policies, standards, and management processes throughout the data life cycle; 2) developing technologies for big data management to support GC's growth; 3) delivering vital information to users for efficient utilization; and 4) fostering awareness and understanding of data governance among employees through various forms of communication. In 2023, GC established data governance guidelines as a part of digital use-case development to ensure appropriate data management for system or application development.
- GC has developed and actively promoted Advanced Analytics within the organization, offering a Data Science & Engineering Program and imparting knowledge on digital tools, such as Power BI, Power Automate, Alteryx. To further advance this program, GC communicates through Inspiration Talks to promote data thinking and a data mindset. Then, Data Talks are organized to delve into data management and related digital technologies. Additionally, the Data DIY Project is launched to enable employees to submit their own data management projects using digital tools. Furthermore, GC has embraced Artificial Intelligence as a tool for analyzing, tracking, and forecasting data to achieve greater speed and accuracy for more efficient results. This includes the application of Lab Data Analysis to enhance work efficiency, manage time, and streamline processes; of Customer Behavior Analytics, the results of which produce forecasts for marketing and sales planning; and of AI Spend Analysis, which is utilized to scrutinize purchasing costs, thus aiding strategic decision-making and reducing expenditures on non-feedstock material.
- GC has formed a working team entitled "GC EYE" to analyze external factors that may have business impacts and communicate them to executives and relevant parties through a mobile application platform. GC also organized GC EYE FORUM, where external experts were invited to give lectures on various topics. In 2023, GC organized a roadshow across GC Group to communicate its analysis of external factors and facilitate the exchange of perspectives for business growth.

- GC has put in place guidelines and steps for communicating information appropriately to the Board of Directors, executives, employees, and stakeholders to support efficient operations and internal controls.
- Key information on GC's operating results and documents for board meetings are delivered to Directors in advance to allow sufficient time for them to study and review the materials for decision making. When necessary, the Board of Directors may request additional information from the relevant management team. Furthermore, GC has employed the Digital Join system for easy and swift delivery of information and meeting documents to the Board of Directors, using communication devices equipped with a data security system.
- GC has established various channels for internal communication, including the organization's intranet and email. Vital information is communicated through online orientation, and communications from the top executives are conveyed to employees through various channels, such as CEO Town Halls, which are held in a hybrid format through meetings in a conference venue and Microsoft Teams Live Streaming. Other communication channels include regular meetings held in each business unit and line of work to drive and foster awareness of GC's key agenda among employees.
- GC communicates with external stakeholders through the Company's website, Facebook, Twitter, and official LINE account. In addition, designated units are responsible for disclosing important information to all stakeholders regularly. A Customer Solutions Center (CSC) was established as a one-stop service center to provide information relating to GC products and services to customers and interested parties.
- GC allows shareholders to propose agenda items for the Annual General Meeting of Shareholders (AGM) and nominate qualified candidates to be elected as Directors to enhance good corporate governance regarding the rights and equitable treatment of shareholders. GC arranged the 2023 Annual General Meeting of Shareholders via an electronic means in compliance with the Emergency Decree on Electronic Meeting B.E. 2563. GC also organized analyst meetings to announce the Company's quarterly performance.
- GC has established whistleblowing channels and a clear whistleblower system management to assure employees and external individuals that every complaint will be handled with transparency, fairness, and confidentiality in a timely manner. Subsidiaries are also continuously encouraged to institute whistleblower policies and guidelines. In 2023, GC provided Investigation Technique training to the executives, aimed at enhancing understanding and skills needed to effectively manage issues in accordance with the whistleblower guidelines.



5. Monitoring Activities

GC continually monitors and evaluates the adequacy of its internal controls. Development and improvement plans are also in place to ensure efficient and effective internal controls as shown below.

- GC carries out corporate-level control assessments and process-level control self-assessments annually, using an online system. The Internal Control Unit is responsible for reviewing the adequacy and appropriateness of the assessments

in coordination with GRC personnel and for providing recommendations for rectifying any internal control deficiencies. Any detected deficiencies must be reported to executives for acknowledgment in a timely manner, and the remediation progress is monitored to ensure that the issue is resolved within the specified timeframe. In 2023, the Company initiated Control Self-Assessment (CSA) Prioritization, categorizing processes in accordance with corporate risks and significant risks affecting internal control. This approach ensures that risk and internal control assessment at the process level are efficient, appropriate, and aligned with organizational objectives, in accordance with internal control principles.

- The Internal Audit Unit, an independent unit reporting directly to the Audit Committee, is in charged with conducting audits to ensure the adequacy appropriateness and consistent implementation of GC's internal control and evaluating the effectiveness of the internal control in various activities according to the audit plan, which has been approved by the Audit Committee and is in line with GC's strategic direction and key risks that may affect the operation. The Internal Audit is also responsible for providing recommendations related to internal control to executives, who then prescribe rectification as instructed and report the audit results to the Audit Committee on a regular basis. Internal controls for financial reporting are reviewed by external auditors, who report to the Audit Committee quarterly and yearly.
- GC advocates the adoption of technology in monitoring and evaluating internal control, as well as in automated audit. For instance, GC has implemented detection rules in significant work processes to identify irregular transactions and inspect items for potential conflicts of interest. Additionally, the Company has organized expense data into a visualized dashboard and established monitoring processes for transactions that could be susceptible to fraud and corruption.



- GC has continuously monitored and reported compliance performance through assessments and by compiling laws, rules, and regulations relevant to GC's operations, known as the compliance universe, which serves as a database and guideline for process owners. In 2023, GC established a Compliance Management System according to ISO 37301 standards to monitor compliance with laws and regulations and to enhance the efficiency of compliance risk management.
- GC has been certified as a member of Thai Private Sector Collective Action Against Corruption (CAC) and continuously recertified every 3 years since 2014. GC has also appointed an anti-corruption working group to review and recommend the anti-corruption assessment and Measure. In addition, GC actively encourages its group companies to undertake corruption risk assessment and establish policies as well as a sufficient and efficient internal control system. GC also supports its business partners in joining the declaration of intent to become members of CAC. GC recognizes and places importance on strengthening a transparent and auditable business network.

Connected Transaction

Connected Transaction between Related Companies

For the 2023 accounting period, GC conducted significant business transactions with related companies with common shareholders and/or Directors. Connected transactions with other entities which may result in conflicts of interest are based on market or contractual prices - if there are no reference market prices. Details of the relationships with these companies are as follows:

Company	Relationship As at 31 st December 2023	Connected Transaction	2021	2022	2023
(million baht)					
1. PTT Public Company Limited (PTT)	<ul style="list-style-type: none"> Major shareholder holding 45.18% of the shares in GC Directors who are PTT Executives: <ol style="list-style-type: none"> Mr. Noppadol Pinsupa Mr. Chadil Chavanalikhorn Mr. Cherdchai Boonchoochay Mr. Kongkrapan Intarajang Common Management: <ol style="list-style-type: none"> Mr. Kongkrapan Intarajang Miss Pattaralada Sa-Ngasang Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	19,503	12,431	19,584
		Purchases of goods or receiving of services	272,177	377,709	343,693
		Other income	10,068	64	14
		Interest expense	18	20	20
		Other expense	160	57	55
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	2,063	1,116	2,456
		Other accounts receivable - related parties	497	400	312
		Trade accounts payable - related parties	47,288	38,281	50,933
		Other accounts payable - related parties	103	191	401
		Lease liabilities - related parties	560	545	560



Company	Relationship As at 31 st December 2023	Connected Transaction	2021	2022	2023
(million baht)					
2. Global Power Synergy Public Company Limited (GPSC)	<ul style="list-style-type: none"> - Other related company (GC holds 10% of the shares) - Major shareholder (PTT) holds 47.27% of the shares - Common Director 1. Mr. Noppadol Pinsupa - Executive who is Director of GPSC: 1. Mr. Kongkrapan Intarajang - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	118	105	102
		Purchases of goods or receiving of services	10,232	13,981	12,153
		Other income	16	10	10
		Interest expense	2	2	2
		Other expense	3	2	7
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	26	22	17
		Other accounts receivable - related parties	141	121	151
		Trade accounts payable - related parties	1,019	1,217	1,996
		Other accounts payable - related parties	7	9	11
		Payables to contractors - related parties	4	-	-
		Lease liabilities - related parties	71	71	60
3. PTT Digital Solutions Company Limited (PTT DIGITAL)	<ul style="list-style-type: none"> - Associate company (GC holds 40% of the shares) - Major shareholder (PTT) holds 20% of the shares - Executives who are Directors of PTT DIGITAL: 1. Mr. Anutin Chuaypen 2. Mrs. Chatsuda Kanjanarat - Services transaction 	Statements of Income Transactions			
		Purchases of goods or receiving of services	1	-	1
		Other income	59	50	47
		Other expense	450	604	518
		Statements of Financial Position Balances			
		Other accounts receivable - related parties	33	15	20
		Trade accounts payable - related parties	-	1	-
		Other accounts payable - related parties	140	183	121
		Payables to contractors - related parties	57	34	31

Company	Relationship As at 31 st December 2023	Connected Transaction	2021	2022	2023
(million baht)					
4. PTT Energy Solutions Company Limited (PTTES)	<ul style="list-style-type: none"> - Associate company (GC holds 20% of the shares) - The Company was dissolved on 29 December 2022 and in process of liquidation - Major shareholder (PTT) holds 40% of the shares - Services transaction 	Statements of Income Transactions			
		Sales of goods or rendering of services	8	5	-
		Purchases of goods or receiving of services	95	86	-
		Other income	-	1	-
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	4	-	-
		Other accounts payable - related parties	1	-	-
5. TOPNEXT International Co., Ltd. (TX)	<ul style="list-style-type: none"> - Subsidiary of TOP - Sales/Purchase transaction of products 	Statements of Income Transactions			
		Sales of goods or rendering of services	264	254	227
		Purchases of goods or receiving of services	174	330	261
		Other expense	-	2	-
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	16	17	19
		Trade accounts payable - related parties	22	28	17
6. Dhipaya Insurance Public Company Limited (TIP)	<ul style="list-style-type: none"> - Major shareholder (PTT) holds 13.46% of the shares until August 2021 - Services transaction 	Statements of Income Transactions			
		Purchases of goods or receiving of services	824	-	-
		Other income	1	-	-
		Other expense	42	-	-
7. Thai Paraxylene Company Limited (TPX)	<ul style="list-style-type: none"> - Subsidiary of TOP - Sales/Purchase transaction of products 	Statements of Income Transactions			
		Purchases of goods or receiving of services	-	3,719	5,462
		Statements of Financial Position Balances			
		Trade accounts payable - related parties	-	-	423
8. Thai Oil Public Company Limited (TOP)	<ul style="list-style-type: none"> - Major shareholder (PTT) holds 45.03% of the shares - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	2,666	3,995	2,201
		Other income	1	-	2
		Other expense	-	1	3
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	207	392	114
		Other accounts receivable - related parties	-	-	1
		Other accounts payable - related parties	-	-	2

Company	Relationship As at 31 st December 2023	Connected Transaction	2021	2022	2023
(million baht)					
9. Business Services Alliance Company Limited (BSA)	<ul style="list-style-type: none"> - GC holds 25% of the preference shares - Major shareholder (PTT) holds 100% of the shares - Common Directors: 1. Mr. Chadil Chavanalikhorn - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	-	-	1
		Purchases of goods or receiving of services	133	94	115
		Other income	-	-	3
		Other expense	140	117	135
		Statements of Financial Position Balances			
		Other accounts receivable - related parties	1	1	-
		Trade accounts payable - related parties	43	67	-
		Other accounts payable - related parties	77	38	43
		Payables to contractors - related parties	1	4	1
10. PTT Oil and Retail Business Public Company Limited (OR)	<ul style="list-style-type: none"> - Major shareholder (PTT) holds 75% of the shares - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	123,579	183,386	186,162
		Purchases of goods or receiving of services	122	147	154
		Other income	78	10	41
		Other expense	4	3	19
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	9,155	9,800	13,576
		Other accounts receivable - related parties	64	79	55
		Trade accounts payable - related parties	13	13	12
		Other accounts payable - related parties	10	3	22
11. PTTEP Siam Limited (PTTEPS)	<ul style="list-style-type: none"> - Subsidiary of PTTEP - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	2	1	3
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	1	-	-
12. PTT Exploration and Production Public Company Limited (PTTEP)	<ul style="list-style-type: none"> - Major shareholder (PTT) holds 63.79% of the shares - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	14	45	5
		Other expense	4	-	-
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	3	15	1
		Other accounts receivable - related parties	2	-	-
		Other accounts payable - related parties	-	-	2

Company	Relationship As at 31 st December 2023	Connected Transaction	2021	2022	2023
(million baht)					
13. PTT Tank Terminal Company Limited (PTT TANK)	<ul style="list-style-type: none"> - Major shareholder (PTT) holds 100% of the shares - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	70	105	77
		Other expense	8	5	3
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	15	12	8
		Other accounts payable - related parties	2	-	-
14. PTT International Trading Pte. (PTTT)	<ul style="list-style-type: none"> - Major shareholder (PTT) holds 100% of the shares - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	19,354	29,772	36,194
		Purchases of goods or receiving of services	378	4,354	3,233
		Other income	28	19	-
		Other expense	3	5	5
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	1,004	1,854	5,083
		Other accounts receivable - related parties	89	203	361
		Trade accounts payable - related parties	176	268	148
		Other accounts payable - related parties	263	109	27
15. PTT LNG Company Limited (PTTLNG)	<ul style="list-style-type: none"> - Major shareholder (PTT) holds 100% of the shares - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	8	47	71
		Other income	3	10	1
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	3	38	25
		Other accounts receivable - related parties	3	-	-
		Other accounts payable - related parties	-	17	1
16. Sak Chaisidhi Co., Ltd. (SAKC)	<ul style="list-style-type: none"> - Subsidiary of TOP - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	803	227	1
		Purchases of goods or receiving of services	-	-	160
		Other income	-	-	13
		Statements of Financial Position Balances			
		Trade accounts payable - related parties	-	-	106

Company	Relationship As at 31 st December 2023	Connected Transaction	2021	2022	2023
(million baht)					
17. Sport Services Alliance Company Limited (SSS)	<ul style="list-style-type: none"> - Subsidiary of BSA - Executive who is Director of SSS: 1. Mr. Anutin Chuaypen - Services transaction 	Statements of Income Transactions			
		Other expense	12	12	12
18. UBE Chemicals (Asia) Public Co., Ltd. (UCHA)	<ul style="list-style-type: none"> - Associate of IRPC - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	3,384	3,468	3,017
		Statements of Financial Position Balances			
19. Energy Complex Company Limited (ENCO)	<ul style="list-style-type: none"> - Major shareholder (PTT) holds 50% of the shares - Services transaction 	Trade accounts receivable - related parties	308	97	304
		Statements of Income Transactions			
		Sales of goods or rendering of services	51	52	55
		Purchases of goods or receiving of services	-	-	1
		Other income	2	-	1
		Interest expense	2	5	3
		Other expense	128	127	124
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	9	22	15
		Other accounts receivable - related parties	3	3	-
		Other accounts payable - related parties	17	3	2
20. IRPC Polyol Company Limited (IRPCP)	<ul style="list-style-type: none"> - Joint venture of IRPC - Sales/Purchase transaction of products and services 	Lease liabilities - related parties	179	123	50
		Statements of Income Transactions			
		Sales of goods or rendering of services	905	569	649
21. IRPC Public Company Limited (IRPC)	<ul style="list-style-type: none"> - Major shareholder (PTT) holds 45.05% of the shares - Sales/Purchase transaction of products and services 	Statements of Financial Position Balances			
		Trade accounts receivable - related parties	94	5	100
		Statements of Income Transactions			
		Sales of goods or rendering of services	16,383	30,940	30,866
		Purchases of goods or receiving of services	9,246	25,422	26,538
		Other income	18	45	30
		Other expense	1	1	2
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	2,527	1,782	2,373
		Other accounts receivable - related parties	2	27	27
		Trade accounts payable - related parties	1,488	1,732	2,305
		Other accounts payable - related parties	-	-	1

Company	Relationship As at 31 st December 2023	Connected Transaction	2021	2022	2023
(million baht)					
22. TOP Solvent (Vietnam) LLC. (TSV)	<ul style="list-style-type: none"> - Subsidiary of TOP - Sales/Purchase transaction of products 	Statements of Income Transactions			
		Sales of goods or rendering of services	176	189	115
		Purchases of goods or receiving of services	-	26	21
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	16	13	1
		Trade accounts payable - related parties	4	3	3
23. Sarn Palung Social Enterprise Company Limited (SPSE)	<ul style="list-style-type: none"> - Other related company (GC holds 15% of the shares) - Major shareholder (PTT) holds 20% of the shares - Executive who is Director of SPSE: 1. Mr. Chaya Chandavasu - Services transaction 	Statements of Income Transactions			
		Other expense	3	2	1
		Statements of Financial Position Balances			
		Other accounts payable - related parties	2	1	1
24. Glow Energy Public Company Limited (GEN)	<ul style="list-style-type: none"> - Subsidiary of GPSC - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	98	409	49
		Purchases of goods or receiving of services	3,437	4,294	4,760
		Other income	1	1	1
		Other expense	3	4	-
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	2	26	3
		Other accounts receivable - related parties	2	2	52
		Trade accounts payable - related parties	349	383	755
		Other accounts payable - related parties	1	3	1
25. Glow SPP 2 Company Limited (GSPP2)	<ul style="list-style-type: none"> - Subsidiary of GPSC - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	10	11	11
		Purchases of goods or receiving of services	77	107	121
		Other income	1	1	1
		Other expense	2	2	-
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	3	3	4
		Trade accounts payable - related parties	8	11	9

Company	Relationship As at 31 st December 2023	Connected Transaction	2021	2022	2023
(million baht)					
26. Glow SPP 3 Company Limited (GSPP3)	<ul style="list-style-type: none"> - Subsidiary of GPSC - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	8	9	10
		Other expense	-	-	3
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	1	2	2
		Other accounts payable - related parties	-	-	4
		Lease liabilities - related parties	-	-	4
27. Glow SPP 11 Company Limited (GSPP11)	<ul style="list-style-type: none"> - Subsidiary of GPSC - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	5	5	5
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	1	1	1
28. Glow IPP Company Limited (GIPP)	<ul style="list-style-type: none"> - Subsidiary of GPSC - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	3	3	5
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	1	1	1
29. GHECO-One Company Limited (GHECO1)	<ul style="list-style-type: none"> - Subsidiary of GPSC - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	19	9	23
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	4	2	3
30. PTTEP SP Limited (PTTEPSP)	<ul style="list-style-type: none"> - Subsidiary of PTTEP - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	-	1	1
31. Combined Heat and Power Producing Co., Ltd. (CHPP)	<ul style="list-style-type: none"> - Subsidiary of GPSC - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	6	29	-
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	2	1	-
32. PTT International Trading USA Inc. (PTTTUSA)	<ul style="list-style-type: none"> - Major shareholder (PTT) holds 100% of the shares - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	-	-	1
		Other income	1	1	7
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	-	-	1
		Other accounts receivable - related parties	-	5	1

Company	Relationship As at 31 st December 2023	Connected Transaction	2021	2022	2023
(million baht)					
33. PT. Tirta Surya Raya (PTSR)	<ul style="list-style-type: none"> - Subsidiary of TOP - Sales/Purchase transaction of products 	Statements of Income Transactions			
		Sales of goods or rendering of services	22	2	1
		Purchases of goods or receiving of services	-	4	10
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	-	-	1
		Trade accounts payable - related parties	-	1	7
34. Siam Management Holding Co., Ltd. (SMH)	<ul style="list-style-type: none"> - Subsidiary of PTTGM - Sales transaction of investment 	Statements of Income Transactions			
		Other income	1,778	-	-
35. PTT International Trading London Ltd (PTTTLDN)	<ul style="list-style-type: none"> - Major shareholder (PTT) holds 100% of the shares - Sales/Purchase transaction of products 	Statements of Income Transactions			
		Sales of goods or rendering of services	-	8	16
		Other income	11	24	12
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	-	8	17
		Other accounts receivable - related parties	11	24	13
36. PTT Treasury Center Company Limited (PTTTCC)	<ul style="list-style-type: none"> - Major shareholder (PTT) holds 100% of the shares - Services transaction 	Statements of Income Transactions			
		Interest expense	19	202	-
		Statements of Financial Position Balances			
37. Thai Petroleum Pipeline Co., Ltd. (THAPPLINE)	<ul style="list-style-type: none"> - Associate of OR - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	1	3	-
		Other income	2	2	2
		Statements of Financial Position Balances			
38. Trans Thai-Malaysia (Thailand) Limited (TTMT)	<ul style="list-style-type: none"> - Major shareholder (PTT) holds 50% of the shares - Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	-	1	1
		Statements of Financial Position Balances			
39. Carigali - PTTEPI Operating Company Sdn Bhd. (CPOC)	<ul style="list-style-type: none"> - Joint operation of PTTEP - Services transaction 	Statements of Income Transactions			
		Sales of goods or rendering of services	-	1	-
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	-	1	-

Company	Relationship As at 31 st December 2023	Connected Transaction	2021	2022	2023
(million baht)					
40. PTT Green Energy Pte. Ltd. (PTTGE)	<ul style="list-style-type: none"> Major shareholder (PTT) holds 100% of the shares Services transaction 	Statements of Income Transactions			
		Sales of goods or rendering of services	-	6	-
41. PTTEP Energy Development Company Limited (PTTEPED)	<ul style="list-style-type: none"> Subsidiary of PTTEP Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	-	11	28
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	-	3	6
42. PTT MEA Ltd. (PTTMEA)	<ul style="list-style-type: none"> Subsidiary of PTTT Sales/Purchase transaction of products 	Statements of Income Transactions			
		Sales of goods or rendering of services	-	2	2
		Other income	-	6	4
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	-	2	2
		Other accounts receivable - related parties	-	6	2
43. Nuovo Plus Co., Ltd. (NUOVOPLUS)	<ul style="list-style-type: none"> Subsidiary of PTTGM Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	-	1	2
		Statements of Financial Position Balances			
44. PTTEP International Limited (Yangon Branch) (PTTEPYAN)	<ul style="list-style-type: none"> Subsidiary of PTTEP Services transaction 	Statements of Income Transactions			
		Sales of goods or rendering of services	-	-	1
		Statements of Financial Position Balances			
45. Thai Lube Base Public Company Limited (TLB)	<ul style="list-style-type: none"> Subsidiary of TOP Sales/Purchase transaction of products and services 	Statements of Income Transactions			
		Sales of goods or rendering of services	-	-	1
46. PTT RAISE Co., Ltd. (PTTRAISE)	<ul style="list-style-type: none"> Joint venture of PTTGM Services transaction 	Statements of Financial Position Balances			
		Other accounts payable - related parties	-	-	4

Measure and Procedure for Approval of Connected Transactions

The Company's Articles of Association state that a Director can acquire or dispose of GC assets or perform any business transaction involving GC either by himself/herself or on behalf of others only with the approval from the Audit Committee and the Board of Directors. However, any Director who personally gains from any acquisition or disposal of GC asset or any transaction of GC is not allowed to vote on that matter.

After receiving approval from the Audit Committee and the Board of Directors, GC or subsidiaries must perform any connected transactions or acquire or dispose of major assets in line with the announcement of the Stock Exchange of Thailand (SET) and the Securities and Exchange Commission (SEC) concerning connected transactions of listed companies as well as the buying and selling of registered company assets.

Necessity and Justification of Connected Transactions

The sales of products by GC to connected companies have been carried out mainly so that they may process its products into their own products for sale at prices corresponding to agreements or spot prices. Prices must prove mutually beneficial and be based on market prices without any undue transfer of interests or extraordinary items to both parties. Making services transaction to connected companies, has to be beneficial to transportation or product storage of connected companies. The charges for services are both market-based and benefit-based without any undue transfer of interests or extraordinary items.

For the product and feedstock supply and/or services as well as the volume of products, feedstock or services given by connected companies must meet the needs and business operation of GC. Prices of products trading or services are as agreed upon by GC and connected companies which generate commercial benefits to GC and connected companies without any undue transfer of interest or extraordinary items. In addition, GC is required to purchase feedstock from connected companies because the capacity and quality of such feedstock meet its needs. GC also saves on transportation expenses since the feedstock can be transferred safely by GC's pipeline systems from their plants in Map Ta Phut Industrial Estate, Rayong.

Opinion of Independent Directors

The Independent Directors agreed with the Board of Directors.

Policy and Trend on Future Connected Transactions

Future connected transactions between GC and connected companies will be conducted as part of the normal course of business with no special favors and no transfer of benefits. The pricing policy between GC and connected companies or persons will be set in normal terms as set for non-related companies or persons. The price of products or feedstock purchased by connected companies or persons will be set in agreement and or linked to market prices. In addition, service charges paid to connected companies will also be at arm's length. The price of products sold between GC and connected companies or persons will, as a rule, be linked to market prices.

Disclosure of the Company's connected transactions must be in compliance with the rules and regulations of the Securities and Exchange Commission (SEC) and the Stock Exchange of Thailand (SET). The audit standards for connected parties will be as specified by the Federation of Accounting Professions under The Royal Patronage of His Majesty the King.

3

Financial Reports and Financial Statements

GC seeks to strengthen and advance its business operations while also maintaining an economic, social, and environmental balance to foster sustainability across the value chain and ultimately elevate the quality of life for all in society.

GC...Chemistry for Better Living





2024

2021

2022

2023

Report of the Board of Directors' Accountability to Financial Report

The consolidated financial statements of PTT Global Chemical Public Company Limited and its subsidiaries were prepared in accordance with relevant laws and regulations of the Securities Exchange Commission as well as financial reporting standards prescribed by the Federation of Accounting Professions, accounting laws, and generally accepted accounting practices in Thailand.

The Company's Board of Directors is accountable for the financial report of PTT Global Chemical Public Company Limited and its subsidiaries, prepared to provide reasonable assurance that the financial report fairly presents the financial position, financial performance, and cash flows. The accounting data is sufficiently and accurately recorded to preserve the Company's assets and prevent fraud and irregularity. The financial report has been prepared according to appropriate accounting policy and consistent practices, and in compliance with the Thai Financial Reporting Standards. Material information has been sufficiently disclosed in notes to financial statements, and the auditor expressed an opinion on the financial statements of PTT Global Chemical Public Company Limited and its subsidiaries in the auditor's report.

(Signed) Mr. Predee Daochai

(Mr. Predee Daochai)

Chairman

(Signed) Mr. Kongkrapan Intarajang

(Mr. Kongkrapan Intarajang)

Chief Executive Officer
& President

Independent Auditor's Report

To the Shareholders of PTT Global Chemical Public Company Limited

Opinion

I have audited the consolidated and separate financial statements of PTT Global Chemical Public Company Limited and its subsidiaries (the "Group") and of PTT Global Chemical Public Company Limited (the "Company"), respectively, which comprise the consolidated and separate statements of financial position as at 31 December 2023, the consolidated and separate statements of income and comprehensive income, changes in equity and cash flows for the year then ended, and notes, comprising a summary of significant accounting policies and other explanatory information.

In my opinion, the accompanying consolidated and separate financial statements present fairly, in all material respects, the financial position of the Group and the Company, respectively, as at 31 December 2023 and their financial performance and cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRSs).

Basis for Opinion

I conducted my audit in accordance with Thai Standards on Auditing (TSAs). My responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Consolidated and Separate Financial Statements section of my report. I am independent of the Group and the Company in accordance with the Code of Ethics for Professional Accountants including Independence Standards issued by the Federation of Accounting Professions (Code of Ethics for Professional Accountants) that is relevant to my audit of the consolidated and separate financial statements, and I have fulfilled my other ethical responsibilities in accordance with the Code of Ethics for Professional Accountants. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Key Audit Matters

Key audit matters are those matters that, in my professional judgment, were of most significance in my audit of the consolidated and separate financial statements of the current period. These matters were addressed in the context of my audit of the consolidated and separate financial statements as a whole, and in forming my opinion thereon, and I do not provide a separate opinion on these matters.

Impairment testing of goodwill

Refer to Notes 3 (m) and 15 to the consolidated financial statements

The Key Audit Matter

The Group has significant amounts of goodwill arising from business combinations in the past. Cash generated units (CGUs), in which goodwill is embedded is tested annually for impairment.

The Group determines the recoverable amount of each CGU, in which goodwill is embedded by applying the value-in-use method (the discounted cash flow method). Loss on impairment shall be recognised when the recoverable amount is less than the carrying amount.

As the amount is material and significant judgement is involved in the estimation of future cash flows attributable to each CGU, and evaluation of the appropriate discount rate, I considered the measurement of the recoverable amount to be a key audit matter.

How the matter was addressed in the audit

Key audit procedures included:

- Understanding management's processes in testing for impairment and estimating expected future cash flows and key assumptions used;
- Evaluating the appropriateness of the forecasting of financial performances by comparing historical estimate to the actual operating results;
- Testing management's key assumptions used in estimating present value of expected future cash flows by referring to market situations, operating environment, knowledge of the industry as well as other obtained information;
- Evaluating the appropriateness of the valuation method and financial parameters used in setting out the discount rate, including testing the calculation; and
- Evaluating the adequacy of the disclosures in accordance with relevant Thai Financial Reporting Standards.

The measurement of inventories valuation

Refer to Notes 3 (g) and 8 to the consolidated and separate financial statements

The Key Audit Matter

Inventories of the Group and the Company are significant balances to the consolidated and separate financial statements. The raw materials and finished goods are commodities that contain significant price volatility which may cause the net realisable value to be lower than its cost resulting in an inventory write-down.

I considered this as a key audit matter.

How the matter was addressed in the audit

Key audit procedures included:

- Gaining an understanding and performing tests of design and implementation as well as operating effectiveness of the relevant controls over the inventories valuation measurement process;
- Assessing the appropriateness of the methodology used to calculate the net realisable value of inventories at the reporting period, considering the reasonableness of the market prices used by reference to expected selling price of commodity, and testing the accuracy of the calculation; and
- Assessing the adequacy of the disclosure in relation to the estimation of allowance for diminution in value of inventories in notes to the financial statements.

Other Information

Management is responsible for the other information. The other information comprises the information included in the annual report, but does not include the consolidated and separate financial statements and my auditor's report thereon.

My opinion on the consolidated and separate financial statements does not cover the other information and I will not express any form of assurance conclusion thereon.

In connection with my audit of the consolidated and separate financial statements, my responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the consolidated and separate financial statements or my knowledge obtained in the audit, or otherwise appears to be materially misstated. If, based on the work I have performed, I conclude that there is a material misstatement of this other information, I am required to report that fact. I have nothing to report in this regard.

Responsibilities of Management and Those Charged with Governance for the Consolidated and Separate Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRSs, and for such internal control as management determines is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated and separate financial statements, management is responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group and the Company or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's and the Company's financial reporting process.

Auditor's Responsibilities for the Audit of the Consolidated and Separate Financial Statements

My objectives are to obtain reasonable assurance about whether the consolidated and separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with TSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated and separate financial statements.

As part of an audit in accordance with TSAs, I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the consolidated and separate financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's and the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the Company's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the consolidated and separate financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Group and the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated and separate financial statements, including the disclosures, and whether the consolidated and separate financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

I also provide those charged with governance with a statement that I have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence, and where applicable, actions taken to eliminate threats or safeguards applied.

From the matters communicated with those charged with governance, I determine those matters that were of most significance in the audit of the consolidated and separate financial statements of the current period and are therefore the key audit matters. I describe these matters in my auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, I determine that a matter should not be communicated in my report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Waiyawat L.

(Waiyawat Kosamarnchaiyakij)

Certified Public Accountant

Registration No. 6333

KPMG Phoomchai Audit Ltd.

Bangkok

12 February 2024

Statement of Financial Position

PTT Global Chemical Public Company Limited and its Subsidiaries

Assets	Note	Consolidated		Separate	
		financial statements		financial statements	
		31 December		31 December	
		2023	2022	2023	2022
		(in Baht)			
Current assets					
Cash and cash equivalents	6	37,318,746,909	25,939,621,879	17,274,340,137	5,185,969,355
Current financial assets	11, 26	8,930,327,195	6,022,947,785	4,884,536,471	4,355,469,646
Trade accounts receivable	7	57,760,700,706	45,253,559,742	44,206,059,061	30,450,413,726
Other receivables		9,757,247,800	6,145,802,710	6,377,314,202	4,309,556,312
Short-term loans to related parties	5	-	-	3,293,885,279	13,324,745,754
Current portion of long-term loans to related parties	5	53,796,872	584,652,100	53,796,872	49,698,971,731
Inventories	8	68,517,097,604	76,619,115,612	44,048,588,616	44,304,863,288
Receivable from oil fuel fund		127,926,911	3,163,956,419	127,926,911	3,163,956,419
Value-added tax receivable		2,956,418,886	6,702,327,148	1,466,602,695	4,960,421,884
Current derivative assets	26	530,898,666	470,271,720	443,380,162	414,032,527
Other current assets		920,415,485	1,106,480,540	687,697,422	775,629,351
Total current assets		186,873,577,034	172,008,735,655	122,864,127,828	160,944,029,993
Non-current assets					
Investments in subsidiaries	9	-	-	141,243,252,566	160,846,376,483
Investments in joint ventures	10	37,135,965,288	35,627,970,016	17,826,805,674	16,101,465,730
Investments in associates	10	20,859,059,445	20,942,889,252	13,617,733,371	13,617,733,371
Non-current financial assets	11, 26	16,693,361,476	24,461,656,245	14,844,647,413	22,594,954,612
Long-term loans to related parties	5	147,941,397	203,706,548	51,044,148,095	203,706,548
Investment properties	12	6,073,246,998	6,074,385,326	1,296,270,302	1,826,854,739
Property, plant and equipment	13	285,859,670,159	296,321,451,437	212,155,933,873	185,796,307,359
Right-of-use assets	14	25,474,901,294	25,616,601,739	19,482,598,686	17,158,159,564
Goodwill	15	76,088,798,400	73,745,551,403	-	-
Intangible assets	16	59,024,221,280	60,231,576,974	6,832,003,099	5,294,033,163
Deferred tax assets	22	3,067,658,621	2,817,535,638	-	-
Non-current derivative assets	26	109,057,378	145,101,047	49,846,372	101,445,463
Other non-current assets		1,597,537,040	1,768,325,436	384,087,657	254,632,118
Total non-current assets		532,131,418,776	547,956,751,061	478,777,327,108	423,795,669,150
Total assets		719,004,995,810	719,965,486,716	601,641,454,936	584,739,699,143

The accompanying notes are an integral part of these financial statements.

Statement of Financial Position

PTT Global Chemical Public Company Limited and its Subsidiaries

Liabilities and equity	Note	Consolidated		Separate	
		financial statements		financial statements	
		31 December		31 December	
		2023	2022	2023	2022
		(in Baht)			
<i>Current liabilities</i>					
Short-term borrowings from financial institutions	17	2,203,233,750	4,318,186,158	-	2,000,000,000
Trade accounts payable		71,163,093,621	57,613,450,996	58,023,649,286	43,053,857,284
Other payables		25,825,008,716	23,718,067,395	9,989,598,214	8,125,481,647
Payables to contractors		2,493,416,804	3,716,775,624	3,230,376,116	3,313,970,465
Current portion of long-term borrowings					
from financial institutions	17	7,376,403,093	9,298,871,850	5,997,810,796	7,683,368,302
Current portion of long-term borrowings					
from other parties	17	40,434,231	42,328,943	-	-
Current portion of debentures	17	11,497,886,667	-	11,497,886,667	-
Current portion of lease liabilities	17	2,197,594,704	1,953,637,337	1,257,746,456	1,003,030,506
Short-term borrowings from related parties	5, 17	-	-	1,580,299,025	2,153,627,283
Corporate income tax payable		1,445,567,541	952,504,547	-	-
Current provisions		1,506,860,894	706,730,706	-	-
Current derivative liabilities	26	73,718,986	1,621,774,035	24,627,268	1,560,829,596
Other current liabilities		18,267,773	34,072,120	-	-
Total current liabilities		125,841,486,780	103,976,399,711	91,601,993,828	68,894,165,083
<i>Non-current liabilities</i>					
Long-term borrowings from financial institutions	17	91,033,879,331	86,753,745,110	46,536,229,773	41,118,208,288
Long-term borrowings from other parties	17	209,645,621	161,956,197	-	-
Long-term borrowings from related party	5, 17	-	-	74,266,288,297	90,675,665,336
Debentures	17	152,690,815,742	176,973,868,084	78,445,563,632	89,930,003,698
Lease liabilities	17	22,853,048,544	22,351,583,893	18,809,315,342	16,085,344,037
Deferred tax liabilities	22	18,728,254,848	19,715,861,457	1,169,398,340	726,304,065
Non-current provisions for employee benefits	18	9,008,225,915	9,165,655,220	4,345,685,587	4,833,407,422
Other non-current provisions		1,712,010,828	1,192,863,888	-	-
Non-current derivative liabilities	26	79,386,037	351,775,118	36,469,243	351,775,118
Other non-current liabilities		667,135,908	494,074,958	439,874,962	273,970,041
Total non-current liabilities		296,982,402,774	317,161,383,925	224,048,825,176	243,994,678,005
Total liabilities		422,823,889,554	421,137,783,636	315,650,819,004	312,888,843,088

The accompanying notes are an integral part of these financial statements.

Statement of Financial Position

PTT Global Chemical Public Company Limited and its Subsidiaries

Liabilities and equity	Note	Consolidated financial statements		Separate financial statements	
		31 December		31 December	
		2023	2022	2023	2022
(in Baht)					
Equity					
Share capital:					
Authorised share capital					
(4,508,849,117 ordinary shares, par value					
at Baht 10 per share)		45,088,491,170	45,088,491,170	45,088,491,170	45,088,491,170
Issued and paid-up share capital					
(4,508,849,117 ordinary shares, par value					
at Baht 10 per share)		45,088,491,170	45,088,491,170	45,088,491,170	45,088,491,170
Share premium		36,936,829,684	36,936,829,684	36,936,829,684	36,936,829,684
Share premium on treasury shares		1,553,065,959	1,553,065,959	1,553,065,959	1,553,065,959
Difference arising from business combination					
under common control		638,880,518	636,103,835	54,491,932	40,172,822
Difference arising from the change in the ownership					
interest in an investment	9	(913,304,188)	(913,304,188)	-	-
Retained earnings					
Appropriated					
Legal reserve	19	4,512,930,269	4,512,930,269	4,512,930,269	4,512,930,269
Loan repayment reserve		807,802,564	807,802,564	807,802,564	807,802,564
Projects expansion reserve		12,446,994,126	12,446,994,126	12,446,994,126	12,446,994,126
Unappropriated		194,876,673,887	194,806,197,911	191,466,545,565	171,801,792,832
Other components of equity		(7,053,848,913)	(4,575,098,495)	(6,876,515,337)	(1,337,223,371)
Equity attributable to owners of the Company		288,894,515,076	291,300,012,835	285,990,635,932	271,850,856,055
Non-controlling interests		7,286,591,180	7,527,690,245	-	-
Total equity		296,181,106,256	298,827,703,080	285,990,635,932	271,850,856,055
Total liabilities and equity		719,004,995,810	719,965,486,716	601,641,454,936	584,739,699,143

The accompanying notes are an integral part of these financial statements.

Statement of Income

PTT Global Chemical Public Company Limited and its Subsidiaries

	Note	Consolidated		Separate	
		financial statements		financial statements	
		For the year ended		For the year ended	
		31 December		31 December	
		2023	2022	2023	2022
		(in Baht)			
Revenues from sale of goods and rendering of services	20, 23	621,631,091,660	683,953,678,709	495,401,561,037	498,767,466,616
Cost of sale of goods and rendering of services		(584,369,113,619)	(631,679,476,265)	(473,851,550,643)	(479,323,106,133)
Gross profit		37,261,978,041	52,274,202,444	21,550,010,394	19,444,360,483
Investment income		1,190,900,338	1,014,702,496	14,404,039,417	20,696,649,006
Gain from sale of investment in subsidiary	9	1,574,353,174	-	1,820,700,556	-
Gain from capital return of subsidiaries	9	-	-	31,265,087	493,296,193
Gain from change in ownership interest in subsidiary	9	2,443,353,174	847,962,520	-	-
Other income		5,729,184,097	2,931,072,968	3,738,795,172	3,035,081,151
Selling and distribution costs		(14,730,235,806)	(18,199,813,431)	(4,273,135,908)	(2,699,177,770)
Administrative expenses		(19,312,236,560)	(19,045,579,691)	(8,131,106,617)	(7,957,672,782)
Reverse (loss) on impairment of assets		917,603	(22,164,579)	(157,823,350)	(97,125,770)
Net derivative loss	26	(249,478,365)	(23,025,447,667)	(131,680,406)	(22,602,370,439)
Net foreign exchange gain (loss)		412,963,953	(344,639,547)	2,319,265,988	(2,295,532,423)
Profit (loss) from operating activities		14,321,699,649	(3,569,704,487)	31,170,330,333	8,017,507,649
Finance costs		(11,717,800,512)	(9,835,326,771)	(8,931,511,859)	(8,525,146,510)
Share of profit (loss) of joint ventures accounted for using equity method	10	(1,644,402,330)	80,751,724	-	-
Share of profit of associates accounted for using equity method	10	1,257,573,529	3,415,269,704	-	-
Profit (loss) before income tax expense		2,217,070,336	(9,909,009,830)	22,238,818,474	(507,638,861)
Tax income (expense)	22	(1,352,029,096)	2,273,105,524	(1,974,104,323)	3,097,149,992
Profit (loss) for the year		865,041,240	(7,635,904,306)	20,264,714,151	2,589,511,131
Profit (loss) attributable to:					
Owners of the Company		999,128,721	(8,752,206,589)	20,264,714,151	2,589,511,131
Non-controlling interests		(134,087,481)	1,116,302,283	-	-
		865,041,240	(7,635,904,306)	20,264,714,151	2,589,511,131
Earnings (loss) per share	24	0.22	(1.94)	4.49	0.57

The accompanying notes are an integral part of these financial statements.

Statement of Comprehensive Income

PTT Global Chemical Public Company Limited and its Subsidiaries

	Consolidated		Separate	
	financial statements		financial statements	
	For the year ended		For the year ended	
	31 December		31 December	
Note	2023	2022	2023	2022
	(in Baht)			
Profit (loss) for the year	865,041,240	(7,635,904,306)	20,264,714,151	2,589,511,131
Other comprehensive income (loss)				
Items that may be reclassified subsequently to profit or loss				
Exchange differences on translating financial statements	3,486,098,465	(4,810,696,770)	-	-
Gain (loss) on measurement of financial assets	7,957,527	(21,478,895)	7,957,527	(21,478,895)
Gain (loss) on cash flow hedges	5,651,425	(44,995,737)	(21,408,136)	(46,668,683)
Share of other comprehensive income (loss) of joint ventures accounted for using equity method	10	(87,998,459)	41,082,731	-
Share of other comprehensive income (loss) of associates accounted for using equity method	10	(4,268,699)	58,367,639	-
Total items that may be reclassified subsequently to profit or loss	3,407,440,259	(4,777,721,032)	(13,450,609)	(68,147,578)
Items that will not be reclassified subsequently to profit or loss				
Gain on remeasurements of defined benefit plans	249,805,273	1,477,008,625	541,562,931	361,417,128
Loss on investments in equity instruments designated at FVOCI	(5,616,367,498)	(3,831,730,047)	(5,525,841,357)	(3,556,041,503)
Share of other comprehensive income (loss) of joint ventures accounted for using equity method	10	(326,520,511)	212,015,554)	-
Share of other comprehensive income (loss) of associates accounted for using equity method	10	(12,049,615)	17,488,938	-
Total items that will not be reclassified subsequently to profit or loss	(5,705,132,351)	(2,549,248,038)	(4,984,278,426)	(3,194,624,375)
Other comprehensive income (loss) for the year, net of tax	(2,297,692,092)	(7,326,969,070)	(4,997,729,035)	(3,262,771,953)
Total comprehensive income (loss) for the year	(1,432,650,852)	(14,962,873,376)	15,266,985,116	(673,260,822)
Total comprehensive income (loss) attributable to:				
Owners of the Company	(1,283,051,340)	(16,097,505,260)	15,266,985,116	(673,260,822)
Non-controlling interests	(149,599,512)	1,134,631,884	-	-
	(1,432,650,852)	(14,962,873,376)	15,266,985,116	(673,260,822)

The accompanying notes are an integral part of these financial statements.

Statement of Changes in Equity

PTT Global Chemical Public Company Limited and its Subsidiaries

		Issued and paid-up share capital	Share premium	Share premium on treasury shares	Difference arising from business combination under common control	Difference arising from the change in the ownership interest in investments	Put option over non-controlling interest	Legal reserve
	Note							
Year ended 31 December 2022								
Balance as at 1 January 2022		45,088,491,170	36,936,829,684	1,553,065,959	636,103,835	-	(1,286,083,982)	4,512,930,269
Transactions with owners, recorded directly in equity								
<i>Distributions to owners</i>								
Dividends	25	-	-	-	-	-	-	-
Total distributions to owners		-	-	-	-	-	-	-
<i>Changes in ownership interests in subsidiaries</i>								
Increase investment in subsidiary	9	-	-	-	-	-	-	-
Decrease investment in subsidiary	9	-	-	-	-	-	-	-
Acquisition of non-controlling interests without a change in control	9	-	-	-	-	(913,304,188)	1,286,083,982	-
Changes in ownership interest in subsidiary and associate with a change in control	9, 10	-	-	-	-	-	-	-
Total changes in ownership interests in subsidiaries		-	-	-	-	(913,304,188)	1,286,083,982	-
Total transactions with owners, recorded directly in equity		-	-	-	-	(913,304,188)	1,286,083,982	-
Comprehensive income for the year								
Loss		-	-	-	-	-	-	-
Other comprehensive income (loss)		-	-	-	-	-	-	-
Total comprehensive income (loss) for the year		-	-	-	-	-	-	-
Balance at 31 December 2022		45,088,491,170	36,936,829,684	1,553,065,959	636,103,835	(913,304,188)	-	4,512,930,269
Year ended 31 December 2023								
Balance as at 1 January 2023		45,088,491,170	36,936,829,684	1,553,065,959	636,103,835	(913,304,188)	-	4,512,930,269
Transactions with owners, recorded directly in equity								
<i>Distributions to owners</i>								
Dividends	25	-	-	-	-	-	-	-
Total distributions to owners		-	-	-	-	-	-	-
<i>Changes in ownership interests in subsidiaries</i>								
Increase investment in subsidiary	9	-	-	-	-	-	-	-
Decrease investment in subsidiary	9	-	-	-	-	-	-	-
Changes in ownership interest in subsidiary and associate with a change in control	9, 10	-	-	-	2,776,683	-	-	-
Total changes in ownership interests in subsidiaries		-	-	-	2,776,683	-	-	-
Total transactions with owners, recorded directly in equity		-	-	-	2,776,683	-	-	-
Comprehensive income for the year								
Profit		-	-	-	-	-	-	-
Other comprehensive income (loss)		-	-	-	-	-	-	-
Total comprehensive income (loss) for the year		-	-	-	-	-	-	-
Transfer to retained earnings		-	-	-	-	-	-	-
Balance at 31 December 2023		45,088,491,170	36,936,829,684	1,553,065,959	638,880,518	(913,304,188)	-	4,512,930,269

The accompanying notes are an integral part of these financial statements.

Consolidated financial statements

Retained earnings			Other components of equity								
Loans repayment reserve	Projects expansion reserve	Unappropriated (in Baht)	Translation reserve	Change in fair value of financial assets reserve	Cash flow hedge reserve	Share of other comprehensive income (loss) of joint ventures	Share of other comprehensive income (loss) of associates	Total other components of equity	Equity attributable to owners of the parent	Non- controlling interests	Total equity
807,802,564	12,446,994,126	213,213,982,065	(150,444,242)	3,634,887,252	66,995,751	809,043,810	(28,760,775)	4,331,721,796	318,241,837,486	9,361,329,159	327,603,166,645
-	-	(11,271,581,548)	-	-	-	-	-	-	(11,271,581,548)	(474,039,605)	(11,745,621,153)
-	-	(11,271,581,548)	-	-	-	-	-	-	(11,271,581,548)	(474,039,605)	(11,745,621,153)
-	-	-	-	-	-	-	-	-	-	16,200,000	16,200,000
-	-	-	-	-	-	-	-	-	-	(135,464,934)	(135,464,934)
-	-	-	119,332,893	-	-	-	-	119,332,893.00	492,112,687	(500,630,317)	(8,517,630)
-	-	(64,626,345)	-	-	-	-	(224,185)	(224,185)	(64,850,530)	(1,874,335,942)	(1,939,186,472)
-	-	(64,626,345)	119,332,893	-	-	-	(224,185)	119,108,708	427,262,157	(2,494,231,193)	(2,066,969,036)
-	-	(11,336,207,893)	119,332,893	-	-	-	(224,185)	119,108,708	(10,844,319,391)	(2,968,270,798)	(13,812,590,189)
-	-	(8,752,206,589)	-	-	-	-	-	-	(8,752,206,589)	1,116,302,283	(7,635,904,306)
-	-	1,680,630,328	(4,816,903,294)	(3,853,208,942)	(45,587,615)	(368,789,120)	58,559,972	(9,025,928,999)	(7,345,298,671)	18,329,601	(7,326,969,070)
-	-	(7,071,576,261)	(4,816,903,294)	(3,853,208,942)	(45,587,615)	(368,789,120)	58,559,972	(9,025,928,999)	(16,097,505,260)	1,134,631,884	(14,962,873,376)
807,802,564	12,446,994,126	194,806,197,911	(4,848,014,643)	(218,321,690)	21,408,136	440,254,690	29,575,012	(4,575,098,495)	291,300,012,835	7,527,690,245	298,827,703,080
807,802,564	12,446,994,126	194,806,197,911	(4,848,014,643)	(218,321,690)	21,408,136	440,254,690	29,575,012	(4,575,098,495)	291,300,012,835	7,527,690,245	298,827,703,080
-	-	(1,127,205,239)	-	-	-	-	-	-	(1,127,205,239)	(141,734,483)	(1,268,939,722)
-	-	(1,127,205,239)	-	-	-	-	-	-	(1,127,205,239)	(141,734,483)	(1,268,939,722)
-	-	-	-	-	-	-	-	-	-	89,500,000	89,500,000
-	-	-	-	-	-	-	-	-	-	(39,265,070)	(39,265,070)
-	-	1,982,137	-	-	-	-	-	-	4,758,820	-	4,758,820
-	-	1,982,137	-	-	-	-	-	-	4,758,820	50,234,930	54,993,750
-	-	(1,125,223,102)	-	-	-	-	-	-	(1,122,446,419)	(91,499,553)	(1,213,945,972)
-	-	999,128,721	-	-	-	-	-	-	999,128,721	(134,087,481)	865,041,240
-	-	164,200,063	3,544,477,067	(5,608,409,971)	(1,846,779)	(402,912,737)	22,312,296	(2,446,380,124)	(2,282,180,061)	(15,512,031)	(2,297,692,092)
-	-	1,163,328,784	3,544,477,067	(5,608,409,971)	(1,846,779)	(402,912,737)	22,312,296	(2,446,380,124)	(1,283,051,340)	(149,599,512)	(1,432,650,852)
-	-	32,370,294	-	(32,370,294)	-	-	-	(32,370,294)	-	-	-
807,802,564	12,446,994,126	194,876,673,887	(1,303,537,576)	(5,859,101,955)	19,561,357	37,341,953	51,887,308	(7,053,848,913)	288,894,515,076	7,286,591,180	296,181,106,256

Statement of Changes in Equity

PTT Global Chemical Public Company Limited and its Subsidiaries

	Note	Issued and paid-up share capital	Share premium	Share premium on treasury share	Difference arising from business combination under common control
Year ended 31 December 2022					
Balance as at 1 January 2022		45,088,491,170	36,936,829,684	1,553,065,959	77,453,518
Transactions with owners, recorded directly in equity					
<i>Distributions to owners</i>					
Dividends	25	-	-	-	-
<i>Total distributions to owners</i>		-	-	-	-
<i>Changes in ownership interests in subsidiaries</i>					
Transfers of businesses		-	-	-	(37,280,696)
<i>Total changes in ownership interests in subsidiaries</i>		-	-	-	(37,280,696)
Total transactions with owners, recorded directly in equity		-	-	-	(37,280,696)
Comprehensive income for the year					
Profit		-	-	-	-
Other comprehensive income (loss)		-	-	-	-
Total comprehensive income (loss) for the year		-	-	-	-
Balance at 31 December 2022		45,088,491,170	36,936,829,684	1,553,065,959	40,172,822
Year ended 31 December 2023					
Balance as at 1 January 2023		45,088,491,170	36,936,829,684	1,553,065,959	40,172,822
Transactions with owners, recorded directly in equity					
<i>Distributions to owners</i>					
Dividends	25	-	-	-	-
<i>Total distributions to owners</i>		-	-	-	-
<i>Changes in ownership interests in subsidiaries</i>					
Changes in ownership interest in subsidiary with a change in control	9	-	-	-	14,319,110
<i>Total changes in ownership interests in subsidiaries</i>		-	-	-	14,319,110
Total transactions with owners, recorded directly in equity		-	-	-	14,319,110
Comprehensive income for the year					
Profit		-	-	-	-
Other comprehensive income (loss)		-	-	-	-
Total comprehensive income (loss) for the year		-	-	-	-
Balance at 31 December 2023		45,088,491,170	36,936,829,684	1,553,065,959	54,491,932

The accompanying notes are an integral part of these financial statements.

Separate financial statements				Other components of equity			
Retained earnings							
Legal reserve	Loans repayment reserve	Projects expansion reserve (in Baht)	Unappropriated	Change in fair value of financial assets reserve	Cash flow hedge reserve	Total other components of equity	Total equity
4,512,930,269	807,802,564	12,446,994,126	180,098,471,379	3,213,709,391	(926,743,681)	2,286,965,710	283,809,004,379
-	-	-	(11,271,581,548)	-	-	-	(11,271,581,548)
-	-	-	(11,271,581,548)	-	-	-	(11,271,581,548)
-	-	-	23,974,742	-	-	-	(13,305,954)
-	-	-	23,974,742	-	-	-	(13,305,954)
-	-	-	(11,247,606,806)	-	-	-	(11,284,887,502)
-	-	-	2,589,511,131	-	-	-	2,589,511,131
-	-	-	361,417,128	(3,577,520,398)	(46,668,683)	(3,624,189,081)	(3,262,771,953)
-	-	-	2,950,928,259	(3,577,520,398)	(46,668,683)	(3,624,189,081)	(673,260,822)
4,512,930,269	807,802,564	12,446,994,126	171,801,792,832	(363,811,007)	(973,412,364)	(1,337,223,371)	271,850,856,055
4,512,930,269	807,802,564	12,446,994,126	171,801,792,832	(363,811,007)	(973,412,364)	(1,337,223,371)	271,850,856,055
-	-	-	(1,127,205,239)	-	-	-	(1,127,205,239)
-	-	-	(1,127,205,239)	-	-	-	(1,127,205,239)
-	-	-	(14,319,110)	-	-	-	-
-	-	-	(14,319,110)	-	-	-	-
-	-	-	(1,141,524,349)	-	-	-	(1,127,205,239)
-	-	-	20,264,714,151	-	-	-	20,264,714,151
-	-	-	541,562,931	(5,517,883,830)	(21,408,136)	(5,539,291,966)	(4,997,729,035)
-	-	-	20,806,277,082	(5,517,883,830)	(21,408,136)	(5,539,291,966)	15,266,985,116
4,512,930,269	807,802,564	12,446,994,126	191,466,545,565	(5,881,694,837)	(994,820,500)	(6,876,515,337)	285,990,635,932

Statement of Cash Flows

PTT Global Chemical Public Company Limited and its Subsidiaries

	Consolidated financial statements		Separate financial statements	
	31 December		31 December	
	2023	2022	2023	2022
	(in Baht)			
Cash flows from operating activities				
Profit (loss) for the year	865,041,240	(7,635,904,306)	20,264,714,151	2,589,511,131
<i>Adjustments to reconcile profit (loss) to cash receipts (payments)</i>				
Tax expense (income)	1,352,029,096	(2,273,105,524)	1,974,104,323	(3,097,149,992)
Depreciation and amortisation	28,487,252,496	27,562,773,273	17,292,981,527	13,925,422,752
Investment income	(1,304,679,822)	(1,005,990,634)	(14,471,119,018)	(20,679,120,765)
Gain from sale of investment in subsidiary	(1,574,353,174)	-	(1,820,700,556)	-
Gain from capital return of subsidiaries	-	-	(31,265,087)	(493,296,192)
Gain from change in ownership interest in subsidiaries	(2,443,353,174)	(847,962,520)	-	-
Loss from change in ownership interest in associate	-	74,696,719	-	-
Finance costs	11,717,800,512	9,835,326,771	8,931,511,859	8,525,146,510
Unrealised (gain) loss on derivatives	(1,854,877,276)	1,438,379,352	(1,867,055,983)	1,359,398,918
(Gain) loss on foreign exchange rates	(867,700,835)	2,714,342,318	(1,618,847,781)	7,977,694,034
(Gain) loss on fair value adjustment of financial assets	113,779,484	(8,711,862)	67,079,601	(17,528,241)
(Reversal of) impairment credit loss	(55,726,270)	98,855,709	29,960	(2,075,863)
(Reversal of) loss on obsolete and written-off inventories	(165,801,800)	799,280,794	(714,330,736)	743,547,960
(Reversal of) loss on inventories devaluation	(1,551,508,336)	1,859,978,551	(1,286,276,324)	1,521,012,539
Impairment loss on assets	13,700,382	52,742,964	-	-
(Reversal of) impairment loss on investment in subsidiaries and associate	(917,603)	2,614,199	157,823,350	97,125,770
Gain on disposal of property, plant and equipment, intangible assets and right-of-use assets	(670,758,412)	(1,005,510,224)	(749,354,327)	(600,316,468)
Non-current provisions for employee benefits	743,631,520	657,132,297	346,369,111	344,734,753
Gain from repurchase of undue debenture	(1,890,198,729)	-	-	-
Share of (profit) loss of joint ventures accounted for using equity method, net of tax	1,644,402,330	(80,751,724)	-	-
Share of profit of associates accounted for using equity method, net of tax	(1,257,573,529)	(3,415,269,704)	-	-
	31,300,188,100	28,822,916,449	26,475,664,070	12,194,106,846
Changes in operating assets and liabilities				
Trade accounts receivable	(12,640,965,024)	4,383,179,781	(9,824,251,983)	11,432,095,542
Other receivables	(3,110,814,142)	22,374,770	(2,584,299,377)	(19,930,894)
Inventories	9,873,722,340	(8,235,564,039)	5,510,809,135	(7,827,974,108)
Value-added tax receivable	3,784,659,489	(4,313,569,094)	4,133,984,490	(4,443,635,770)
Other current assets	2,977,232,067	(2,471,665,048)	3,099,433,386	(2,246,968,110)
Other non-current assets	212,402,452	(745,723,213)	(13,031,025)	(32,747,890)
Trade accounts payable	13,489,360,736	(12,028,549,419)	12,039,459,467	(15,309,951,607)
Other payables	2,955,467,529	(5,322,647,916)	1,661,741,512	(3,897,844,405)
Current provisions	1,002,999,454	52,182,890	-	-
Other current liabilities	(9,876,853)	27,150,165	-	-
Paid for provisions for employee benefits	(623,855,790)	(465,057,686)	(215,857,507)	(139,549,730)
Other non-current provisions	189,682,443	60,572,086	-	-
Other non-current liabilities	283,695,574	(457,627,952)	282,319,049	(191,832,857)
Net cash generated from (used in) operations	49,683,898,375	(672,028,226)	40,565,971,217	(10,484,232,983)
Taxes received (paid)	(1,450,279,655)	(2,754,444,557)	(4,501,411)	361,555,074
Net cash from (used in) operating activities	48,233,618,720	(3,426,472,783)	40,561,469,806	(10,122,677,909)

The accompanying notes are an integral part of these financial statements.

Statement of Cash Flows

PTT Global Chemical Public Company Limited and its Subsidiaries

	Consolidated financial statements		Separate financial statements	
	31 December		31 December	
	2023	2022	2023	2022
	(in Baht)			
<i>Cash flows from investing activities</i>				
Interest received	969,780,785	619,093,100	2,313,814,768	4,116,371,687
Dividends received	2,565,811,423	2,900,853,133	4,112,410,346	9,363,123,219
Acquisition of property, plant and equipment and intangible assets	(19,585,900,015)	(21,371,880,022)	(11,642,779,750)	(11,969,332,566)
Proceeds from sale of property, plant and equipment	4,503,445,264	1,278,187,628	1,171,637,455	741,838,169
(Increase) decrease of investment in debt instruments	(2,133,967,231)	13,458,324,356	276,743,142	14,873,255,678
Increase of investment in equity instruments	(126,062,404)	(335,403,494)	-	-
Acquisition of investments in subsidiaries, joint ventures and associates	(1,093,540,500)	(8,224,499,459)	(3,697,774,945)	(65,931,801,610)
Net cash payment from transfers of businesses	-	-	(15,459,414,953)	(5,398,827,315)
Proceeds from capital return of subsidiaries	-	-	20,629,701,212	6,687,408,080
Proceeds from sale of investment in subsidiary	2,500,000,000	-	2,500,000,000	-
Decrease in cash from loss of control in a subsidiaries	(334,168,185)	(537,264,908)	-	-
Short-term loans to related parties	(295,879,730)	-	(2,757,397,025)	(12,857,630,646)
Proceeds from short-term loans to related parties	295,879,730	-	-	1,803,343,995
Long-term loans to related parties	-	-	(140,000,000)	-
Proceeds from long-term loans to related parties	587,037,200	-	587,037,200	52,185,036,283
Net cash used in investing activities	(12,147,563,663)	(12,212,589,666)	(2,106,022,550)	(6,387,215,026)
<i>Cash flows from financing activities</i>				
Finance costs paid	(10,860,835,021)	(9,494,431,361)	(8,148,741,995)	(7,984,551,981)
Dividends paid	(1,268,939,723)	(11,745,621,153)	(1,127,205,239)	(11,271,581,548)
Payment of lease liabilities	(3,186,004,258)	(2,493,625,714)	(1,756,801,169)	(1,734,696,497)
Proceeds from short-term borrowings from financial institutions	384,823,807	3,857,851,029	-	2,000,000,000
Proceeds from short-term borrowings from related parties	-	-	790,622,800	313,834,684
Proceeds from long-term borrowings from financial institutions	15,150,623,009	50,262,715,404	11,400,000,000	16,379,600,000
Proceeds from long-term borrowings from other parties	82,571,328	-	-	-
Proceeds from long-term borrowings from related parties	-	-	-	47,163,351,392
Repayment of short-term borrowings from financial institutions	(2,489,641,920)	(1,902,019,885)	(2,000,000,000)	-
Repayment of short-term borrowings from related parties	-	-	(1,363,951,058)	(8,249,081,964)
Repayment of long-term borrowings from financial institutions	(12,612,178,627)	(50,783,206,834)	(7,713,600,000)	(400,000,000)
Repayment of long-term borrowings from other parties	(43,238,719)	(44,707,450)	-	-
Repayment of long-term borrowings from related parties	-	(55,600,000,000)	(16,182,922,753)	(83,905,125,621)
Payment of change in ownership interest in subsidiary without a change in control	-	(554,213,758)	-	-
Proceeds from increase in investment in subsidiaries from non-controlling interests	89,500,000	16,200,000	-	-
Payment of decrease in investment in subsidiary to non-controlling interests	(39,265,070)	(135,464,934)	-	-
Proceeds from issuing debentures	-	100,586,697,000	-	55,000,000,000
Repayment of debentures	(10,330,194,913)	(36,134,441,960)	-	(18,745,080,789)
Net cash used in financing activities	(25,122,780,107)	(14,164,269,616)	(26,102,599,414)	(11,433,332,324)
Net increase (decrease) in cash and cash equivalents, before effect of exchange rate changes	10,963,274,950	-29,803,332,065	12,352,847,842	-27,943,225,259
Effect of exchange rate changes on cash and cash equivalents and effect from translation differences on financial statements	415,850,080	129,712,891	-264,477,060	-175,032,943
Net increase (decrease) in cash and cash equivalents	11,379,125,030	(29,673,619,174)	12,088,370,782	(28,118,258,202)
Cash and cash equivalents at 1 January	25,939,621,879	55,613,241,053	5,185,969,355	33,304,227,557
Cash and cash equivalents at 31 December	37,318,746,909	25,939,621,879	17,274,340,137	5,185,969,355

The accompanying notes are an integral part of these financial statements.

Notes to the Financial Statements

PTT Global Chemical Public Company Limited and its Subsidiaries

For the year ended 31 December 2023

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These notes form an integral part of the financial statements.

The financial statements issued for Thai statutory and regulatory reporting purposes are prepared in the Thai language. These English language financial statements have been prepared from the Thai language statutory financial statements, and were approved and authorised for issue by the Board of Directors on 12 February 2024.

1 General information

PTT Global Chemical Public Company Limited, the “Company”, is incorporated in Thailand and was listed on the Stock Exchange of Thailand on 19 October 2011. The Company’s registered offices are as follows:

Head Office	: 555/1, Energy Complex, Building A, 18th Floor, Vibhavadi-Rangsit Road, Chatuchak, Bangkok, Thailand
Branch 1 (Rayong office Branch)	: 59, Radniyom Road, Tambon Noenphra, Amphoe Mueang Rayong, Rayong, Thailand
Branch 2 (Olefin 1 Branch)	: 14, I-1 Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 3 (Olefin 2 Branch)	: 9, I-4 Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 4 (Aromatics 1 Branch)	: 4, I-2 Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 5 (Aromatics 2 Branch)	: 98/9, Rayong 3191 Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 6 (Refining Branch)	: 8, I-8 Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 7 (Jetty and Buffer Tank Farm Branch)	: 19, Rong Pui Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 8 (Aromatics reserve Branch)	: 11, I-4 Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 9 (Lab Service Center Branch)	: 24/9, Pakorn Songkro-Rat Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 10 (GC 10 Branch)	: 555/1, Energy Complex, Building A, 1 st , 9 th , 14 th and 16 th - 17 th Floor, Vibhavadi-Rangsit Road, Chatuchak, Bangkok, Thailand
Branch 11 (Olefin 3 Branch)	: 8, Phadang Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 12 (Polyethylene Branch)	: 8, Map Ta Phut Industrial Estate, I-10 Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 13 (Innoplus Solution Center Branch)	: 83/9-10, Moo 5, Tambon Tabma, Amphoe Mueang Rayong, Rayong, Thailand

Notes to the Financial Statements

Branch 14 (GC 14 Branch)	: 32, Rong Pui Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 15 (GC Chemical Experience Campus)	: 66, National highway 363 Road, Tambon Noenphra, Amphoe Mueang Rayong, Rayong, Thailand
Branch 16 (Glycol Plant)	: 9-9/1, Soi G12, Pakorn Songkrorat Road, Tambon Tabma, Amphoe Mueang Rayong, Rayong, Thailand
Branch 17 (Polystyrene Plant)	: 7, I-1 Road, Tambon Tabma, Amphoe Mueang Rayong, Rayong, Thailand
Branch 18 (Phenol Plant)	: 9, Soi G9, Pakorn Songkrorat Road, Tambon Tabma, Amphoe Mueang Rayong, Rayong, Thailand
Branch 19 (Oxirane Plant)	: 12, Soi G4, Pakorn Songkrorat Road, Tambon Tabma, Amphoe Mueang Rayong, Rayong, Thailand

The Company is a company in the PTT Public Company Limited (“PTT”) group of companies. PTT is incorporated in Thailand and is the major shareholder of the Company, holding 45.18% of the Company’s issued and paid-up share capital.

The principal activities of the Company are refining and provision of integrated petroleum products, production and distribution of aromatics products including aromatic derivatives and production and distribution of ethylene, propylene, polyethylene plastic pellets and biochemical products. By-products are mixed C4, cracker bottom and tail gas. Minor activities are production and distribution of electricity, water, steam and other utilities. In addition, the Company also operates production support facilities such as jetty and buffer tank farm services for liquid chemical, oil and gas. Details of the Company’s subsidiaries as at 31 December 2023 and 2022 are given in note 9.

2 Basis of preparation of the financial statements

The financial statements are prepared in accordance with Thai Financial Reporting Standards (“TFRS”), guidelines promulgated by the Federation of Accounting Professions and applicable rules and regulations of the Thai Securities and Exchange Commission. The financial statements are presented in Thai Baht, which is the Company’s functional currency. The accounting policies, described in note 3, have been applied consistently to all periods presented in these financial statements.

The preparation of financial statements in conformity with TFRS requires management to make judgements, estimates and assumptions that affect the application of the Group’s accounting policies. Actual results may differ from these estimates. Estimates and underlying assumptions that are described in note 3 are reviewed on an ongoing basis. Revisions to accounting estimates are recognised prospectively.

The Group has not adopted the new and revised TFRS which will be effective for the financial statements for the periods beginning on or after 1 January 2024 onwards in preparing these financial statements. The Group is in the process of assessing the potential impact on the financial statements from the adoption of these new and revised TFRS which is included top-up tax law.

3 Significant accounting policies

(a) *Basis of consolidation*

The consolidated financial statements relate to the Company and its subsidiaries and the Group's interests in associates and joint ventures.

Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity when it has rights to variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

At the acquisition date, the Group measures any non-controlling interest at its proportionate interest in the identifiable net assets of the acquiree.

When there is a change in the Group's interest in a subsidiary that does not result in a loss of control, any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received from the acquisition or disposal of the non-controlling interests with no change in control is accounted for as other surplus/deficit in shareholders' equity.

When the Group loses control over a subsidiary, it derecognises the assets and liabilities, any related non-controlling interests and other components of equity of the subsidiary. Any resulting gain or loss is recognised in profit or loss. Any interest retained in the former subsidiary is measured at fair value when control is lost.

Associates and joint ventures

Associates are those entities in which the Group has significant influence, but not control or joint control, over the financial and operating policies. A joint venture is an arrangement in which the Group has joint control, whereby the Group has rights to the net assets of the arrangement.

The Group recognised investments in associates and joint ventures using the equity method in the consolidated financial statements. They are initially recognised at cost, which includes transaction costs. Subsequent to initial recognition, the consolidated financial statements include the Group's dividend income and share of the profit or loss and other comprehensive income of equity-accounted investees, until the date on which significant influence or joint control ceases.

If an investment in an associate becomes an investment in a joint venture or vice versa, the retained interest is not remeasured. Instead, the investment continues to be accounted for under the equity method. In all other cases, when the group ceases to have significant influence over an associate or joint control over a joint venture, it is accounted for as a disposal of the entire interest in that investee, with a resulting gain or loss being recognised in profit or loss. Any interest retained in that former investee at the date when significant influence or joint control is lost is recognised at fair value and this amount is regarded as the fair value on initial recognition of a financial asset.

Intra-group balances and transactions, and any income or expenses arising from intra-group transactions, are eliminated on consolidation. Unrealised gains or losses arising from transactions with associates and joint ventures are eliminated against the investment to the extent of the Group's interest in the investee.

Business combinations

The Group applies the acquisition method when the Group assess that the acquired set of activities and assets include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create output. The acquisition date is the date on which control is transferred to the Group, other than business combinations with entities under common control. Expenses in connection with a business combination are recognised as incurred.

Goodwill is measured at the acquisition date as the fair value of the consideration transferred including the recognised amount of any non-controlling interest in the acquiree, less net fair value of the identifiable assets acquired and liabilities assumed. Any gain on bargain purchase is recognised in profit or loss immediately.

Consideration transferred or any contingent consideration is measured at fair value at the date of acquisition, and remeasured at fair value at each reporting date. Subsequent changes in the fair value are recognised in profit or loss.

A contingent liability of the acquiree is assumed in a business combination only if such a liability represents a present obligation and arises from a past event, and its fair value can be measured reliably.

If the initial accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, the Group estimates provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted during the measurement period, or additional assets or liabilities are recognised, to reflect new information obtained about facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognised at that date.

When a business combination is achieved in stages, the Group's previously held equity interest in the acquiree is remeasured to its acquisition-date fair value and the resulting gain or loss, if any, is recognised in profit or loss. Amounts arising from interests in the acquiree prior to the acquisition date that have previously been recognised in other comprehensive income are reclassified to profit or loss where such treatment would be appropriate if that interest were disposed of.

Business combination under common control are accounted for using a method similar to the pooling of interest method, by recognising assets and liabilities of the acquired businesses at their carrying amounts in the consolidated financial statements of the ultimate parent company at the transaction date. The difference between the carrying amount of the acquired net assets and the consideration transferred is recognised as surplus or deficit from business combinations under common control in shareholder's equity. The surplus or deficit will be transferred to retained earnings upon divestment of the businesses acquired. The results from operations of the acquired businesses will be included in the consolidated financial statements of the acquirer from the beginning of the comparative period or the moment the businesses came under common control, whichever date is later, until control ceases.

(b) *Investments in subsidiaries, associates and joint ventures*

Investments in subsidiaries, associates and joint ventures in the separate financial statements are measured at cost less allowance for impairment losses. Dividend income is recognised in profit or loss on the date on which the Group's right to receive payment is established. If the Company disposes of part of its investment, the deemed cost of the part sold is determined using the weighted average method. Gains and losses on disposal of the investments are recognised in profit or loss.

(c) Foreign currencies

Transactions in foreign currencies including non-monetary assets and liabilities denominated in foreign currencies are translated to the respective functional currencies of each entity in the Group at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are translated at the exchange rate at the reporting date. Non-monetary assets and liabilities measured at fair value in foreign currencies are translated at the exchange rates at the dates that fair value was determined.

Foreign currency differences are generally recognised in profit or loss. However, foreign currency differences arising from the translation of the following items are recognised in other comprehensive income:

- an investment in equity securities designated as at FVOCI (except on impairment, in which case foreign currency differences that have been recognised in other comprehensive income are reclassified to profit or loss);
- a financial liability designated as a hedge of the net investment in a foreign operation to the extent that the hedge is effective; and
- qualifying cash flow hedges to the extent the hedge is effective.

Foreign operations

The assets and liabilities of foreign operations, including goodwill and fair value adjustments arising on acquisition, are translated to Thai Baht at the exchange rates at the reporting date. The revenues and expenses of foreign operations are translated to Thai Baht at rates approximating the exchange rates at average rate during the year.

Foreign exchange differences are accumulated in the translation reserve until disposal of the investment, except to the extent that the translation difference is allocated to non-controlling interests.

When a foreign operation is disposed of in its entirety or partially such that control, significant influence or joint control is lost, the cumulative amount in the translation reserve related to that foreign operation is reclassified to profit or loss as part of the gain or loss on disposal.

The settlement of a monetary item receivable from or payable to a foreign operation is neither planned nor likely in the foreseeable future, exchange gains and losses arising from such a monetary item are considered to form part of a net investment in a foreign operation and are recognised in other comprehensive income, and presented in the translation reserve in equity until disposal of the investment.

(d) Financial instruments

(d.1) Classification and measurement

Other financial assets and financial liabilities (except trade accounts receivables (see note 3(f))) are initially recognised when the Group becomes a party to the contractual provisions of the instrument, and measured at fair value plus or minus, for an item not at fair value through profit or loss (FVTPL), transaction costs that are directly attributable to its acquisition or issue.

Regular way of purchases and sales of financial assets are recognised on trade-date, the date on which the Group commits to purchase or sell the asset.

Initial recognition

Financial asset is classified as measured at: amortised cost; fair value through other comprehensive income (FVOCI); or FVTPL. Financial assets are not reclassified subsequent to their initial recognition unless the Group changes its business model for managing financial assets, in which case all affected financial assets are reclassified prospectively from the reclassification date.

Financial liabilities are classified as measured at amortised cost using the effective interest method or FVTPL. Interest expense, foreign exchange gains and losses are recognised in profit or loss.

Subsequently measured

Financial assets measured at amortised costs are subsequently measured at amortised cost using the effective interest method. The amortised cost is reduced by expected credit losses. Interest income, foreign exchange gains and losses, expected credit loss and any gain or loss on derecognition are recognised in profit or loss.

Debt investments measured at FVOCI are subsequently measured at fair value. Interest income, calculated using the effective interest method, foreign exchange gains and losses and expected credit loss are recognised in profit or loss. Other net gains and losses are recognised in OCI. On derecognition, gains and losses accumulated in OCI are reclassified to profit or loss.

Equity investments measured at FVOCI are subsequently measured at fair value. Dividend income is recognised as income in profit or loss on the date on which the Group's right to receive dividend is established, unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognised in OCI and are never reclassified to profit or loss.

(d.2) Derecognition and offset

The Group derecognises a financial asset when the contractual rights to receive the cash flows from the financial asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial asset are transferred or in which the Group neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

The Group derecognises a financial liability when its contractual obligations are discharged or cancelled, or expire. The Group also derecognises a financial liability when its terms are modified and the cash flows of the modified liability are substantially different, in which case a new financial liability based on the modified terms is recognised at fair value.

The difference between the carrying amount extinguished and the consideration received or paid is recognised in profit or loss.

Financial assets and financial liabilities are offset and the net amount presented in the statement of financial position when, and only when, the Group currently has a legally enforceable right to set off the amounts and the Group intends either to settle them on a net basis or to realise the asset and settle the liability simultaneously.

Interest rate benchmark reform

When the basis of determining the contractual cash flows of a financial asset or financial liability measured at amortised cost changed as a result of interest rate benchmark reform (IBOR reform), the Group first updated the effective interest rate of the financial asset or financial liability to reflect the change that is required by IBOR reform. If there were any other additional changes, the Group applied the policies on accounting for modifications to those changes.

(d.3) Derivatives

Derivative are recognised at fair value and remeasured at fair value at each reporting date. The gain or loss on remeasurement to fair value is recognised immediately in profit or loss, except where the derivatives qualify for cash flow hedge accounting or hedges of net investment in a foreign operation, in which case recognition of any resultant gain or loss depends on the nature of the item being hedged.

(d.4) Hedging

At inception of designated hedging relationships, the Group documents the risk management objective and strategy for undertaking the risk, the economic relationship between the hedged item and the hedging instrument, including consideration of the hedge effectiveness at the inception of the hedging relationship and throughout the remaining period to determine the existence of economic relationship between the hedged item and the hedging instrument.

Cash flow hedges

When a derivative is designated as a cash flow hedging instrument, the effective portion of changes in the fair value of the derivative is recognised in OCI and accumulated in the hedging reserve. Any ineffective portion of changes in the fair value of the derivative is recognised immediately in profit or loss.

When the hedged forecast transaction subsequently results in the recognition of a non-financial item such as inventory, the amount accumulated in the cash flow hedging reserve is included directly in the initial cost of the non-financial item when it is recognised.

For all other hedged forecast transactions, the amount accumulated in the cash flow hedging reserve is reclassified to profit or loss in the same period or periods during which the hedged expected future cash flows affect profit or loss.

If the hedge no longer meets the criteria for hedge accounting or the hedging instrument is sold, expires, is terminated or is exercised, then hedge accounting is discontinued prospectively. When hedge accounting for cash flow hedges is discontinued, the amount that has been accumulated in the cash flow hedging reserve remains in equity until, for a hedge of a transaction resulting in the recognition of a non-financial item, it is included in the non-financial item's cost on its initial recognition or, for other cash flow hedges, it is reclassified to profit or loss in the same period or periods as the hedged expected future cash flows affect profit or loss.

If the hedged future cash flows are no longer expected to occur, then the amounts that have been accumulated in the cash flow hedging reserve are immediately reclassified to profit or loss.

(d.5) Impairment of financial assets other than trade accounts receivables

The Group assesses ECLs by reviewing credit ratings of the financial assets unless there has been a significant increase in credit risk of the financial instrument since initial recognition or credit-impaired financial assets, the loss allowance is measured at an amount equal to lifetime ECLs.

In determining allowance of expected credit loss, the financial asset is considered to have low credit risk and no significant incremental of credit risk since initial recognition. The Group will not recognise any allowance of expected credit loss.

(d.6) Write offs

The gross carrying amount of a financial asset is written off when the Group has no reasonable expectations of recovering. Subsequent recoveries of an asset that was previously written off, are recognised as a reversal of impairment in profit or loss in the period in which the recovery occurs.

(d.7) Interest

Interest income and expense is recognised in profit or loss using the effective interest method. In calculating interest income and expense, the effective interest rate is applied to the gross carrying amount of the asset (when the asset is not credit-impaired) or to the amortised cost of the liability.

(e) Cash and cash equivalents

Cash and cash equivalents are cash on hand and all types of deposits at bank and financial institutions with original maturity of three months or less from the date of acquisition, excluding deposits at banks used as collateral (if any).

(f) Trade accounts receivable

A trade receivable is recognised when the Group has an unconditional right to receive consideration. A trade receivable is measured at transaction price less allowance for expected credit loss. Bad debts are written off when incurred.

The Group estimates lifetime expected credit losses (ECLs), using a provision matrix to find the ECLs rates. This method groups the debtors based on shared credit risk characteristics and past due status, taking into account historical credit loss data, adjusted for factors that are specific to the debtors and an assessment of both current economic conditions and forward-looking general economic conditions at the reporting date.

(g) Inventories

Inventories are measured at the lower of cost and net realisable value. Cost is calculated using the weighted average cost principle. Cost includes direct costs incurred in acquiring the inventories. In the case of manufactured inventories and work-in-progress, cost includes an appropriate share of production overheads based on normal operating capacity. Net realisable value is the estimated selling price in the ordinary course of business less the estimated costs to complete and to make the sale.

Provision is made for obsolete and slow-moving of finished goods, raw materials, factory supplies and spare parts based on the items that are obsoleted and expected to be unsalable.

(h) Investment properties

Investment properties are measured at cost less accumulated depreciation and accumulated impairment losses. Cost includes expenditure that is directly attributable to the acquisition of the investment property. The cost of self-constructed assets includes capitalised borrowing costs.

Depreciation is calculated on a straight-line basis over the estimated useful lives of buildings and buildings improvement of 10 - 30 years and recognised in profit or loss. No depreciation is charged on freehold land and assets under construction.

Differences between the proceeds from disposal and the carrying amount of investment property are recognised in profit or loss.

(i) Property, plant and equipment

Property, plant and equipment are measured at cost less accumulated depreciation and accumulated impairment losses.

Cost includes expenditure that is directly attributable to the acquisition of the asset. The cost of self-constructed assets includes capitalised borrowing costs, and the costs of dismantling and removing the items and restoring the site on which they are located including transfers from other comprehensive income of any gain or loss on qualifying cash flow hedges of foreign currency purchases of property, plant and equipment. Purchased software that is integral to the functionality of the related equipment is capitalised as part of that equipment.

When parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

Differences between the proceeds from disposal and the carrying amount of property, plant and equipment are recognised in profit or loss.

The cost of replacing a part of an item of property, plant and equipment is recognised in the carrying amount of the item when the future economic benefits embodied within the part will flow to the Group, and its cost can be measured reliably. The carrying amount of the replaced part is derecognised. The costs of the day-to-day servicing of property, plant and equipment are recognised in profit or loss as incurred.

Depreciation

Depreciation is calculated on a straight-line basis over the estimated useful lives of each component of an asset and recognised in profit or loss. No depreciation is provided on freehold land and assets under construction.

The estimated useful lives are as follows:

Land improvement	5 - 35 years
Buildings and buildings improvement	5 - 45 years
Plant, machinery, equipment and factory tools	5 - 50 years
Furniture, fixtures and equipment	3 - 30 years
Vehicles	5 - 25 years

Notes to the Financial Statements

(j) *Goodwill*

Goodwill is measured at cost less accumulated impairment losses. In respect of equity-accounted investee, the carrying amount of goodwill is included in the carrying amount of the investment.

(k) *Intangible assets*

Intangible assets are measured at cost less accumulated amortisation and accumulated impairment losses. Subsequent expenditure is capitalised only when it will generate future economic benefits. Amortisation is calculated on a straight-line basis over the estimated useful lives of intangible assets and recognised in profit or loss from the date that they are available for use.

The estimated useful lives are as follows:

Production licence fees	10 - 35	years
Computer software	3 - 20	years
Customer contracts and the related customer relationships	5 - 25	years
Right to use - others	10 - 23	years

(l) *Leases*

At inception of a contract, the Group assesses that a contract is, or contains, a lease when it conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

The Group as lessee

At commencement or on modification of a contract, the Group allocates the consideration in the contract to each lease component on the basis of its relative stand-alone prices of each component.

The Group recognises a right-of-use asset and a lease liability at the lease commencement date, except for leases of low-value assets and short-term leases which are recognised as expenses on a straight-line basis over the respective lease terms.

Right-of-use asset is measured at cost, less any accumulated depreciation and accumulated impairment loss, and adjusted for any remeasurements of lease liability. The cost of right-of-use asset includes the initial amount of the lease liability adjusted for any prepaid lease payments, plus any initial direct costs incurred and an estimate of restoration costs, less any lease incentives received. Depreciation is charged to profit or loss on a straight-line method from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Company by the end of the lease term or the Group will exercise a purchase option. In that case the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property and equipment.

The lease liability is initially measured at the present value of all lease payments that shall be paid under the lease. The Group uses the interest rate implicit in the lease. If this rate cannot be readily determined, the Group uses its incremental borrowing rate to discount the lease payments to the present value.

The lease liability is measured at amortised cost using the effective interest method. It is remeasured when there is a lease modification. When the lease liability is remeasured, a corresponding adjustment is made to the carrying amount of the right-of-use asset or is recognised in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero and the Group elected not to assess that the rent concessions are lease modification, the Group remeasured lease liabilities using the original discount rate and recognised the impact of the change in lease liability in profit or loss.

The Group as lessor

At lease inception, the Group considers to classify a lease that transfers substantially all of the risks and rewards incidental to ownership of the underlying asset to lessees as a finance lease. A lease that does not meet this criteria is classified as an operating lease.

The Group recognises lease payments received under operating leases in profit or loss on a straight-line basis over the lease term as part of other income. Initial direct costs incurred in arranging an operating lease are added to the carrying amount of the leased asset and recognised over the lease term on the same basis as rental income.

(m) Impairment of non-financial assets

The carrying amounts of the Group's assets are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, the assets' recoverable amounts are estimated. For goodwill and intangible assets that have indefinite useful lives or are not yet available for use, the recoverable amount is estimated each year at the same time.

An impairment loss is recognised in profit or loss if the carrying amount of an asset or its cash-generating unit exceeds its recoverable amount.

The recoverable amount is the greater of the asset's value in use and fair value less costs to sell. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset.

An impairment loss of asset recognised in prior periods is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss in respect of goodwill is not reversed. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

(n) Employee benefits*Defined contribution plan*

Obligations for contributions to the Group's provident funds are expensed as the related service is provided.

Defined benefit plans

The Group's net obligation in respect of defined benefit plans is calculated by estimating the amount of future benefit that employees have earned in the current and prior periods. The defined benefit obligations is discounted to the present value, discounting that amount net with fair value of plan assets. The calculation of defined benefit obligations is performed every 3 years by a qualified actuary using the projected unit credit method.

Remeasurements of the net defined benefit liability, actuarial gain or loss are recognised immediately in OCI. The Group determines the interest expense on the net defined benefit liability for the period by applying the discount rate used to measure the defined benefit obligation, taking into account any changes in the net defined benefit liability as a result of contributions and benefit payments. Net interest expense and other expenses related to defined benefit plans are recognised in profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss on curtailment is recognised immediately in profit or loss. The Group recognises gains and losses on the settlement of a defined benefit plan when the settlement occurs.

The Group's net obligation in respect of long-term employee benefits is the amount of future benefit that employees have earned in return for their service in the current and prior periods. That benefit is discounted to determine its present value. Remeasurements are recognised in profit or loss in the period in which they arise.

Termination benefits are expensed at the earlier of when the Group can no longer withdraw the offer of those benefits and when the Group recognizes costs for a restructuring. If benefits are not expected to be settled wholly within 12 months of the end of the reporting period, then they are discounted.

Short-term employee benefits are expensed as the related service is provided. A liability is recognised for the amount expected to be paid if the Group has a present legal or constructive obligation to pay this amount as a result of past service provided by the employee and the obligation can be estimated reliably.

(o) Provisions

A provision is recognised if, as a result of a past event, the Group has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. The unwinding of the discount is recognised as a finance cost.

(p) Segment information

Segment results that are reported to the Group's Management Committee (the chief operating decision maker) include items directly attributable to a segment as well as those that can be allocated on a reasonable basis.

(q) Fair value measurement

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date in the principal or, in its absence, the most advantageous market to which the Group has access at that date. The fair value of a liability reflects its non-performance risk.

When measuring the fair value of an asset or a liability, the Group uses observable market data as far as possible. Fair values are categorised into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows:

- Level 1: quoted prices in active markets for identical assets or liabilities that the entity can access at the measurement date.
- Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly or indirectly.
- Level 3: inputs for the asset or liability that are based on unobservable input.

If the inputs used to measure the fair value of an asset or liability might be categorised in different levels of the fair value hierarchy, then the fair value measurement is categorised in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement.

(r) Treasury shares

When share capital recognised as equity is repurchased, the amount of consideration paid, including directly attributable costs, is classified as treasury shares and recognised as a deduction from equity. An equal amount is appropriated from retained earnings and taken to a reserve for treasury shares within equity. When treasury shares are sold, the amount received is recognised as an increase in equity by crediting the cost of the treasury shares sold, calculated using the weighted average method, to the treasury shares account and transferring the equivalent amount back from treasury shares reserve to retained earnings. Surpluses on the sale of treasury shares are taken directly to a separate category within equity, 'Premium on treasury shares'. Net deficits on sale or cancellation of treasury shares are debited to retained earnings after setting off against any remaining balance of premium on treasury shares.

(s) Revenue from contracts with customers

(1) Revenue recognition

Revenue is recognised when a customer obtains control of the goods or services in an amount that reflects the consideration to which the Group expects to be entitled, excluding those amounts collected on behalf of third parties, value added tax or other sales taxes and is after deduction of any trade discounts and volume rebates.

Revenue from sales of goods is recognised on the date on which the goods are delivered to the customers.

Revenues from rendering of services is recognised as a performance obligation satisfied at a point in time when services underlying the particular performance obligation is transferred to the customer or is recognised over time based on the stage of completion of the contract.

(2) Contract balances

Contract assets are recognised when the Group has recognised revenue before it has an unconditional right to receive consideration. The contract assets are measured at the amount of consideration that the Group is entitled to, less allowance for expected credit loss. The contract assets are classified as trade receivables when the Group has an unconditional right to receive consideration.

Contract liabilities including advances received from customers are the obligation to transfer goods or services to the customer. The contract liabilities including advances received from customers are recognised when the Group receives or has an unconditional right to receive non-refundable consideration from the customer before the Group recognises the related revenue.

(t) Income tax

Income tax expense for the year comprises current and deferred tax, which is recognised in profit or loss except to the extent that it relates to a business combination, or items recognised directly in equity or in other comprehensive income.

Current tax is recognised in respect of the taxable income or loss for the year, using tax rates enacted or substantively enacted at the end of the reporting period, and any adjustment to tax payable in respect of previous years.

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Deferred tax is recognised in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred tax is not recognised for the temporary differences: the initial recognition of goodwill; the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit or loss; and differences relating to investments in subsidiaries and joint ventures to the extent that it is probable that they will not reverse in the foreseeable future.

The measurement of deferred tax reflects the tax consequences that would follow the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities, using tax rates enacted or substantively enacted at the reporting date. Current deferred tax assets and liabilities are offset in the separate financial statements.

A deferred tax asset is recognised to the extent that it is probable that future taxable profits will be available against which the temporary differences can be utilised. Deferred tax assets are reviewed at each reporting date and reduced to the extent that it is no longer probable that the related tax benefit will be realised.

(u) *Earnings (loss) per share*

Basic earnings (loss) per share (EPS) is calculated by dividing the profit or loss attributable to ordinary shareholders of the Company by the weighted average number of ordinary shares outstanding during the period, adjusted for own shares held.

4 Transfers of businesses

At the Board of Directors' meeting of the company held on 13 December 2021, the Board approved the acquisition of the entire or part of the business and the dissolution of the direct and indirect subsidiaries with 100% shareholding by the Company. The group business restructuring will better support the Company's long-term strategy including the business expansion internationally, sales and development of High Value Products, enhancing the Company's governance efficiency of group of companies both domestically and internationally, and also support the Company's Sustainability strategy.

The acquisition of the entire businesses of PTT Phenol Co., Ltd. and GC Oxirane Co., Ltd.

The acquisition of the entire businesses of PTT Phenol Co., Ltd. and GC Oxirane Co., Ltd. is part of the business restructuring plan which is effective under the law on 1 February 2023.

The details of the consideration transferred and the carrying values of assets and liabilities as at 1 February 2023 were as follows:

	PTT Phenol Co., Ltd.	GC Oxirane Co., Ltd.	Total
		<i>(in million Baht)</i>	
Cash and cash equivalent	2,223	2,957	5,180
Trade accounts receivable	3,527	511	4,038
Inventories	1,825	1,422	3,247
Property, plant and equipment	14,427	15,949	30,376
Right-of-use assets	1,739	1,617	3,356
Intangible assets	944	687	1,631
Deferred tax asset	193	52	245
Others	563	337	900
Total assets	25,441	23,532	48,973

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	PTT Phenol Co., Ltd.	GC Oxirane Co., Ltd. <i>(in million Baht)</i>	Total
Trade accounts payable	(2,312)	(617)	(2,929)
Accrued dividends	(8,061)	(718)	(8,779)
Short-term borrowings from related party	-	(12,780)	(12,780)
Lease liabilities	(1,755)	(1,694)	(3,449)
Provisions for employee benefits	-	(22)	(22)
Others	(247)	(127)	(374)
Total liabilities	(12,375)	(15,958)	(28,333)
Net carrying values of net assets acquired/ Net consideration transferred	13,066	7,574	20,640
<i>Less</i> Cash and cash equivalents	(2,223)	(2,957)	(5,180)
Net cash paid from transfers of businesses	10,843	4,617	15,460

Both subsidiaries had registered to dissolve the business with Department of Business Development, Ministry of Commerce on 31 March 2023. As at 31 December 2023, both subsidiaries are in the process of liquidation (Note 9).

5 Related parties

A related party is a person or entity that has direct or indirect control or joint control, or has significant influence over the financial and managerial decision-making of the Group; a person or entity that is under common control or under the same significant influence as the Group; or a person or entity over which the Group has direct or indirect control or joint control or has significant influence over the financial and managerial decision-making.

Relationships with parent, subsidiaries, associates and joint ventures are described in notes 1, 9 and 10. Other related parties which the Group had significant transactions with during the year were as follows:

Name of entities	Country of incorporation	Nature of relationships
Vencorex (Thailand) Co., Ltd.	Thailand	Indirect subsidiary, 100% shareholding by indirect subsidiary
NPC S&E Security Guard Co., Ltd.	Thailand	Indirect subsidiary, 100% shareholding by the Group
Allnex (Thailand) Ltd.	Thailand	Indirect subsidiary, 94.96% shareholding by the Group
Allnex Austria GmbH	Austria	Indirect subsidiary, 100% shareholding by the Group
Allnex Belgium SA/NV	Belgium	Indirect subsidiary, 100% shareholding by the Group
Allnex Malaysia Sdn Bhd	Malaysia	Indirect subsidiary, 100% shareholding by the Group
Allnex Resins Australia Pty. Ltd.	Australia	Indirect subsidiary, 100% shareholding by the Group
GC International Corporation	United States of America	Indirect subsidiary, 100% shareholding by the Group
GC Marketing Solutions (Shanghai) Co., Ltd.	China	Indirect subsidiary, 100% shareholding by the Group
GC Marketing Solutions Myanmar Co., Ltd.	Myanmar	Indirect subsidiary, 100% shareholding by the Group
GC Marketing Solutions Vietnam Co., Ltd.	Vietnam	Indirect subsidiary, 100% shareholding by the Group

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Name of entities	Country of incorporation	Nature of relationships
PT Allnex Resins Indonesia	Indonesia	Indirect subsidiary, 80% shareholding by the Group
PT GCM Marketing Solutions Indonesia	Indonesia	Indirect subsidiary, 100% shareholding by the Group
PTTGC America LLC	United States of America	Indirect subsidiary, 100% shareholding by the Group and the Company's management as director
PTTGC International (Netherlands) B.V.	Netherlands	Indirect subsidiary, 100% shareholding by the Group, common director and the Company's management as director
Vencorex France S.A.S.	France	Indirect subsidiary, 100% shareholding by the Group
Vencorex Holding	France	Indirect subsidiary, 100% shareholding by subsidiary and the Company's management as director
GHECO-One Company Limited	Thailand	Other related party, indirect shareholding by parent company
Energy Complex Co., Ltd.	Thailand	Other related party, shareholding by parent company
Global Power Synergy Plc.	Thailand	Other related party, 10% shareholding, shareholding by parent company and common director
Glow SPP 2 Company Limited	Thailand	Other related party, indirect shareholding by parent company
Glow SPP 3 Company Limited	Thailand	Other related party, indirect shareholding by parent company
Glow SPP 11 Company Limited	Thailand	Other related party, indirect shareholding by parent company
Glow IPP Company Limited	Thailand	Other related party, indirect shareholding by parent company
Glow Energy Public Company Limited	Thailand	Other related party, indirect shareholding by parent company
Thai Paraxylene Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
Thai Oil Plc.	Thailand	Other related party, shareholding by parent company
IRPC Polyol Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
IRPC Plc.	Thailand	Other related party, shareholding by parent company
Trans Thai-Malaysia (Thailand) Limited	Thailand	Other related party, indirect shareholding by parent company
TOPNEXT International Company Limited	Thailand	Other related party, indirect shareholding by parent company
Thai Petroleum Pipeline Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
Nuovo Plus Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
Business Services Alliance Co., Ltd.	Thailand	Other related party, shareholding by parent company, the Company and a Company's associate, each of 25% shareholding of preferred stock, and common director
PTT Oil and Retail Business Plc.	Thailand	Other related party, shareholding by parent company
PTTEP Energy Development Company Limited	Thailand	Other related party, indirect shareholding by parent company

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Name of entities	Country of incorporation	Nature of relationships
PTTEP Siam Limited	Thailand	Other related party, indirect shareholding by parent company
PTT Exploration and Production Plc.	Thailand	Other related party, shareholding by parent company, common director
PTT RAISE Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
PTT Tank Terminal Limited	Thailand	Other related party, shareholding by parent company
PTT LNG Co., Ltd.	Thailand	Other related party, shareholding by parent company
Sak Chaisidhi Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
Sport Services Alliance Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
Sarn Palung Social Enterprise Company Limited	Thailand	Other related party, 15% shareholding and shareholding by parent company
Eastern Fluid Transport Co., Ltd.	Thailand	Associate, 15% shareholding by the Company and 15% shareholding by subsidiary until November 2022. Subsequently, other related party, 15% shareholding by the Company and 15% shareholding by joint venture.
UBE Chemicals (Asia) Plc.	Thailand	Other related party, indirect shareholding by parent company
PT.Tirta Surya Raya	Indonesia	Other related party, indirect shareholding by parent company
PTT International Trading London Ltd.	England	Other related party, shareholding by parent company
PTT International Trading Pte. Ltd.	Singapore	Other related party, shareholding by parent company
PTT International Trading USA Inc.	United States of America	Other related party, shareholding by parent company
PTT MEA Ltd.	United Arab Emirates	Other related party, indirect shareholding by parent company
TOP Solvent (Vietnam) LLC.	Vietnam	Other related party, indirect shareholding by parent company
TPBI & Myanmar Star Co., Ltd.	Myanmar	Other related party, shareholding by subsidiary

<i>Significant transactions with related parties</i> <i>Year ended 31 December</i>	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
Parent				
Sales of goods or rendering of services	19,584	12,431	19,304	12,176
Purchases of goods or receiving of services	343,693	377,709	342,530	376,307
Other income	14	64	14	64
Finance costs	20	20	20	19
Other expenses	55	57	54	56
Expense capitalised to fixed assets	1	1	1	1

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<i>Significant transactions with related parties</i> <i>Year ended 31 December</i>	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
Subsidiaries				
Sales of goods or rendering of services	-	-	38,706	127,707
Purchases of goods or receiving of services	-	-	9,384	7,021
Interest income	-	-	1,884	3,598
Dividend income	-	-	9,443	14,187
Other income	-	-	2,270	1,578
Finance costs	-	-	4,191	4,487
Other expenses	-	-	1,966	1,720
Expense capitalised to fixed assets	-	-	3,073	2,506
Joint ventures				
Sales of goods or rendering of services	15,466	15,230	13,772	9,175
Purchases of goods or receiving of services	3,626	4,923	3,497	1,475
Interest income	66	32	48	30
Dividend income	-	-	1,002	874
Other income	115	94	91	73
Finance costs	406	32	353	21
Other expenses	251	10	245	-
Associates				
Sales of goods or rendering of services	8,355	8,504	6,146	7,026
Purchases of goods or receiving of services	388	922	188	403
Dividend income	-	1	1,326	1,131
Other income	166	163	166	159
Other expenses	518	604	482	540
Expense capitalised to fixed assets	115	100	94	67
Other related parties				
Sales of goods or rendering of services	259,928	253,726	253,047	244,142
Purchases of goods or receiving of services	53,010	52,449	45,152	38,698
Net derivative loss	(594)	(1,406)	(594)	(1,406)
Dividend income	172	341	172	341
Other income	112	100	105	100
Finance costs	6	209	5	207
Other expenses	317	284	278	218
Expense capitalised to fixed assets	2	4	2	4
Key management personnel				
Key management personnel compensation				
Short-term employee benefit	502	450	169	194
Post-employment benefits and other long-term benefits	7	6	5	5
Total key management personnel compensation	509	456	174	199

PTT Global Chemical Public Company Limited and its Subsidiaries
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Balances with related parties At 31 December	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
Trade accounts receivables				
Parent	2,456	1,116	2,386	1,054
Subsidiaries	-	-	4,915	5,461
Joint ventures	2,286	1,710	1,852	1,283
Associates	1,294	713	600	595
Other related parties	21,684	14,128	21,218	13,617
Total	27,720	17,667	30,971	22,010
Other receivables				
Parent	312	400	310	400
Subsidiaries	-	-	260	1,181
Joint ventures	940	33	936	24
Associates	29	21	25	19
Other related parties	664	471	562	378
Total	1,945	925	2,093	2,002
Derivatives - Current assets				
Other related parties	37	200	37	200
Total	37	200	37	200
Short-term loans to				
Subsidiaries	-	-	3,294	13,325
Total	-	-	3,294	13,325
Long-term loans to				
Subsidiaries	-	-	50,896	49,115
Joint ventures	202	788	202	788
Total	202	788	51,098	49,903
Less current portion	(54)	(584)	(54)	(49,699)
	148	204	51,044	204
Trade accounts payable				
Parent	50,933	38,281	50,874	38,177
Subsidiaries	-	-	451	407
Joint ventures	180	254	149	213
Associates	50	85	23	39
Other related parties	5,782	3,724	5,136	2,966
Total	56,945	42,344	56,633	41,802
Other payables				
Parent	401	191	400	189
Subsidiaries	-	-	1,325	2,055
Joint ventures	787	42	650	16
Associates	253	463	113	145
Other related parties	123	184	96	148
Total	1,564	880	2,584	2,553

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Balances with related parties At 31 December	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
Derivatives - Current liabilities				
Other related parties	3	33	3	33
Total	3	33	3	33
Payables to contractors				
Subsidiaries	-	-	1,406	1,454
Associates	32	34	30	19
Other related parties	1	4	1	4
Total	33	38	1,437	1,477
Lease liabilities				
Parent	560	545	544	500
Subsidiaries	-	-	1	5
Joint ventures	14,053	13,768	12,629	9,598
Other related parties	143	207	120	153
Total	14,756	14,520	13,294	10,256
Short-term loans from				
Subsidiaries	-	-	1,580	2,154
Total	-	-	1,580	2,154
Long-term loans from				
Subsidiaries	-	-	74,266	90,676
Total	-	-	74,266	90,676
Less current portion	-	-	-	-
	-	-	74,266	90,676

Significant agreements with related parties

As at 31 December 2023, significant agreements with related parties are as follows:

Sales and Purchase Agreements

The Company has 3 Ethylene sales and purchase agreements with 2 related parties. Selling prices are determined based on Ethylene price in the world market. Two agreements are for the period of 10 years and 15 years commencing from the effective date specified in each agreement and expiring in December 2031 and December 2037 and one agreement is for the period of 10 years, starting from the plant commercial operation date.

The Company has 3 Propylene sales and purchase agreements with a related party. Selling prices are determined based on Polypropylene plastic pellets and Propylene prices in the world market. These agreements are for the periods from 4 years to 15 years, commencing from the effective date specified in each agreement and expiring from December 2024 to December 2037.

The Company has a Butadiene sales and purchase agreement with a related party. Selling prices are determined based on Butadiene price in the world market. The agreement is for the period of 15 years, starting from the plant commercial operation date and will expire in January 2038.

The Company has 2 Ethylene Oxide sale and purchase agreements with 2 related parties. Selling price is determined based on Ethylene price prevailing in the world market. The agreements are for the period of 15 years, commencing from the date as specified in the agreement and will expire in March 2031 and August 2035, respectively. The agreements are automatically renewed and can be terminated by advance cancellation not less than 2 years through written notice to the counterparty.

The Company has a Monoethylene Glycol sale and purchase agreement with a related party. Selling prices are charged under the conditions as specified in the agreement. The agreement is for the period of 2 years, commencing from the date as specified in the agreement and will expire in December 2024.

The Company has a Propylene Oxide Purchase and Sale Agreement with a related company. Selling prices are determined based on reference price of Propylene Oxide announced in the market. The period of this agreement is 15 years and will expire in December 2035.

The Company has 2 Acetone purchase and sales agreements with 2 related parties. Selling prices are determined in the agreements. These agreements are for the periods of 1 year and 2 years, commencing from the effective date as specified in each agreement and will expire in December 2024.

By-Product Sales and Purchase Agreements

The Company has Hydrogen sales and purchase agreements with a related party. Selling price in the agreements are determined based on Natural Gas price for the industry. The agreement is for the period of 19 years 9 months and will expire in December 2028.

Utilities and Other Services Agreements

The Company has 2 Power Supply agreements with 2 related parties. Selling prices in these agreements are determined based on reference price from the Provincial Electricity Authority. These agreements are for the periods of 2 years and 15 years, commencing from the date as specified in each agreement and expiring in September 2024 and June 2027, respectively.

The Company has 8 Utilities agreements covering electricity, steam and demineralised water with a related party. These agreements are for the periods from 12 years to 19 years 9 months, commencing from the date as specified in each agreement and expiring from December 2028 to December 2038.

The Company and subsidiaries have many Utilities agreements for the industries covering electricity, steam, and water for industrial use with 2 related parties. These agreements are for the periods from 1 year to 25 years, commencing from the date as specified in each agreement and expiring from December 2024 to June 2045 and one agreement is automatically renewed except for a cancellation through written notice by either party.

The Company has Tank Farm Storage and Service Agreements with related parties covering utilities and transportation of product. These agreements are for the periods from 10 years to 20 years, commencing from the effective date as specified in the agreement and expiring from December 2031 to March 2039, with the service charge as stipulated in the agreement.

Feedstock and Fuel Gas Sales and Purchase Agreements

The Company and a subsidiary have various Natural Gas sales and purchase agreements with a parent company. The agreements are for the period from 1 year to 25 years, commencing from the date as specified in the agreement and expiring from March 2024 to December 2047.

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The Company has an Ethane, Propane, LPG and NGL sales and purchase agreement with a parent company. Selling price in the agreement for Ethane is determined based on Polyethylene plastic pellets price. Selling price for Propane and LPG is determined based on Propane and Butane price in the world market and selling price for NGL is determined based on Naphtha price in the world market. The agreement is for the period of 11 years, commencing from the date as specified in the agreement and expiring in December 2030.

The Company has an Ethane Rich Gas sales and purchase agreement with a related party. The selling price is determined based on Polyethylene plastic pellets, Olefins, and Propane price in the world market and Natural gas price in Thailand. The agreement is for the period of 9 years 7 months, commencing from the date as specified in the agreement and expiring in December 2030.

The Company has an Ammonia sale and purchase agreement with a related party. Selling price is charged under the conditions as specified in the agreement. The agreement is for the period of 2 years, commencing from the date as specified in the agreement and will expire in December 2024.

Petroleum Product Offtake Agreement

The Company has a Petroleum Product sales and purchase agreement with a parent company and a related party. For domestic sales, the product price reflects prices prevailing in Thailand for products of a similar quality that are sold in or imported to Thailand. For export sales, the product price reflects the prevailing international spot price for that product. This agreement is for the period of 18 years, commencing from the date as specified in the agreement and expiring in February 2024. The agreement is automatically renewed except for advance cancellation through written notice by each party.

Expansion Phase Product Offtake Agreement

The Company has an expansion phase product offtake agreement with a parent company and a related party, under which a parent company and a related party agree to purchase 100% of the volume of refined petroleum products produce by reforming and upgrading complexes. As specified in the Product Offtake Agreement, at least 50% - 80% of such volume will be sold at a competitive domestic market price and the remaining sold at a competitive export market price or other mutually agreed price. The agreement is for the period of 18 years, commencing from the date as specified in the agreement and expiring in February 2024. The agreement is automatically renewed except for advance cancellation through written notice by each party.

Long-term Crude Oil and Other Raw materials Supply Agreements

The Company has entered into 2 supply agreements for crude oil and other raw materials with a parent company, the reference price being based on market price of crude oil and other raw materials. One agreement is for the period of 18 years, will expire in February 2024 and another agreement is for the period of 20 years, was automatically renewed and will expire in December 2024. These agreements are automatically renewed except for advance cancellation through written notice by each party.

Crack Spread Swap Agreements

The Company has entered into many crack spread swap agreements with a related party to hedge the Company's oil refinery margin. The floating amount of the basket refinery margin (calculated crack spread based on the Singapore price of refined petroleum products, which are Naphtha, Gasoline, Gasoil, Kerosene and Fuel Oil, against the price of Dubai crude oil) is swapped for a fixed amount of the basket refinery margin for a fixed quantity per month. Under the agreements, the Company shall receive or make payment for the crack spread difference according to terms and conditions stipulated in the agreements.

Product Spread Swap Agreements

The Company has entered into many petrochemical product margin spread swap agreements with a related party to hedge the Company's petrochemical margin. The floating amount of the petrochemical margin (calculated margin spread based on the key markets petrochemical products, which are Paraxylene, Benzene and other products against the Naphtha price) is swapped for a fixed amount of the petrochemical margin for a fixed quantity per month. Under the agreements, the Company shall receive or make payment of the product spread difference according to terms and conditions stipulated in the agreements.

Sales and Purchase Aromatics Product Agreements

The Company has entered into many raw material and product sales and purchase agreements with certain related parties. The sales and purchase prices of raw material and product are based on the prices specified in the agreements. These agreements are for the periods from 1 year to 1 years 6 months, commencing from the effective date as specified in each agreement. The agreements will expire from March 2024 to December 2024. Other agreements are automatically renewed except in the event of a cancellation through written notice by each party.

Lending and Borrowing Agreements

The Company has unsecured short-term lending agreements for the period of 3 years through Liquidity Management System ("LMS") with 5 related parties with the credit facilities between Baht 20 million to Baht 6,000 million. These loans bear interest based on market rates referenced to BIBOR O/N plus an interest rate spread.

The Company has a secured long-term lending agreement for the period of 7 years with a related party with a credit facility of USD 7.90 million. This loan bears interest at a fixed rate.

The Company has an unsecured long-term lending agreement for the period of 4 years minus 6 days with a related party with the credit facility of EUR 2,321 million. This loan bears interest at the fixed rate.

The Company's subsidiary has unsecured short-term lending agreements for the period of 11 months with a related party with the credit facilities of USD 8.5 million. This loan bear interest based on market rate referenced to SOFR plus interest rate spread.

The Company has unsecured long-term lending agreements for the period of 7 years with a related party with the credit facilities of Baht 615.75 million. This loan bear interest at the fixed rate.

The Company has unsecured long-term lending agreements for the period of 1 year with a related party with the credit facilities of EUR 20 million. This loan bear interest at the fixed rate.

The Company has unsecured long-term lending agreements for the period of 6 years 6 months with a related party with the credit facilities of Baht 259 million. The loan bear interest based on market rate referenced to THOR plus interest rate spread.

The Company has unsecured short-term borrowing agreements for the period of 3 years through LMS with 5 related parties with the credit facility between Baht 50 million to Baht 1,200 million. These loans bear interest based on market rate referenced to BIBOR O/N minus interest rate spread.

The Company has an unsecured long-term borrowing agreement for the period of 10 years with a related party with the credit facility of USD 690.75 million. This loan bears interest at the fixed rate.

The Company has an unsecured long-term borrowing agreement for the period of 30 years with a related party with the credit facility of USD 541.25 million. This loan bears interest at the fixed rate.

Notes to the Financial Statements

The Company has an unsecured long-term lending agreement for the period of 10 years with a related party with a credit facility of USD 994.09 million. This loan bears interest at a fixed rate.

The Company has an unsecured long-term lending agreement for the period of 30 years with a related party with a credit facility of USD 298.28 million. This loan bears interest at a fixed rate.

The Company has an unsecured long-term lending agreement for the period of 7 years with a related party with a credit facility of USD 100 million. This facility bears interest based on market rate referenced to SOFR plus interest rate spread.

The Company has an uncommitted and unsecured short-term Inter-Company Borrowing & Lending agreement (ICBL) for the period of 1 year with a parent company with the borrowing credit facility of Baht 10,000 million and lending credit facility of Baht 3,500 million. The agreement expired on 19 December 2023 and has been extended for an additional period until 19 December 2024. This facility bears interest based on market rate referenced to BIBOR or SOFR plus interest rate plus the interest rate difference depending on the loan currency or other appropriate interest rates as determined by the lender if changes in market conditions spread by taking into account the return on short-term investment, short-term interest rate and the credit ratings of the Company or the borrowing company.

The Company has an uncommitted and unsecured short-term Inter-Company Borrowing & Lending agreement (ICBL) for the period of 3 years with a related party with a borrowing credit facility of Baht 300 million and a lending credit facility of Baht 300 million. The agreement will expire on 20 February 2025. This facility bears interest based on market rates referenced to BIBOR or SOFR plus interest rate spread by taking into account the return on short-term investment, short-term interest rate and the credit ratings of the Company or the borrowing company.

The Company has an uncommitted and unsecured short-term Inter-Company Borrowing & Lending agreement (ICBL) for the period of 1 year with a related party with a borrowing credit facility of Baht 250 million and a lending credit facility of Baht 1,000 million. The agreement will expire on 30 May 2024. This facility bears interest based on market rates referenced to BIBOR or other appropriate interest rates as determined by the lender if changes in market conditions spread by taking into account the return on short-term investment, short-term interest rate and the credit ratings of the Company or the borrowing company.

The Company has an uncommitted and unsecured short-term Inter-Company Borrowing & Lending agreement (ICBL) for the period of 3 years with a related party with a borrowing and lending credit facility of EUR 100 million (or equivalent to USD). The agreement will expire on 17 September 2026. This facility bears interest based on market rates spread by taking into account the return on short-term investment, short-term interest rate and the credit ratings of the Company or the borrowing company.

Service Agreements

The Company has Shared Service agreements with 27 related parties for the provision of general services. All of these agreements are effective from the date as specified in the agreements and the service charges will be agreed in the fourth quarter of each preceding year.

The Company has Management and Engineering agreement, Design, Supply, Construction and Installation agreement, Inspection of Construction, Equipment and Machinery agreement and Management and Maintenance Work agreement with a related party. These agreements are for the periods from 2 year 3 months to 2 years 7 months, commencing from the date as specified in the agreements and expiring from March 2024 to December 2025.

The Company has a Security Service agreement with a related party. Under which the related party agrees to provide security service to asset, employees and visitors in the location of the Company. The agreement is for the period of 2 years and will expire in December 2024.

The Company has a Safety Inspection Service agreement and an Emergency Control Center agreement with a related party. These agreements are for the period from 2 years to 3 years and will expire in December 2024 and 2026 with service rate as stipulated in the agreements.

The Company has Warehouse Management agreements with a related party. The agreements are for the periods from 1 year to 21 years 3 months and expiring from December 2024 December 2030.

The Company has a Logistics Services agreement with a related party. The agreement is for the period of 1 year and will expire in December 2024.

The Company has entered into Information and Communication Technology Service agreements with a related party. Under which the related party agrees to provide Information Technology system maintenance and support services, system structure and data centre management, system supporting and advisory, including system design and development as the Company's requirements. These agreements are for the periods from 1 year to 15 years, commencing from the date as specified in each agreement and expiring from December 2024 to December 2027.

Rental Agreements

The Company has various Land Lease agreements with related parties. These agreements are for the periods from 14 years to 30 years, commencing from the date as specified in the agreements, and expiring from February 2029 to June 2040 with land lease rate and condition as specified in the agreements.

A subsidiary has Land Lease and Office Rental agreements with 5 related parties. These agreements are for the periods from 3 years to 30 years, commencing from the date as specified in the agreements, and expiring from August 2026 to July 2043. The renewal of the contract will be subject to negotiation with the counter party.

6 Cash and cash equivalents

	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
Cash on hand	2	2	2	2
Cash at banks	29,767	25,023	17,193	4,878
Highly liquid short-term investments	7,550	915	79	306
Total	37,319	25,940	17,274	5,186

Notes to the Financial Statements

7 Trade accounts receivables

<i>At 31 December</i>	<i>Note</i>	Consolidated financial statements		Separate financial statements	
		2023	2022	2023	2022
		<i>(in million Baht)</i>			
Related parties	5	27,720	17,667	30,971	22,010
Other parties		30,252	27,820	13,254	8,459
Total		57,972	45,487	44,225	30,469
Less allowance for expected credit loss		(211)	(233)	(19)	(19)
Net		57,761	45,254	44,206	30,450
Related parties					
Within credit terms		26,829	17,431	29,014	21,758
Overdue:					
Less than 3 months		804	198	1,880	166
3 - 6 months		2	23	-	21
6 - 12 months		12	3	5	55
Over 12 months		73	12	72	10
Total		27,720	17,667	30,971	22,010
Other parties					
Within credit terms		28,241	26,006	12,480	8,016
Overdue:					
Less than 3 months		1,748	1,465	752	423
3 - 6 months		32	117	-	1
6 - 12 months		20	53	3	-
Over 12 months		211	179	19	19
Total		30,252	27,820	13,254	8,459
Less allowance for expected credit loss		(211)	(233)	(19)	(19)
Net		57,761	45,254	44,206	30,450
Allowance for expected credit loss					
		Consolidated financial statements		Separate financial statements	
		2023	2022	2023	2022
		<i>(in million Baht)</i>			
At 1 January		(233)	(149)	(19)	(19)
Addition		(29)	(121)	-	(2)
Reversal		14	23	-	2
Write-off		40	14	-	-
Foreign exchange gains and translation differences		(3)	-	-	-
At 31 December		(211)	(233)	(19)	(19)

The normal credit term granted by the Group ranges from 7 days to 135 days

8 Inventories

	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
Finished goods	29,230	39,869	14,877	21,869
Work in progress	2,849	3,739	2,420	2,312
Raw materials	16,909	18,360	11,375	10,306
Factory supplies and spare parts	15,331	14,765	12,636	11,098
Goods in transit	4,953	3,082	3,281	1,392
Total	69,272	79,815	44,589	46,977
Less Allowance for decline in value	(554)	(2,105)	(482)	(1,752)
Allowance for obsolescence	(201)	(1,091)	(58)	(920)
Net	68,517	76,619	44,049	44,305
Inventories recognised as an expense				
in cost of sales of goods				
- Cost of sales	581,684	623,764	474,920	477,573
- Write-down to net realisable value	(1,552)	1,860	(1,286)	1,521
Net	580,132	625,624	473,634	479,094

As at 31 December 2023 and 2022, the Company's inventories included petroleum legal reserve of 363 million liters with approximated value of Baht 7,055 million and 332 million liters with approximated value of Baht 7,170 million, respectively.

Separate financial statements

Subsidiaries	Type of business	Country of operation	Ownership Interest (%)		Cost		Impairment		At cost - net (in million Baht)		Fair value of listed securities		Dividend income	
			2023	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022
Global Green Chemicals Plc.	Manufacturing, distributing and transporting oleochemicals products	Thailand	72	72	7,400	7,400	-	-	7,400	7,400	6,660	10,952	259	444
GC Glycol Co., Ltd. (In process of liquidation)	Manufacturing and distributing petrochemical products	Thailand	100	100	-	-	-	-	-	-	-	-	-	9,240
GC Polyols Co., Ltd.	Manufacturing and distributing petrochemical products	Thailand	82	82	3,696	3,286	-	-	3,696	3,286	-	-	-	-
GC Marketing Solutions Co., Ltd.	Holding international business	Thailand	100	100	467	467	-	-	467	467	-	-	-	1,294
GC Maintenance and Engineering Co., Ltd.	Factory maintenance and engineering services	Thailand	100	100	155	155	-	-	155	155	-	-	42	-
GC Logistics Solutions Co., Ltd.	Transportation, warehouse management and bagging packing for chemical business	Thailand	-	100	-	1,639	-	-	-	1,639	-	-	-	30
GC Ventures Co., Ltd	Invest in form of Corporate Venture Capital (CVC)	Thailand	100	100	1,805	1,308	(159)	(122)	1,646	1,186	-	-	-	-

Notes to

the Financial Statements

PTT Global Chemical Public Company Limited and its Subsidiaries
For the year ended 31 December 2023

	Type of business	Country of operation	Ownership Interest		Separate financial statements						Fair value of listed securities		Dividend income		
			2023	2022	Cost		Impairment		At cost - net		2023	2022	2023	2022	
					2023	2022	2023	2022	2023	2022					
			(%)						(in million Baht)						
GC Treasury Center Co., Ltd.	Financial service management for the group	Thailand	100	100	10	10	-	-	10	10	-	-	355	52	
GC Styrenics Co., Ltd. (In process of liquidation)	Manufacturing and distributing petrochemical products	Thailand	100	100	5	5	-	-	5	5	-	-	-	127	
GC Oxirane Co., Ltd. (In process of liquidation)	Manufacturing and distributing petrochemical products	Thailand	100	100	-	7,537	-	-	-	7,537	-	-	718	-	
GC-M PTA Co., Ltd.	Manufacturing and distributing petrochemical products	Thailand	74	74	4,384	4,384	-	-	4,384	4,384	-	-	-	-	
GC Estate Co., Ltd.	Real estate development for rent and to invest and operating a water production plant for use in petrochemical and related industries	Thailand	100	100	7,200	7,200	-	-	7,200	7,200	-	-	-	-	
Solution Creation Co., Ltd.	Distributing health and nutrition products and circular products	Thailand	100	100	180	212	-	-	180	212	-	-	-	-	
Thai Tank Terminal Limited	Service for the storage and handling of liquid chemicals, oil and gas	Thailand	-	-	-	-	-	-	-	-	-	-	-	265	
Thai PET Resin Co., Ltd.	Manufacturing and distributing chemical products	Thailand	44*	44*	988	988	-	-	988	988	-	-	-	-	

Separate financial statements

Type of business	Country of operation	Ownership Interest		Cost		Impairment		At cost - net		Fair value of listed securities		Dividend income	
		2023	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022
(in million Baht)													
PTT Phenol Co., Ltd. (In process of liquidation)	Thailand	100	100	126	13,155	(121)	-	5	13,155	-	-	8,061	2,735
	Manufacturing and distributing petrochemical products												
NPC Safety and Environmental Service Co., Ltd.	Thailand	100	100	165	165	-	-	165	165	-	-	8	-
	Safety and environmental services												
ENVICCO Limited	Thailand	70	70	756	756	-	-	756	756	-	-	-	-
	Manufacturing, distributing and developing recycled plastic and by-products												
PTTGC America Corporation	USA	100	100	5,505	5,370	-	-	5,505	5,370	-	-	-	-
	Holding and operating international business												
PTTGC International Private Limited	Singapore	100	100	122,787	121,037	(14,106)	(14,106)	108,681	106,931	-	-	-	-
	Holding and operating international business												
Total investments in subsidiaries				155,629	175,074	(14,386)	(14,228)	141,243	160,846	6,660	10,952	9,443	14,187

* Thai PET Resin Co., Ltd. was 44.4 percent held by the Company and 40 percent held by GC-M PTA Co., Ltd. (100% Subsidiary).

PTT Global Chemical Public Company Limited and its Subsidiaries
For the year ended 31 December 2023

Material movements for the years ended 31 December	Note	Separate financial statements	
		2023	2022
		<i>(in million Baht)</i>	
Subsidiaries			
Increase capital in GC Polyols Co., Ltd.		410	-
Increase capital in GC Ventures Co., Ltd.		497	526
Increase capital in ENVICCO Limited		-	38
Increase capital in PTTGC America Corporation		135	199
Increase capital in PTTGC International Private Limited		1,750	56,998
Acquisition from transfers of businesses:			
- GC Marketing Solutions Co., Ltd.		-	16
- GC Logistics Solutions Co., Ltd.		-	32
- GC-M PTA Co., Ltd.		-	1,481
- Thai PET Resin Co., Ltd.		-	988
Capital return of Solution Creation Co., Ltd.		(32)	(614)
Change in ownership interest in GC Logistics Solutions Co., Ltd.	10	(820)	-
Change in ownership interest in Thai Tank Terminal Limited	10	-	(459)
Dispose investment in GC Logistics Solutions Co., Ltd.		(820)	-
Dissolution of GC Glycol Co., Ltd.		-	(5,395)
Dissolution of GC Styrenics Co., Ltd.		-	(185)
Dissolution of GC Oxirane Co., Ltd.	4	(7,537)	-
Dissolution of PTT Phenol Co., Ltd.	4	(13,029)	-
Impairment loss on investment in GC Ventures Co., Ltd.		(37)	(86)
Impairment loss on investment in PTT Phenol Co., Ltd.		(121)	-

GC Polyols Co., Ltd.

On 14 February 2023, GC Polyols Co., Ltd., a subsidiary of the Company, has called for an increase in paid-up capital approved in the 2023 Extraordinary Annual General Meeting of shareholders of the subsidiary held on 14 February 2023 for conducting a Polyols & PU System Project totalling Baht 410.50 million. The amount was fully paid in February 2023.

GC Ventures Co., Ltd.

On 27 February 2023, GC Ventures Co., Ltd., a subsidiary of the Company, has called for an increase in paid-up capital approved in the 2023 Extraordinary Annual General Meeting of shareholders of the subsidiary held on 26 January 2023 for investment in Corporate Venture Capital (CVC) totalling Baht 497 million. The amount was fully paid in March 2023.

During the year ended 31 December 2022, GC Ventures Co., Ltd., a subsidiary of the Company, has called for an increase in paid-up capital approved in the 2021 Extraordinary Annual General Meeting of shareholders of the subsidiary held on 5 July 2021 and the 2022 Annual General Meeting of shareholders of the subsidiary held on 23 March 2022 for investment in Corporate Venture Capital (CVC) totalling Baht 526.39 million. The amount was fully paid during the year ended 31 December 2022.

Envicco Limited

On 16 March 2022, ENVICCO Limited, a subsidiary of the Company, has called for an increase in paid-up capital approved in the Board of Directors' Meeting of the subsidiary held on 23 July 2020 for conducting a Recycled Plastic Project totalling Baht 37.80 million. The amount was fully paid in April 2022.

PTTGC America Corporation

During the year ended 31 December 2023, PTTGC America Corporation (“GCA Corp.”), a subsidiary of the Company, has called for an increase in paid-up capital approved in the Board of Directors’ Meetings of the subsidiary held on 9 May 2023 and 1 September 2023 totalling USD 3.84 million or equivalent to Baht 134.66 million. The amount was fully paid during the year ended 31 December 2023. The subsidiary has utilised the investment totalling USD 3.18 million or equivalent to Baht 111.17 million for the purpose of US Petrochemical Complex Project and utilised the investment totalling USD 0.66 million or equivalent to Baht 23.49 million for the acquisition of the 2,000,000 ordinary shares in GC America Sustainability Corporation (“GCAS”) (Formerly PTTGC Innovation America Corp.) from PTTGC International Private Limited, a subsidiary and a previous shareholder. The acquisition of such shares is a business combination under common control of the subsidiary. As a result, GCA Corp. holds 100% of the ordinary shares of GCAS. The investment is aligned with the business restructuring plan of GCAS for long-term structure of the investments in the United States of America to be efficient and maximise the benefits to the Group.

During the year ended 31 December 2022, PTTGC America Corporation, a subsidiary of the Company, has called for an increase in paid-up capital approved in the Board of Directors’ Meeting of the subsidiary held on 18 February 2022, 11 July 2022 and 18 October 2022 for the purpose of US Petrochemical Complex Project investment totalling USD 5.46 million or equivalent to Baht 198.59 million. The amount was fully paid during the year ended 31 December 2022.

PTTGC International Private Limited

On 4 December 2023, PTTGC International Private Limited (“GC Inter”), a subsidiary of the Company, has called for an increase in paid-up capital approved in the Board of Directors’ Meetings of the subsidiary held on 30 November 2023 for investment in PTTGC International (Netherlands) B.V., a subsidiary 100% shareholding by GC Inter, totalling EUR 45.31 million or equivalent to Baht 1,749.58 million. The amount was fully paid in December 2023.

During the year ended 31 December 2022, PTTGC International Private Limited (“GC Inter”), a subsidiary of the Company, has called for an increase in paid-up capital approved in the Board of Directors’ Meeting of the subsidiary held on 16 June 2022 and 20 December 2022 for investment in PTTGC International (Netherlands) B.V. (“GC BV”), a subsidiary 100% shareholding by GC Inter, totalling EUR 1,531.23 million or equivalent to Baht 56,998.15 million. The amount was fully paid during the year ended 31 December 2022. GC BV has utilised such investment totalling EUR 14.81 million or equivalent to Baht 552.06 million for the acquisition of the 9.18% ordinary shares in Vencorex Holding SAS (“Vencorex”) from Perstorp Holding AB. As a result, GC BV’s shareholding interest in Vencorex increased from 90.82% to 100%. GC BV has signed a share sale and purchase agreement and completed the share payment on 30 June 2022. The Group recognised a decrease in non-controlling interest of Baht 464.55 million, difference arising from the change in the ownership interest in an investment of Baht 941.91 million, and an increase in the translation reserve of Baht 120.37 million attributable to owners of the Group of changes in the Group’s ownership interests in Vencorex. In addition, GC BV has utilised the investment totalling EUR 1,516.42 million or equivalent to Baht 56,446.09 million for the purpose of loan and interest prepayment to shareholder and corporate operation.

PT. GCM Marketing Solutions Indonesia

On 21 June 2022, GC Marketing Solutions Co., Ltd. (“GCM”), a subsidiary of the Company, has exercised the call option, approved in the Board of Directors’ Meeting of the subsidiary held on 20 June 2022 for acquisition of the 33% ordinary shares in PT. GCM Marketing Solutions Indonesia (“GCM Indonesia”) from PT. Cipta Aneka Air at IDR 3,300 million or equivalent to Baht 8.52 million. As a result, GCM’s shareholding interest in GCM Indonesia increased from 67% to 100%. GCM has signed a share sale and purchase agreement and completed the share payment on 30 September 2022. The Group recognised a decrease in non-controlling interest of Baht 36.08 million, difference arising from the change in the ownership interest in an investment of Baht 28.61 million, and a decrease in the translation reserve of Baht 1.04 million attributable to owners of the Group of changes in the Group’s ownership interests in GCM Indonesia.

Solution Creation Co., Ltd.

On 23 January 2023, at the Extraordinary General Meeting of shareholders of Solution Creation Co., Ltd., a subsidiary of the Company, approved a reduction of the subsidiary’s registered share capital and distributed capital to the Company amounting to Baht 31.87 million. The subsidiary completed the reduction of its registered share capital with Department of Business Development, Ministry of Commerce on 4 April 2023.

On 25 November 2022, at the Extraordinary General Meeting of shareholders of Solution Creation Co., Ltd. (“SUN”), a subsidiary of the Company, approved a reduction of SUN’s registered share capital of Baht 613.88 million. The reduction of issued and paid-up share capital has been offset with a deficit in retained earnings of SUN totalling Baht 37.72 million and distributed remaining capital to the Company amounting to Baht 576.16 million. The Company recognised a loss from capital return amounting to Baht 37.72 million in its separate statement of income. As at 31 December 2022, SUN is in the process of registering the reduction of its registered capital with Department of Business Development, Ministry of Commerce. Subsequently, SUN completed the reduction of its registered share capital on 19 January 2023.

GC Logistics Solutions Co., Ltd.

On 20 November 2023, at the Board of Directors’ Meeting of the Company approved the Company to sell ordinary shares in GC Logistics Solutions Co., Ltd. (“GCL”), a subsidiary of the Company, to WHA Venture Holding Company Limited (“WHAVH”) in the proportion of 50% of the ordinary shares of GCL or equivalent to Baht 2,640 million for the purpose of restructuring of shareholding interest in the logistics business for the Company’s polymer business. The Company has entered into a share sale and purchase agreement and completed the sales of ordinary shares in GCL to WHAVH on 20 December 2023, with gain from sale of investment in a subsidiary recognised in the consolidated and separate statements of income amounting to Baht 1,574.35 million and Baht 1,820.70 million, respectively. As a result, the Company’s shareholding interest in GCL decreased from 100% before the sale of shares to 50% after the sale of shares. The Company has reclassified the remaining investment in GCL to investment in joint venture and recognised a gain from change in ownership interest in subsidiary in the consolidated statement of income amounting to Baht 2,443.35 million.

Thai Tank Terminal Limited

On 16 September 2022, at the Extraordinary General Meeting of shareholders of Thai Tank Terminal Limited (“TTT”), a subsidiary of the Company, approved an increase of TTT’s registered share capital and proposed to sell new shares to Gulf Energy Development Public Company Limited (“Gulf”) representing 28.57% of the ordinary shares of TTT or equivalent to Baht 2,059.20 million. The Company has signed a share subscription and shareholders agreement with Vopak Holding International B.V., Gulf, and TTT on 19 September 2022 for the purpose of restructuring of shareholding interest in TTT. The share payment was completed by Gulf on 7 December 2022. As a result, the Company’s shareholding interest in TTT decreased from 51% before restructuring to 36.43% after restructuring.

Notes to the Financial Statements

The Company has reclassified the remaining investment in TTT to investment in joint venture and recognised a gain from change in ownership interest in subsidiary in the consolidated statement of income amounting to Baht 847.96 million.

GC Glycol Co., Ltd.

On 31 August 2022, GC Glycol Co., Ltd., a subsidiary of the Company, registered to dissolve the business with Department of Business Development, Ministry of Commerce. The subsidiary distributed capital to the Company amounting to Baht 5,926.02 million. The Company recognised a gain from capital return from subsidiary amounting to Baht 531.02 million in its separate statement of income during the year 2022. As at 31 December 2023, the subsidiary is in the liquidation process.

GC Styrenics Co., Ltd.

On 31 August 2022, GC Styrenics Co., Ltd., a subsidiary of the Company, registered to dissolve the business with Department of Business Development, Ministry of Commerce. The subsidiary distributed capital to the Company amounting to Baht 185.23 million. As at 31 December 2023, the subsidiary is in the liquidation process.

GC Oxirane Co., Ltd.

On 31 March 2023, GC Oxirane Co., Ltd., a subsidiary of the Company, registered to dissolve the business with Department of Business Development, Ministry of Commerce. The subsidiary distributed capital to the Company amounting to Baht 7,569.17 million. The Company recognised a gain from capital return from the subsidiary amounting to Baht 31.27 million in its separate statement of income. As at 31 December 2023, the subsidiary is in the liquidation process.

PTT Phenol Co., Ltd.

On 31 March 2023, PTT Phenol Co., Ltd., a subsidiary of the Company, registered to dissolve the business with Department of Business Development, Ministry of Commerce. The subsidiary distributed capital to the Company amounting to Baht 13,028.67 million. As at 31 December 2023, the subsidiary is in the liquidation process.

Impairment loss on investments in subsidiaries

GC Ventures Co., Ltd.

During the year ended 31 December 2023, the Company recognised impairment loss on the investment in GC Ventures Co., Ltd., a subsidiary of the Company, totalling Baht 36.53 million in the separate statement of income as the recoverable amount of investment in NirvaMed Inc., an investment in financial asset at fair value through profit or loss of the Group, and Arevo Inc., an investment in financial asset at fair value through other comprehensive income of the Group, were less than their carrying amounts.

During the year ended 31 December 2022, the Company recognised impairment loss on the investment in GC Ventures Co., Ltd., a subsidiary of the Company, totalling Baht 85.73 million in the separate statement of income as the recoverable amount of investment in Arevo Inc., an investment in financial asset at fair value through other comprehensive income of the Group, was less than its carrying amount.

PTT Phenol Co., Ltd.

During the year ended 31 December 2023, the Company recognised impairment loss on the investment in PTT Phenol Co., Ltd., a subsidiary of the Company, totalling Baht 121.30 million in the separate statement of income as the recoverable amount of investment in subsidiary was less than its carrying amount due to the ongoing dissolution of the subsidiary.

10 Investments in joint ventures and associates

	Type of business	Country of operation	Ownership Interest (%)	Consolidated financial statements					
				Equity method		Impairment		Equity method - net	
				2023	2022	2023	2022	2023	2022
				(in million Baht)					
Direct joint ventures									
PTT Asahi Chemical Co., Ltd.	Manufacturing and distributing petrochemical products	Thailand	50	9,449	10,467	-	-	9,449	10,467
								-	750
PTT MCC Biochem Co., Ltd.	Manufacturing and distributing bioplastic products	Thailand	50	840	197	-	-	840	197
								-	-
HMC Polymers Co., Ltd.	Manufacturing and distributing petrochemical products	Thailand	41	9,681	11,791	-	-	9,681	11,791
								-	124
Revolve Group Limited	Manufacturing and distributing chemical products	United Kingdom	49	270	241	-	-	270	241
								-	-
Thai Tank Terminal Limited	Service for the storage and handling of liquid chemicals, oil and gas	Thailand	36	2,687	2,826	-	-	2,687	2,826
								1,002	-
GC Logistics Solutions Co., Ltd.	Transportation, warehouse management and bagging packing for chemical business	Thailand	50	3,973	-	-	-	3,973	-
								-	-
				26,900	25,522	-	-	26,900	25,522
								1,002	874

Consolidated financial statements

	Type of business	Country of operation	Ownership Interest 2023	Ownership Interest 2022	Equity method 2023	Equity method 2022	Impairment 2023	Impairment 2022	Equity method - net 2023	Equity method - net 2022	Dividend income 2023	Dividend income 2022
				(%)								
Indirect joint ventures												
Thai Ethoxylate Co., Ltd.	Manufacturing and distributing chemical products	Thailand	50	50	687	660	-	-	687	660	32	102
NatureWorks LLC	Manufacturing and distributing bioplastic products	United States of America	50	50	4,518	4,599	-	-	4,518	4,599	-	330
GGC KTIS Bioindustrial Co., Ltd.	Manufacturing and distributing electricity and ethanol from sugarcane	Thailand	50	50	1,266	1,223	-	-	1,266	1,223	-	-
Emery Oleochemicals UK Limited	Manufacturing and distributing biochemical products	United Kingdom	50	50	3,096	2,938	-	-	3,096	2,938	-	26
Entis Co., Ltd.	Manufacturing and distributing industrial coating resins and additives	South Korea	50	50	175	179	-	-	175	179	-	27
Synthese (Thailand) Co., Ltd.	Manufacturing and distributing industrial coating resins and additives	Thailand	48	48	494	507	-	-	494	507	29	45
Total investments in joint ventures					<u>10,236</u>	<u>10,106</u>	<u>-</u>	<u>-</u>	<u>10,236</u>	<u>10,106</u>	<u>61</u>	<u>530</u>
					<u>37,136</u>	<u>35,628</u>	<u>-</u>	<u>-</u>	<u>37,136</u>	<u>35,628</u>	<u>1,063</u>	<u>1,404</u>

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PTT Global Chemical Public Company Limited and its Subsidiaries
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Consolidated financial statements

	Type of business	Country of operation	Ownership Interest 2023	Ownership Interest 2022	Equity method 2023	Equity method 2022	Impairment 2023	Impairment 2022	Equity method - net 2023	Equity method - net 2022	Dividend income 2023	Dividend income 2022
			(%)						(in million Baht)			
Direct associates												
Kuraray GC Advanced Materials Co., Ltd.	Manufacturing and distributing petrochemical products	Thailand	33	33	1,579	1,801	-	-	1,579	1,801	-	-
PTT Energy Solutions Co., Ltd. (In process of liquidation)	Engineering consultant services	Thailand	20	20	21	22	(2)	(3)	19	19	-	4
PTT Digital Solutions Co., Ltd.	Information and communication technology services	Thailand	40	40	1,535	1,350	-	-	1,535	1,350	60	51
Vinythai Plc.	Manufacturing and distributing petrochemical products	Thailand	-	-	-	-	-	-	-	-	-	1,073
Eastern Fluid Transport Co., Ltd.	Planning, designing, supervising and managing the construction and installation of piping system	Thailand	-	-	-	-	-	-	-	-	-	5
Dynachisso Thai Co., Ltd.	Manufacturing and distributing chemical products	Thailand	42	42	271	272	-	-	271	272	-	5
AGC Vinythai Plc.	Manufacturing and distributing petrochemical products	Thailand	33	33	17,409	17,466	-	-	17,409	17,466	1,266	-
					<u>20,815</u>	<u>20,911</u>	<u>(2)</u>	<u>(3)</u>	<u>20,813</u>	<u>20,908</u>	<u>1,326</u>	<u>1,138</u>

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Total investments in associates

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PTT Global Chemical Public Company Limited and its Subsidiaries
For the year ended 31 December 2023

	Type of business	Country of operation	Ownership Interest (%)	Separate financial statements						Fair value of listed securities		Dividend income	
				Cost method		Impairment		Cost method - net		2023	2022	2023	2022
				2023	2022	2023	2022	2023	2022				
				(in million Baht)									
Joint ventures													
PTT Asahi Chemical Co., Ltd.	Manufacturing and distributing petrochemical products	Thailand	50	996	996	-	-	996	996	-	-	-	750
PTT MCC Biochem Co., Ltd.	Manufacturing and distributing bioplastic products	Thailand	50	1,066	160	-	-	1,066	160	-	-	-	-
HMC Polymers Co., Ltd.	Manufacturing and distributing petrochemical products	Thailand	41	14,217	14,217	-	-	14,217	14,217	-	-	-	124
Revolve Group Limited	Manufacturing and distributing chemical products	United Kingdom	49	269	269	-	-	269	269	-	-	-	-
Thai Tank Terminal Limited	Service for the storage and handling of liquid chemicals, oil and gas	Thailand	36	459	459	-	-	459	459	-	-	1,002	-
GC Logistics Solutions Co., Ltd.	Transportation, warehouse management and bagging packing for chemical business	Thailand	50	820	-	-	-	820	-	-	-	-	-
Total investments in joint ventures				17,827	16,101	-	-	17,827	16,101	-	-	1,002	874

	Type of business	Country of operation	Ownership Interest 2023	Ownership Interest 2022 (%)	Separate financial statements						Fair value of listed securities		Dividend income	
					Cost method		Impairment		Cost method - net (in million Baht)		2023	2022	2023	2022
					2023	2022	2023	2022	2023	2022				
Associate														
Kuraray GC Advanced Materials Co., Ltd.	Manufacturing and distributing petrochemical products	Thailand	33	33	1,870	1,870	-	-	1,870	1,870	-	-	-	-
PTT Energy Solutions Co., Ltd. (In process of liquidation)	Engineering consultant services	Thailand	20	20	30	30	(11)	(11)	19	19	-	-	-	4
PTT Digital Solutions Co., Ltd.	Information and communication technology services	Thailand	40	40	60	60	-	-	60	60	-	-	60	51
Vinythai Plc.	Manufacturing and distributing petrochemical products	Thailand	-	-	-	-	-	-	-	-	-	-	-	1,073
Eastern Fluid Transport Co., Ltd.	Planning, designing, supervising and managing the construction and installation of piping system	Thailand	-	-	-	-	-	-	-	-	-	-	-	6
Dynachisso Thai Co., Ltd.	Manufacturing and distributing chemical products	Thailand	42	42	294	294	-	-	294	294	-	-	-	-
AGC Vinythai Plc.	Manufacturing and distributing petrochemical products	Thailand	33	33	11,375	11,375	-	-	11,375	11,375	-	-	1,266	-
Total investments in associates					13,629	13,629	(11)	(11)	13,618	13,618	-	-	1,326	1,134

PTT Global Chemical Public Company Limited and its Subsidiaries
For the year ended 31 December 2023

		Consolidated financial statements		Separate financial statements	
<i>Material movements for the years ended 31 December</i>	<i>Note</i>	2023	2022	2023	2022
		<i>(in million Baht)</i>			
Joint Ventures					
Increase capital in PTT MCC Biochem Co., Ltd.		906	-	906	-
Increase capital in GGC KTIS Bioindustrial Co., Ltd.		188	54	-	-
Acquisition from transfers of businesses:					
- Revolve Group Limited		-	-	-	270
Change in ownership interest in Thai Tank Terminal Limited	9	-	2,802	-	459
Change in ownership interest in GC Logistics Solutions Co., Ltd.	9	3,509	-	820	-
Associates					
Increase capital in Kuraray GC Advanced Materials Co., Ltd.		-	93	-	93
Purchase investment in Vinythai Plc.		-	5,934	-	5,934
Purchase investment in AGC Vinythai Plc.		-	2,144	-	2,144
Acquisition from transfers of businesses:					
- Dynachisso Thai Co., Ltd.		-	-	-	294
Change in ownership interest in Eastern Fluid Transport Co., Ltd.		-	(16)	-	(2)
Dispose investment in Thai Eastern Top Seeds Oil Co., Ltd.		-	-	-	-
Dissolution of PTT Energy Solutions Co., Ltd.		-	-	-	-
Reversal of (loss on) impairment of investment in PTT Energy Solutions Co., Ltd.		1	(3)	-	(11)

PTT MCC Biochem Co., Ltd.

On 16 November 2023, PTT MCC Biochem Co., Ltd., a direct joint venture of the Group, has called for an increase in paid-up capital of 90,604,050 shares at Baht 10 per share, totalling Baht 906.04 million. The amount was fully paid in November 2023.

GGC KTIS Bioindustrial Co., Ltd.

During the year ended 31 December 2023, GGC KTIS Bioindustrial Co., Ltd., an indirect joint venture of the Group, has called for an increase in paid-up capital totalling Baht 187.50 million from GGC Biochemicals Co., Ltd., a subsidiary of the Company. The amount was fully paid during the year ended 31 December 2023.

On 8 April 2022, GGC KTIS Bioindustrial Company Limited, an indirect joint venture of the Group, has called for an increase in paid-up capital of 3,575,000 shares at Baht 15 per share, totalling Baht 53.63 million, from GGC Biochemicals Company Limited, a subsidiary of the Company. The amount was fully paid in May 2022.

Kuraray GC Advanced Materials Co., Ltd.

On 10 March 2022, Kuraray GC Advanced Materials Co., Ltd., a direct associate of the Group, has called for an increase in paid-up capital of 933,530 shares at Baht 100 per share, totalling Baht 93.35 million. The amount was fully paid in April 2022.

Vinythai Plc.

On 1 March 2022, the Company completed the tender offer for all the securities of VNT. Under the offer, the Company acquired 151,149,415 VNT shares, equivalent to 12.75% of VNT's issued and paid-up share capital with the tender offer price at Baht 39 per share, in the total amount of Baht 5,894.83 million. As a result, the Company's shareholding interest in VNT increased from 24.98% to 37.73% of the issued and paid-up share capital. On 12 March 2022, the Board of Governors of the SET has also delisted the securities of VNT from being listed on the SET.

On 11 April 2022, at the Extraordinary General Meeting of Shareholders of VNT, the amalgamation between VNT and AGC Chemical (Thailand) Co., Ltd. ("AGC-TH"), a subsidiary of AGC Inc., was approved by 99.8975% and disapproved by 0.1024% (equivalent to 1,205,517 shares). The Company offered to purchase the remaining VNT shares from the dissenting shareholders at the offer price of Baht 39 per share, which is the same price as the price offered by the Company for the delisting tender offer of VNT from being listed on the SET. Consequently, the Company acquired a further 995,017 VNT shares, in the amount of Baht 38.81 million. The shares purchase was completed on 3 May 2022, resulting in the Company's shareholding interest in VNT increased from 37.73% to 37.82%. The amalgamation between VNT and AGC-TH to form a new company, AGC Vinythai Plc. ("AVT") was completed on 1 July 2022. After the amalgamation and related share allocation of AVT, the Company holds 27.32% of the ordinary share of AVT.

AGC Vinythai Plc.

On 15 December 2022, at the Extraordinary General Meeting of Shareholders of AGC Vinythai Plc. ("AVT") approved the allocation of new ordinary shares to the Company by way of private placement, totalling Baht 2,143.89 million. Subsequent to the transaction, the Company's shareholding interest in AVT increased from 27.32% to 32.72%. The amount of share subscription was fully paid in December 2022. The Group recognised any excess of the net fair value of identifiable net assets over the cost of the investment as income in the determination of share of profit of associates accounted for using equity method amounting to Baht 938.55 million.

Eastern Fluid Transport Co., Ltd.

On 7 December 2022, Thai Tank Terminal Limited ("TTT"), a subsidiary of the Company, has completed the restructuring of the new shareholding interest, by the approval of the Extraordinary General Meeting of shareholders of TTT held on 16 September 2022. Consequently, the Company's shareholding interest in Eastern Fluid Transport Co., Ltd. ("EFT") decreased from 22.65% before restructuring to 15% after restructuring. The Company has reclassified the remaining investment in EFT to non-current investment in financial assets measured at fair value through other comprehensive income in which gain on remeasurement of fair value at the date of investment reclassification was presented as part of investment income in the separate statement of income amounting to Baht 8.82 million.

Thai Eastern Top Seeds Oil Co., Ltd

On 13 January 2022, Global Green Chemicals Plc. ("GGC"), a subsidiary of the Company, has completed the sales of shares in Thai Eastern Top Seeds Oil Co., Ltd., an indirect associate, in which GGC held 30% of authorised and paid-up share capital, by the approval of the Board of Directors' Meeting of GGC held on 15 September 2021, to a company for a consideration of Baht 1.

PTT Energy Solutions Co., Ltd.

On 29 December 2022, PTT Energy Solutions Co., Ltd., a direct associate of the Group, registered to dissolve the business with Department of Business Development, Ministry of Commerce. As at 31 December 2023, the associate is in the liquidation process.

Impairment loss on investment in an associate***PTT Energy Solutions Co., Ltd.***

During the year ended 31 December 2023, the Company recognised a reversal of impairment loss on the investment in PTT Energy Solutions Co., Ltd. (“PTTES”), a direct associate of the Group, totalling Baht 0.92 million in the consolidated statement of income, as the Company considered that the value of such investment at equity method in the consolidated financial statements has increased.

During the year ended 31 December 2022, the Company recognised an impairment loss on the investment in PTT Energy Solutions Co., Ltd. (“PTTES”), a direct associate of the Group, totalling Baht 2.61 million and Baht 11.40 million in the consolidated and separate statements of income, respectively, as the Company considered that the recoverable amount of such investment was less than investment at equity method in the consolidated financial statements and its carrying amount in the separate financial statements according to the dissolution of PTTES.

Material joint ventures and associates

The following table summarises the financial information of the material joint ventures and associates as included in their own financial statements, adjusted for fair value adjustments at acquisition and differences in accounting policies. The table also reconciles the summarised financial information to the carrying amount of the Group’s interest in these companies.

	PTT Asahi Chemical Co., Ltd.		HMC Polymers Co., Ltd.	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
For the years ended 31 December				
Statement of income				
Revenue	10,649	14,596	25,100	32,557
Loss from continuing operations	(2,028)	(1,185)	(4,332)	(1,628)
Other comprehensive income (loss)	(7)	15	(761)	(990)
Total comprehensive income (loss)				
(100%)	(2,035)	(1,170)	(5,093)	(2,618)
As at 31 December				
Statement of financial position				
Current assets	4,802	4,397	7,617	9,100
Non-current assets	21,181	22,545	30,748	32,733
Current liabilities	(2,516)	(1,740)	(5,109)	(5,714)
Non-current liabilities	(4,568)	(4,269)	(17,226)	(14,996)
Net assets (100%)	18,899	20,933	16,030	21,123
Group’s share of net assets	9,449	10,467	6,643	8,753
Goodwill	-	-	3,038	3,038
Carrying amount of interest in joint ventures	9,449	10,467	9,681	11,791
Remark:				
Cash and cash equivalents	994	1,227	1,103	1,434
Depreciation and amortisation	1,538	1,337	2,062	1,559

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The reconciliation of the summarised financial information to the carrying amount of the Group's interest in these joint ventures.

	PTT Asahi Chemical Co., Ltd.		HMC Polymers Co., Ltd.	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
Group's interest in net assets of investee as at 1 January	10,467	11,802	11,791	13,001
Total comprehensive income (loss) attributable to the Group	(1,018)	(585)	(2,110)	(1,086)
Dividends received during the year	-	(750)	-	(124)
Carrying amount of interest in investee as at 31 December	9,449	10,467	9,681	11,791

AGC Vinythai Plc.

	2023	2022
	<i>(in million Baht)</i>	
For the year ended 31 December		
Statement of income		
Revenue	34,370	21,305
Profit from continuing operations	3,718	2,989
Other comprehensive income (loss)	(23)	148
Total comprehensive income (100%)	3,695	3,137
As at 31 December		
Statement of financial position		
Current assets	22,485	31,639
Non-current assets	26,298	17,903
Current liabilities	(4,333)	(5,348)
Non-current liabilities	(2,519)	(2,581)
Net assets (100%)	41,931	41,613
Non-controlling interests	(337)	(323)
Total attributions to owners of the parents	41,594	41,290
Group's share of net assets	13,610	13,510
Elimination of unrealised profit on downstream sales	(16)	(12)
Purchase price allocation	2,963	3,116
Goodwill	852	852
Carrying amount of interest in associate	17,409	17,466
Remark:		
Cash and cash equivalents	14,055	24,111
Depreciation and amortisation	1,482	552

The reconciliation of the summarised financial information to the carrying amount of the Group's interest in this associate.

	AGC Vinythai Plc.	
	2023	2022
	<i>(in million Baht)</i>	
Group's interest in net assets of investee as at 1 January	17,466	-
Acquisition from amalgamation	-	13,617
Purchase investment	-	2,144
Total comprehensive income attributable to the Group	1,209	766
Gain on bargain purchase	-	939
Dividend received during the year	(1,266)	-
Carrying amount of interest in investee as at 31 December	17,409	17,466

Immaterial joint ventures and associates

The following is summarized financial information for the Group's interest in immaterial joint ventures and associates based on the amounts reported in the Group's consolidated financial statements:

	Immaterial Joint ventures		Immaterial Associates	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
For the years ended 31 December				
Carrying amount of interests in immaterial joint ventures and associates	18,006	13,370	3,450	3,477
Group's share of:				
- Profit from continuing operations	1,165	1,286	41	1,751
- Other comprehensive income (loss)	(96)	231	(8)	36
- Total comprehensive income	1,069	1,517	33	1,787

11 Marketable financial assets

Consolidated financial statements						
<i>Marketable equity and debt securities</i>	At 1 January	Purchase	Disposal	Fair value adjustment	Currency translation	At 31 December
	<i>(in million Baht)</i>					
2023						
Current financial assets						
Debt securities measured at						
- FVOCI	726	70	-	1	-	797
Non-current financial assets						
Equity securities measured at						
- FVOCI	20,767	-	(66)	(7,006)	1	13,696
Debt securities measured at						
- FVPL	383	-	-	(67)	-	316
- FVOCI	1,618	-	(785)	9	-	842
Total	22,768	-	(851)	(7,064)	1	14,854

Notes to
the Financial Statements

Consolidated financial statements						
<i>Marketable equity and debt securities</i>	At 1 January	Purchase	Disposal (in million Baht)	Fair value adjustment	Currency translation	At 31 December
2022						
Current financial assets						
Debt securities measured at - FVOCI	896	-	(164)	(6)	-	726
Non-current financial assets						
Equity securities measured at - FVOCI	25,505	-	-	(4,759)	21	20,767
Debt securities measured at - FVPL	374	-	-	9	-	383
- FVOCI	1,969	-	(330)	(21)	-	1,618
Total	27,848	-	(330)	(4,771)	21	22,768

Separate financial statements					
<i>Marketable equity and debt securities</i>	At 1 January	Purchase	Disposal (in million Baht)	Fair value adjustment	At 31 December
2023					
Current financial assets					
Debt securities measured at - FVOCI	726	70	-	1	797
Non-current financial assets					
Equity securities measured at - FVOCI	20,584	-	-	(6,909)	13,675
Debt securities measured at - FVPL	383	-	-	(67)	316
- FVOCI	1,618	-	(785)	9	842
Total	22,585	-	(785)	(6,967)	14,833
2022					
Current financial assets					
Debt securities measured at - FVOCI	896	-	(164)	(6)	726
Non-current financial assets					
Equity securities measured at - FVOCI	25,025	-	-	(4,441)	20,584
Debt securities measured at - FVPL	374	-	-	9	383
- FVOCI	1,969	-	(330)	(21)	1,618
Total	27,368	-	(330)	(4,453)	22,585

12 Investment properties

	Consolidated financial statements			Separate financial statements
	Land	Buildings and buildings improvement	Investment property under construction (in million Baht)	Land
Cost				
As at 1 January 2022	6,035	31	12	1,741
Transfers	-	1	-	86
As at 31 December 2022 and 1 January 2023	6,035	32	12	1,827
Additions	-	-	1	-
Transfers	-	12	(12)	(531)
As at 31 December 2023	6,035	44	1	1,296
Accumulated depreciation				
As at 1 January 2022	-	4	-	-
Depreciation charge for the year	-	2	-	-
Transfers	-	(1)	-	-
As at 31 December 2022 and 1 January 2023	-	5	-	-
Depreciation charge for the year	-	3	-	-
Transfers	-	(1)	-	-
As at 31 December 2023	-	7	-	-
Net book value				
As at 31 December 2022	6,035	27	12	1,827
As at 31 December 2023	6,035	37	1	1,296

The fair value of investment properties of the Group as at 31 December 2023 of Baht 8,090 million (2022: Baht 7,372 million) was determined at open market values on an existing use basis and income approach. The fair value measurement for investment properties has been mainly categorised as Levels 2.

The fair value of investment properties of the Company as at 31 December 2023 of Baht 2,396 million (2022: Baht 4,020 million) was determined at open market values on an existing use basis. The fair value measurement for investment properties has been categorised as a Level 2 fair value.

Measurement of fair value

Level 2 fair value

The fair value of investment properties for land was determined by independent property valuers at open market values by scoring and weighted other different factors.

	Consolidated financial statements		Separate financial statements	
Year ended 31 December	2023	2022	2023	2022
Amounts recognised in profit or loss				
Rental income	141	157	158	195

13 Property, plant and equipment

Consolidated financial statements

Cost	Land and land improvement	Plant, machinery, equipment and factory tools	Buildings and buildings improvement	Furniture, fixtures and equipment <i>(in million Baht)</i>	Vehicles	Assets under construction	Total
As at 1 January 2022	19,899	472,919	31,383	4,590	930	22,287	552,008
Additions	8	2,566	39	125	10	18,357	21,105
Loss of control in subsidiary	(10)	(8,096)	(66)	(91)	(7)	(11)	(8,281)
Transfers	78	9,941	2,249	46	55	(12,900)	(531)
Disposals	-	(4,985)	(23)	(290)	(81)	(17)	(5,396)
Effect from exchange differences on translating financial statements	(159)	(792)	(263)	(37)	(2)	80	(1,173)
As at 31 December 2022	19,816	471,553	33,319	4,343	905	27,796	557,732
Additions	566	1,517	100	152	9	14,982	17,326
Loss of control in subsidiary	(317)	(2,855)	(1,380)	(319)	(25)	(590)	(5,486)
Transfers	245	13,622	1,297	315	5	(15,896)	(412)
Disposals	(2,323)	(3,435)	(344)	(218)	(86)	(610)	(7,016)
Effect from exchange differences on translating financial statements	161	868	199	21	2	(136)	1,115
As at 31 December 2023	18,148	481,270	33,191	4,294	810	25,546	563,259

Consolidated financial statements

	Land and land improvement	Plant, machinery, equipment and factory tools	Buildings and buildings improvement	Furniture, fixtures and equipment (in million Baht)	Vehicles	Assets under construction	Total
Accumulated depreciation and allowance for impairment							
As at 1 January 2022	1,194	231,190	12,555	3,211	713	2,103	250,966
Depreciation charge for the year	131	18,869	1,281	475	80	-	20,836
Loss of control in subsidiary	(9)	(5,023)	(36)	(46)	(4)	-	(5,118)
Transfers	21	112	(48)	(37)	43	-	91
Disposals	-	(4,720)	(19)	(285)	(78)	-	(5,102)
Impairment losses	-	31	20	-	-	-	51
Effect from exchange differences on translating financial statements	4	(287)	(67)	(24)	(1)	62	(313)
As at 31 December 2022	1,341	240,172	13,686	3,294	753	2,165	261,411
and 1 January 2023	138	19,162	1,326	390	71	-	21,087
Depreciation charge for the year	-	(1,434)	(576)	(273)	(23)	-	(2,306)
Loss of control in subsidiary	(1)	22	(5)	-	2	-	18
Transfers	(7)	(2,773)	(144)	(207)	(84)	-	(3,215)
Disposals	-	(7)	(12)	-	-	-	(19)
Reversal of impairment losses	-	-	-	-	-	-	-
Effect from exchange differences on translating financial statements	1	372	54	14	1	(19)	423
As at 31 December 2023	1,472	255,514	14,329	3,218	720	2,146	277,399

Consolidated financial statements

	Land and land improvement	Plant, machinery, equipment and factory tools	Buildings and buildings improvement	Furniture, fixtures and equipment <i>(in million Baht)</i>	Vehicles	Assets under construction	Total
Net book value							
As at 31 December 2022							
Owned assets	18,475	231,381	19,633	1,049	152	25,631	296,321
As at 31 December 2023							
Owned assets	16,676	225,756	18,862	1,076	90	23,400	285,860

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the Financial Statements

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Cost	Note	Land and land improvement	Plant, machinery, equipment and factory tools	Buildings and buildings improvement	Furniture, fixtures and equipment	Vehicles	Assets under construction	Total
<i>(in million Baht)</i>								
As at 1 January 2022		5,109	326,588	10,688	1,797	559	9,262	354,003
Additions		3	1,517	14	34	3	10,362	11,933
Acquisition from transfers of businesses		738	17,465	318	78	4	58	18,661
Transfers		(82)	4,352	1,034	34	42	(5,652)	(272)
Disposals		-	(2,901)	(16)	(165)	(58)	(10)	(3,150)
As at 31 December 2022 and 1 January 2023		5,768	347,021	12,038	1,778	550	14,020	381,175
Additions		562	1,271	5	42	-	9,015	10,895
Acquisition from transfers of businesses	4	564	42,544	2,736	116	1	275	46,236
Transfers		768	9,940	794	74	2	(11,310)	268
Disposals		-	(3,007)	(56)	(78)	(59)	-	(3,200)
As at 31 December 2023		7,662	397,769	15,517	1,932	494	12,000	435,374

Separate financial statements

	Note	Land and land improvement	Plant, machinery, equipment and factory tools	Buildings and buildings improvement	Furniture, fixtures and equipment	Vehicles	Assets under construction	Total
<i>(in million Baht)</i>								
<i>Accumulated depreciation</i>								
As at 1 January 2022		735	168,120	5,567	1,401	419	270	176,512
Depreciation charge for the year		52	11,234	385	166	54	-	11,891
Acquisition from transfers of businesses		32	9,664	187	54	4	-	9,941
Transfers		-	(13)	16	-	34	-	37
Disposals		-	(2,766)	(14)	(164)	(58)	-	(3,002)
As at 31 December 2022 and 1 January 2023		819	186,239	6,141	1,457	453	270	195,379
Depreciation charge for the year		63	13,958	475	158	53	-	14,707
Acquisition from transfers of businesses	4	6	14,701	1,046	106	1	-	15,860
Transfers		-	5	-	-	1	-	6
Disposals		-	(2,548)	(51)	(77)	(58)	-	(2,734)
As at 31 December 2023		888	212,355	7,611	1,644	450	270	223,218
<i>Net book value</i>								
As at 31 December 2022								
Owned assets		4,949	160,782	5,897	321	97	13,750	185,796
As at 31 December 2023								
Owned assets		6,774	185,414	7,906	288	44	11,730	212,156

Security

As at 31 December 2023, property, plant and equipment of the Group with net book value of Baht 8,554 million (2022: Baht 9,358 million) were registered to secured a loans from financial institutions (see Note 17). In addition, a subsidiary pledged bank accounts and various rights to the financial institutions. Thus, bank deposits placed as collateral can be withdrawn in accordance with the objectives and conditions specified in the loan agreement.

Capitalised borrowing costs relating to the construction of a new factory for the Group and the Company amounted to Baht 121 million and Baht 30 million, respectively (2022: Baht 104 million and Baht 32 million), with capitalisation rates of 2.90% to 7.00% per annum and 3.50% per annum, respectively (2022: 2.63% to 4.00% per annum and 3.50% per annum).

14 Leases

<i>Right-of-use assets As at 31 December</i>	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
Land and land improvement	8,243	8,178	5,873	6,267
Plant, machinery, equipment and factory tools	15,116	15,281	13,209	10,371
Buildings and buildings improvement	1,260	1,343	45	110
Furniture, fixtures and equipment	252	151	65	87
Vehicles	604	664	291	323
Total	25,475	25,617	19,483	17,158

In 2023, additions to the right-of-use assets of the Group and the Company were Baht 2,357 million and Baht 4,627 million, respectively (2022: Baht 17,087 million and Baht 11,241 million, respectively).

The Group leases a number of plots of land and land improvement for 2 to 96 years, with extension options at the end of the lease terms.

Extension options

The Group has extension options on property leases exercisable up to one year before the end of the contract period. The Group assesses at lease commencement date whether it is reasonably certain to exercise the extension options and will regularly reassess so.

Notes to the Financial Statements

<i>Year ended 31 December</i>	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
<i>Amounts recognised in profit or loss</i>				
Sub-lease income	-	-	-	1
Depreciation of right-of-use assets:				
- Land and land improvement	571	552	432	420
- Plant, machinery, equipment and factory tools	1,509	668	1,024	631
- Buildings and buildings improvement	469	431	60	56
- Furniture, fixtures and equipment	145	170	61	89
- Vehicles	368	367	161	146
Interest expense on lease liabilities				
- Net of interest capitalised as part of asset under construction	821	412	611	309
Expense relating to short-term leases	108	95	16	72
Expense relating to leases of low value assets	111	77	76	42
Expense relating to variable lease payments not included in the measurement of the lease liability	124	12	115	58

Security

As at 31 December 2023, net book value of right-of-use assets of the Group of CNY 45 million (equivalent to Baht 217 million) (2022: CNY 46 million (equivalent to Baht 229 million)) were registered to secured loans from financial institutions (see Note 17).

15 Goodwill

	Consolidated financial statements	
	2023	2022
	<i>(in million Baht)</i>	
<i>Cost</i>		
As at 1 January	74,463	76,438
Decrease	(717)	-
Effect of movements in exchange rates	2,343	(1,975)
As at 31 December	76,089	74,463
<i>Allowance for impairment</i>		
As at 1 January	(717)	(717)
Decrease	717	-
As at 31 December	-	(717)
<i>Net book value</i>		
As at 31 December	76,089	73,746

Impairment testing for CGUs containing goodwill

For the purposes of impairment testing, goodwill has been allocated to the Group's CGU which is substantially represented by Allnex Holding GmbH and its subsidiaries.

The recoverable amount was based on value in use, estimated using discounted cash flows. The fair value measurement was categorised as a Level 3 fair value.

The recoverable amount of CGU relating to goodwill arising from the cash flow projections included specific estimates for ten years and a terminal growth rate thereafter to aligned with long-term business plan of the Group. The terminal growth rate was determined based on management's estimate of the long-term annual EBITDA growth rate, consistent with the assumptions that a market participant would make.

The key assumptions used in the estimation of the recoverable amount

The discount rate was based on the weighted average cost of capital, derived using a risk free rate referencing a 10-year government bond, market risk premium and average company beta at a discount rate of 8%.

The forecasted growth in EBITDA was derived based on the expectations of industry, regional and global macroeconomic information. With references to historical data, internal and external sources of information, applicable adjustments have been reflected to the increases in revenue and corresponding expenditures ranging from raw material and utilities prices, logistic costs to research, innovations and development to enhance product and services standards in satisfying diverse customer requirements and demands at a growth rate of 10% to 12%.

From the impairment assessment, the recoverable amount of CGU was higher than its carrying amount, therefore, no impairment loss was recognised in the consolidated financial statements.

Management is aware that if there were to be changes to two key assumptions, either an increase in discount rate of 17% of company weighted average cost of capital or a decrease in the forecasted EBITDA growth rate in excess of 20%, the calculated recoverable amount will approximately be equal to the carrying amount.

16 Intangible assets

	Consolidated financial statements					
	Production licence fees	Computer software	Customer contracts and the related customer relationships	Right to use pipe rack	Right to use Others	Intangible assets under development
				(in million Baht)		Total
Cost						
As at 1 January 2022	8,957	9,847	21,649	56	42,676	83,691
Additions	93	31	27	-	346	1,318
Loss of control in subsidiary	-	(24)	-	(25)	-	(49)
Transfers	10	547	-	-	(606)	(632)
Disposals	(21)	(255)	-	-	(21)	(297)
Effect from exchange differences on translating financial statements	(1)	(113)	(603)	-	(1,167)	(1,893)
As at 31 December 2022 and 1 January 2023	9,038	10,033	21,073	31	41,228	82,138
Additions	25	60	-	-	275	1,166
Loss of control in subsidiary	-	(170)	-	-	-	(199)
Transfers	176	664	59	-	(34)	151
Disposals	(31)	(246)	-	-	(96)	(381)
Effect from exchange differences on translating financial statements	1	130	625	-	1,387	2,154
As at 31 December 2023	9,209	10,471	21,757	31	42,760	85,029

**As at 31 December 2022 and
1 January 2023**

Amortisation charge for the year

Loss of control in subsidiary

Transfer

Disposal

Effect from exchange differences on
translating financial statements

As at 31 December 2022
As at 31 December 2023

Consolidated financial statements							
	Production licence fees	Computer software	Customer contracts and the related customer relationships	Right to use pipe rack (in million Baht)	Right to use Others	Intangible assets under development	Total
	3,605 449	5,875 866	4,219 708	56 -	4,783 2,033	22 -	18,560 4,056
	-	(15)	-	(25)	-	-	(40)
	2 (21)	(39) (197)	-	-	(84) (7)	-	(121) (225)
	-	(15)	-	-	-	-	(15)
	-	(67)	(117)	-	(125)	-	(309)
	4,035 385	6,408 853	4,810 696	31 -	6,600 2,078	22 -	21,906 4,012
	-	(83)	-	-	-	-	(83)
	(2) (21)	2 (232)	24 -	- -	(24) (51)	- -	- (304)
	1	84	136	-	253	-	474
	4,398	7,032	5,666	31	8,856	22	26,005
	5,003 4,811	3,625 3,439	16,263 16,091	- -	34,628 33,904	713 779	60,232 59,024

17 Interest-bearing liabilities*Short-term borrowings*

Short-term borrowings balances as at 31 December 2023 and 2022 were as follows:

		Consolidated financial statements		Separate financial statements	
	<i>Note</i>	2023	2022	2023	2022
		<i>(in million Baht)</i>			
Short-term borrowings from financial institutions					
- Secured		1,380	1,415	-	-
- Unsecured		823	2,903	-	2,000
Short-term borrowings from related parties					
- Unsecured	5	-	-	1,580	2,154
Total		2,203	4,318	1,580	4,154

Long-term borrowings

Long-term borrowings balances as at 31 December 2023 and 2022 were as follows:

		Consolidated financial statements		Separate financial statements	
	<i>Note</i>	2023	2022	2023	2022
		<i>(in million Baht)</i>			
Current					
Current portion of long-term borrowings from financial institutions					
- Secured		346	593	-	-
- Unsecured		7,030	8,706	5,998	7,683
Current portion of long-term borrowings from other parties					
- Unsecured		40	42	-	-
Total current		7,416	9,341	5,998	7,683
Non-current					
Long-term borrowings from financial institutions					
- Secured		8,264	7,386	-	-
- Unsecured		82,770	79,368	46,536	41,118
Long-term borrowing from a related party					
- Unsecured	5	-	-	74,266	90,676
Long-term borrowings from other parties					
- Unsecured		210	162	-	-
Total non-current		91,244	86,916	120,802	131,794
Total		98,660	96,257	126,800	139,477

Notes to the Financial Statements

As at 31 December 2023, the Group had unutilised credit facilities totalling Baht 45,568 million (2022: Baht 44,482 million).

As at 31 December 2023, the Group pledged some bank accounts, some of the property, plant and equipment and various rights as collateral as reported to financial institutions. However, the pledged bank accounts can be withdrawn with the objective and conditions stipulated in loan agreements (see Notes 13 and 14).

As at 31 December 2023, the Group and the Company had long-term and revolving long-term credit facility agreements with several financial institutions totalling Baht 98,410 million and Baht 52,534 million, respectively (2022: Baht 96,053 million and Baht 48,802 million, respectively) which bear different interest rates and repayment terms as specified in each agreement. The Group is required to comply with certain covenants pertaining to maintain of certain financial ratios, percentage of share held by the major shareholder and other conditions as specified in each agreement.

Details of the Group's facilities from financial institutions as at 31 December 2023 were as follows:

Currency The Company	Facilities (in million)	Interest Rates (% p.a.)	Repayment Terms
Baht	10,000	THOR plus margin	Principal is repayable once in June 2025.
Baht	10,000	THOR plus margin	Principal is repayable on a semi-annual basis, in 12 instalments commencing from January 2022.
Baht	10,000	MLR minus margin	Principal is repayable on a quarterly basis, in 12 instalments commencing from January 2023.
Baht	12,799.6	THOR plus margin	Principal is repayable on a semi-annual basis, in 20 instalments commencing from March 2023.
Baht	10,000	MLR minus margin	Principal is repayable on a quarterly basis, in 12 instalments commencing from December 2024.
Baht	2,000	THOR plus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from March 2026.
Baht	2,000	THOR plus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from March 2026.
Baht	15,000*	MLR minus margin	Principal is repayable on a quarterly basis, in 14 instalments commencing from June 2026.
Baht	1,000	Prime rate minus margin	Principal is repayable on a semi-annual basis, in 6 instalments commencing from June 2026.
Baht	10,000*	THOR plus margin	Principal is repayable once in December 2029.

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Currency Subsidiaries	Facilities (in million)	Interest Rates (% p.a.)	Repayment Terms
EUR	180	EURIBOR 1/3M plus margin	Principal is repayable on an annual basis, in 6 instalments commencing from 2023.
EUR	30	EURIBOR 6M plus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from 2022.
Baht	6,004	THOR plus margin	Principal is repayable on a semi-annual basis, in 20 instalments commencing from February 2021.
Baht	1,250	THOR plus margin	Principal is repayable on a semi-annual basis, in 15 instalments commencing from April 2023.
Baht	755	Highest interest rate for 6 month-fixed deposit plus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from June 2024.
Baht	700	THOR plus margin	Principal is repayable on a semi-annual basis, in 15 instalments commencing from October 2022.
Baht	700	Highest interest rate for 6 month-fixed deposit plus margin	Principal is repayable on a semi-annual basis, in 12 instalments commencing from April 2023.
Baht	400	MLR minus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from June 2024.
CNY	700	LPR minus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from December 2025.
EUR	450	EURIBOR 1/3/6M plus margin	Principal is repayable once in October 2028.
USD	300	SOFR plus margin	Principal is repayable once in October 2028.
Baht	755	THOR plus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from June 2024.
Baht	2,000*	THOR plus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from June 2026.
USD	100	SOFR plus margin	Principal is repayable in 4 instalments commencing from December 2025.
USD	1.93	Fixed rate	Principal is repayable on a quarterly basis, in 15 instalments commencing from October 2023.

*Sustainability-Linked Loan (or SLL), the interest rates will be adjusted down in line with operational achievements of Sustainability Performance Targets (or SPTs) according to the agreement.

As at 31 December 2023, the subsidiaries' long-term borrowings and debentures were guaranteed by the Company totalling Baht 81,622 million (2022: Baht 96,783 million) (see Note 27).

Notes to the Financial Statements

Debentures

Debentures balances as at 31 December 2023 and 2022 were as follows:

	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	(in million Baht)			
Current				
Current portion of debentures				
- Unsecured	11,498	-	11,498	-
Total current	11,498	-	11,498	-
Non-current				
Debentures				
- Unsecured	152,691	176,974	78,445	89,930
Total non-current	152,691	176,974	78,445	89,930
Total	164,189	176,974	89,943	89,930

Details of the Group's debentures as at 31 December 2023 were as follows:

	Currency	Facilities (in million)	Face value per share	Years	Interest rates (% p.a.)	Repayment Terms
The Company						
Unsubordinated debenture unsecured with a debenture holders' representative and debenture issuer has right to redeem the debentures prior to maturity after one year of issuance	Baht	10,000	1,000	5	2.90	Interest is payable on a semi-annual basis and maturity in August 2024.
Unsubordinated debenture unsecured without a debenture holders' representative	Baht	1,500	1,000	5	2.20	Interest is payable on a semi-annual basis and maturity in September 2024.
Unsubordinated debenture unsecured without a debenture holders' representative	Baht	7,000	1,000	7	2.43	Interest is payable on a semi-annual basis and maturity in September 2026.
Unsubordinated debenture unsecured without a debenture holders' representative	Baht	1,500	1,000	10	2.75	Interest is payable on a semi-annual basis and maturity in September 2029.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	1,530	1,000	7	2.60	Interest is payable on a semi-annual basis and maturity in April 2027.

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	Currency	Facilities (in million)	Face value per share	Years	Interest rates (% p.a.)	Repayment Terms
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	3,310	1,000	10	2.99	Interest is payable on a semi-annual basis and maturity in April 2030.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	4,360	1,000	12	3.29	Interest is payable on a semi-annual basis and maturity in April 2032.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	5,800	1,000	15	3.50	Interest is payable on a semi-annual basis and maturity in April 2035.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	14,000	1,000	5	2.13	Interest is payable on a semi-annual basis and maturity in January 2027.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	2,000	1,000	7	2.65	Interest is payable on a semi-annual basis and maturity in January 2029.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	2,000	1,000	10	3.05	Interest is payable on a semi-annual basis and maturity in January 2032.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	12,000	1,000	12	3.29	Interest is payable on a semi-annual basis and maturity in January 2034.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	5,000	1,000	5	3.21	Interest is payable on a semi-annual basis and maturity in June 2027.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	3,000	1,000	12	4.00	Interest is payable on a semi-annual basis and maturity in June 2034.
Unsubordinated debenture unsecured with a debenture holders' representative and debenture issuer has right to redeem the debentures prior to maturity after one year of issuance	Baht	17,000	1,000	7	3.50	Interest is payable on a semi-annual basis and maturity in June 2029.

Notes to the Financial Statements

		Facilities	Face value		Interest rates	
	Currency	(in million)	per share	Years	(% p.a.)	Repayment Terms
Subsidiaries						
Unsubordinated debenture at 98.68% of the face value unsecured with a debenture holders' representative and the debenture issuer can early redeem regarding the rights and obligations	USD	630	1,000	10	2.98	Interest is payable on a semi-annual basis and maturity in March 2031.
Unsubordinated debenture at 98.41% of the face value unsecured with a debenture holders' representative and the debenture issuer can early redeem regarding the rights and obligations	USD	525.16	1,000	30	4.30	Interest is payable on a semi-annual basis and maturity in March 2051.
Unsubordinated debenture at 99.41% of the face value unsecured with a debenture holders' representative and the debenture issuer can early redeem regarding the rights and obligations	USD	800	1,000	10	4.40	Interest is payable on a semi-annual basis and maturity in March 2032.
Unsubordinated debenture at 99.43% of the face value unsecured with a debenture holders' representative and the debenture issuer can early redeem regarding the rights and obligations	USD	240	1,000	30	5.20	Interest is payable on a semi-annual basis and maturity in March 2052.

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The periods to maturity of interest-bearing liabilities, excluding finance lease liabilities, as at 31 December 2023 and 2022 were as follows:

	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
Within one year	21,118	13,659	19,076	11,837
After one year but within five years	106,397	112,428	67,052	74,428
After five years	137,537	151,462	132,196	147,296
Total	265,052	277,549	218,324	233,561

Lease liabilities

The periods to maturity of lease liabilities, as at 31 December 2023 and 2022 were as follows:

	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
Within one year	3,005	2,693	1,849	1,497
After one year but within five years	8,893	7,792	6,419	5,169
After five years	19,772	20,695	16,708	14,819
	31,670	31,180	24,976	21,485
<i>Less</i> Deferred interest expense	(6,619)	(6,875)	(4,909)	(4,397)
	25,051	24,305	20,067	17,088
Classification				
- Current portion of lease liabilities	2,198	1,954	1,258	1,003
- Lease liabilities	22,853	22,351	18,809	16,085
	25,051	24,305	20,067	17,088

Changes in liabilities arising from financing activities

	Consolidated financial statements				
	Accrued interest expense	Borrowings	Debentures	Lease liabilities	Total
	<i>(in million Baht)</i>				
2023					
As at 1 January	1,801	100,575	176,974	24,305	303,655
Net financing cash flows	(10,861)	473	(10,330)	(3,186)	(23,904)
Loss of control in subsidiary	-	(933)	-	(60)	(993)
Increase in lease liabilities	-	-	-	2,328	2,328
Effect from foreign exchange rate	194	686	(654)	62	288
Interest expense	10,615	-	-	821	11,436
Others	204	63	(1,801)	781	(753)
As at 31 December	1,953	100,864	164,189	25,051	292,057

Notes to the Financial Statements

Consolidated financial statements

	Accrued interest expense	Borrowings	Debentures (in million Baht)	Lease liabilities	Total
2022					
As at 1 January	1,137	155,517	109,501	10,356	276,511
Net financing cash flows	(9,494)	(54,209)	64,452	(2,494)	(1,745)
Loss of control in subsidiary	-	-	-	13,751	13,751
Increase in lease liabilities	-	-	-	2,176	2,176
Effect from foreign exchange rate	202	(639)	3,379	(53)	2,889
Interest expense	9,161	-	-	411	9,572
Others	795	(94)	(358)	158	501
As at 31 December	1,801	100,575	176,974	24,305	303,655

Separate financial statements

	Accrued interest expense	Borrowings	Debentures (in million Baht)	Lease liabilities	Total
2023					
As at 1 January	1,795	143,631	89,930	17,088	252,444
Net financing cash flows	(8,149)	(15,070)	-	(1,757)	(24,976)
Acquisition from transfers of businesses	-	-	-	2,864	2,864
Loss of control in subsidiary	-	-	-	34	34
Increase in lease liabilities	-	-	-	500	500
Effect from foreign exchange rate	-	(366)	-	-	(366)
Interest expense	8,120	-	-	611	8,731
Others	140	186	13	727	1,066
As at 31 December	1,906	128,381	89,943	20,067	240,297

2022

As at 1 January	1,223	166,605	51,894	7,512	227,234
Net financing cash flows	(7,985)	(26,697)	36,255	(1,735)	(162)
Acquisition from transfers of businesses	-	-	-	240	240
Increase in lease liabilities	-	-	-	10,834	10,834
Effect from foreign exchange rate	-	3,953	1,811	-	5,764
Interest expense	8,165	-	-	309	8,474
Others	392	(230)	(30)	(72)	60
As at 31 December	1,795	143,631	89,930	17,088	252,444

18 Non-current provisions for employee benefits

	Consolidated financial statements		Separate financial statements	
<i>As at 31 December</i>	2023	2022	2023	2022
	<i>(in million Baht)</i>			
Post-employment benefits	7,614	7,749	3,872	4,302
Other long-term employee benefits	4,321	4,336	474	531
Fair value of plan assets	(2,927)	(2,919)	-	-
Total	9,008	9,166	4,346	4,833

Defined benefit plans

The Group and the Company operate a defined benefit plan based on the requirement of Thai Labour Protection Act B.E 2541 (1998) to provide retirement benefits to employees based on pensionable remuneration and length of service. The defined benefit plans expose the Company to actuarial risks, such as longevity risk, currency risk, interest rate risk and market (investment) risk.

<i>Present value of the defined benefit obligations</i>	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
As at 1 January	9,166	11,121	4,833	4,572
<i>Include in profit or loss:</i>				
Current service costs	529	575	284	296
Interest on obligation	280	158	134	91
Past service costs	-	(5)	-	(5)
Actuarial gain	(65)	(71)	(71)	(37)
	744	657	347	345
<i>Included in other comprehensive income:</i>				
Gain on remeasurements of defined benefit plans	(249)	(1,918)	(640)	(424)
Exchange differences on translating financial statement	105	(149)	-	-
	(144)	(2,067)	(640)	(424)
Others				
Benefits paid by the plan	(624)	(470)	(216)	(140)
Defined benefit obligations acquired through businesses combinations	-	-	22	480
Defined benefit obligations decrease from change in ownership interest in subsidiary	(134)	(75)	-	-
	(758)	(545)	(194)	340
As at 31 December	9,008	9,166	4,346	4,833

Notes to the Financial Statements

The principal actuarial assumptions as at 31 December 2023 and 2022 (expressed as weighted-averages) were as follows:

<i>Actuarial assumptions</i>	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
		(%)		
Discount rate	1.0 - 7.0	0.7 - 7.6	3.4	2.8
Future salary growth	3.0 - 8.0	2.5 - 8.0	6.0	6.0
Employee turnover	0.0 - 50.0	0.0 - 50.0	0.0 - 4.0	0.0 - 8.0
Retirement age	55 - 67 years	55 - 67 years	60 years	60 years

Assumptions regarding future mortality have been based on published statistics and mortality tables.

As at 31 December 2023, the weighted-average duration of the defined benefit obligation was 11 years (2022: 10 years).

Sensitivity analysis

Reasonably possible changes at the reporting date to one of the relevant actuarial assumptions, holding other assumptions constant, would have affected the defined benefit obligation by the amounts shown below:

<i>Effect to the defined benefit obligation At 31 December</i>	Consolidated financial statements			
	1% increase in assumption		1% decrease in assumption	
	2023	2022	2023	2022
		(in million Baht)		
Discount rate	(1,037)	(990)	1,157	1,432
Future salary growth	747	1,049	(653)	(711)

<i>Effect to the defined benefit obligation At 31 December</i>	Separate financial statements			
	1% increase in assumption		1% decrease in assumption	
	2023	2022	2023	2022
		(in million Baht)		
Discount rate	(390)	(359)	391	678
Future salary growth	396	668	(346)	(381)

Plan assets

The major categories and fair value of plan assets at the end of the reporting period for each category were as follows:

	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
		(in million Baht)		
Equity Securities	748	923	-	-
Government and Corporate Bonds	1,028	979	-	-
Others	1,151	1,017	-	-
Total	2,927	2,919	-	-

19 Legal reserve

Section 116 of the Public Limited Companies Act B.E. 2535 (1992) requires that a company shall allocate not less than 5% of its annual net profit, less any accumulated losses brought forward (if any), to a reserve account ("legal reserve"), until this account reaches an amount not less than 10% of the registered authorised capital. The legal reserve is not available for dividend distribution.

20 Segment information and disaggregation of revenue

(a) Segment information

Management consider that the Group has 6 reportable segments which are significant business segments of the Group that offer different products and services, and are managed separately. For each of the business segments, the chief operating decision maker (CODM) reviews internal management reports on at least a quarterly basis. The operations in each of the Group's reportable segments are as follows;

Segment 1	Upstream (including Refinery, Aromatics and Olefins)
Segment 2	Intermediates (including EO-Based Performance, Phenol and others)
Segment 3	Polymers and Chemicals
Segment 4	Bio and Circularity
Segment 5	Performance Chemicals
Segment 6	Service and Others

Performance of each reportable segment is measured based on profit before finance cost, income tax, depreciation, amortisation and others which are included in the internal management reports that are reviewed by the Group's CODM. Management believes that using profit before finance cost, income tax, depreciation, amortisation and others to measure performance is the most relevant in evaluating the results of certain segments relative to other entities that operate within these industries.

Consolidated financial statements

*The above segment revenue of the Group is the same basis disclosure of revenue by type of goods and service (major line of products).

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Year ended 31 December 2022

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	Upstream	Intermediates	Polymers and Chemicals	Bio and Circularity	Performance Chemicals (in million Baht)	Service and Others	Elimination	Total
External revenues	340,162	87,861	111,542	22,250	118,201	3,938	-	683,954
Inter-segment revenues	134,165	9,011	130	2,914	-	9,080	(155,300)	-
Total revenues*	474,327	96,872	111,672	25,164	118,201	13,018	(155,300)	683,954
Cost of sales and rendering of services	(452,008)	(89,193)	(98,055)	(22,643)	(95,566)	(9,530)	156,407	(610,588)
Selling, distribution and administrative expenses	(4,558)	(4,337)	(6,590)	(1,006)	(14,083)	(2,889)	2,643	(30,820)
Profit (loss) before finance costs, income tax, depreciation, amortisation and others	(4,481)	3,450	8,953	1,560	9,322	2,116	1,500	22,420
Investment income	371	53	143	12	18	22,203	(21,785)	1,015
Finance costs	(2,265)	(627)	(1,012)	(64)	(1,872)	(9,198)	5,203	(9,835)
Depreciation and amortisation	(11,169)	(4,282)	(3,114)	(640)	(8,635)	(980)	1,110	(27,710)
Profit (loss) on impairment and disposal of assets	636	426	(856)	24	(40)	(18)	-	172
Share of profit (loss) of joint ventures and associates accounted for using equity method	-	(592)	2,571	1,326	(20)	246	(35)	3,496
Others	4,222	337	1,786	(52)	(412)	(2,253)	(3,095)	533
Profit (loss) before income tax	(12,686)	(1,235)	8,471	2,166	(1,639)	12,116	(17,102)	(9,909)
Profit (loss) for reportable segment Owners of the Company	(10,578)	(1,775)	9,071	1,842	(1,449)	11,259	(17,122)	(8,752)

*The above segment revenue of the Group is the same basis disclosure with disaggregation of revenue by type of goods and service (major line of products).

Notes to the Financial Statements

(b) *Geographical segments*

In presenting information on the basis of geographical segments, are based on the geographical location of customers. Segment non-current assets (exclude derivatives and deferred tax assets) are based on the geographical location of the assets.

Geographical information

	Revenues	
	2023	2022
	<i>(in million Baht)</i>	
Thailand	357,580	408,306
The People's Republic of China	41,212	45,945
Singapore	29,743	23,501
Vietnam	21,511	28,292
United States of America	18,921	24,479
India	15,827	16,286
Malaysia	11,498	8,337
Germany	10,478	12,115
Indonesia	10,393	12,578
Australia	9,850	9,391
Other countries	94,618	94,724
Total	621,631	683,954

	Non-current assets	
	2023	2022
	<i>(in million Baht)</i>	
Thailand	339,061	355,361
Netherlands	88,530	85,884
Germany	53,280	56,354
United States of America	20,764	20,429
France	6,628	7,117
Other countries	20,692	19,849
Total	528,955	544,994

(c) *Major customers*

Revenue from one customer, which is a related party, of Upstream and Bio and Circularity segments representing Baht 186,162 million (2022: Baht 183,386 million) of the Group's revenue.

21 Expenses by nature

	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
<i>Included in cost of sales of goods</i>				
Changes in finished goods				
work in progress and goods in transit	11,086	(6,060)	6,396	(9,247)
Raw materials used	437,368	558,638	367,352	434,681
Personnel expense	18,915	16,492	5,762	5,168
Depreciation of property, plant and equipment	19,907	19,795	14,211	11,440
Depreciation of right-of-use assets	1,373	1,127	814	693
Amortisation of intangible assets	470	545	409	396
<i>Included in selling and distribution and administrative expenses</i>				
Personnel expense	11,562	11,367	3,713	3,610
Depreciation of property, plant and equipment	1,180	939	496	451
Depreciation of right-of-use assets	1,362	819	924	649
Amortisation of intangible assets	3,542	3,502	260	249
Minimum lease payments recognised as a lease expense	368	425	118	113

During 2023, the Group has contributed provident funds for its employees amounting to Baht 1,097 million and Baht 590 million, respectively (2022: Baht 1,076 million and Baht 561 million, respectively), which is included in employee benefit expenses.

22 Income tax

	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
<i>Income tax recognised in profit or loss</i>				
Current tax expense				
Current year	1,860	2,185	-	-
Under (over) provided in prior years	(67)	249	-	185
	<u>1,793</u>	<u>2,434</u>	<u>-</u>	<u>185</u>
Deferred tax expense				
Movements in temporary differences	(441)	(4,707)	1,974	(3,282)
Total	<u>1,352</u>	<u>(2,273)</u>	<u>1,974</u>	<u>(3,097)</u>

Notes to
the Financial Statements

Reconciliation of effective tax rate

	Consolidated financial statements			
	2023		2022	
	Rate (%)	(in million Baht)	Rate (%)	(in million Baht)
Profit (loss) before income tax expense		2,217		(9,909)
Income tax using the Thai corporation tax rate	20.0	443	20.0	(1,982)
Effect of different tax rates in foreign jurisdictions		(239)		(317)
Income not subject to tax		(202)		(425)
Expenses not deductible for tax purposes		1,746		2,486
Expenses deductible at a greater amount		(487)		(2,121)
Tax losses carried forward		38		(12)
Under (over) provided in prior years		(67)		249
Share of profit of joint ventures and associates accounted for using equity method		77		(511)
Others		43		360
Total	61.0	1,352	-	(2,273)

Reconciliation of effective tax rate

	Separate financial statements			
	2023		2022	
	Rate (%)	(in million Baht)	Rate (%)	(in million Baht)
Profit (loss) before income tax expense		22,239		(508)
Income tax using the Thai corporation tax rate	20.0	4,448	20.0	(102)
Income not subject to tax		(2,077)		(3,308)
Expenses not deductible for tax purposes		23		678
Expenses deductible at a greater amount		(420)		(1,023)
Under provided in prior years		-		185
Others		-		473
Total	8.9	1,974	-	(3,097)

Consolidated financial statements

Deferred tax
At 31 December

	Assets		Liabilities	
	2023	2022	2023	2022
		(in million Baht)		
Total	11,300	10,093	(26,961)	(26,991)
Set off of tax	(8,233)	(7,275)	8,233	7,275
Net deferred tax assets (liabilities)	3,067	2,818	(18,728)	(19,716)

Separate financial statements

Deferred tax
At 31 December

	Assets		Liabilities	
	2023	2022	2023	2022
		(in million Baht)		
Total	5,817	5,246	(6,986)	(5,972)
Set off of tax	(5,817)	(5,246)	5,817	5,246
Net deferred tax liabilities	-	-	(1,169)	(726)

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Consolidated financial statements						
	(Charged) / Credited to					
	At 1 January 2023	Profit or loss	Other comprehensive income <i>(in million Baht)</i>	Loss on control in subsidiary and others	Exchange differences	At 31 December 2023
Deferred tax assets						
Provisions for employee benefits	1,444	(46)	35	(27)	11	1,417
Property, plant and equipment	1,000	38	-	-	-	1,038
Lease liabilities	234	258	-	(2)	1	491
Loss carry forward	5,023	(262)	-	-	30	4,791
Others	2,392	(110)	1,389	(112)	4	3,563
Total	10,093	(122)	1,424	(141)	46	11,300
Deferred tax liabilities						
Property, plant and equipment	(20,238)	567	-	7	(457)	(20,121)
Other intangible assets	(3,649)	93	-	-	(112)	(3,668)
Financial assets	(2,254)	9	29	(9)	-	(2,225)
Others	(850)	(106)	(42)	-	51	(947)
Total	(26,991)	563	(13)	(2)	(518)	(26,961)
Net	(16,898)	441	1,411	(143)	(472)	(15,661)

Consolidated financial statements						
	(Charged) / Credited to					
	At 1 January 2022	Profit or loss	Other comprehensive income <i>(in million Baht)</i>	Loss on control in subsidiary	Exchange differences	At 31 December 2022
Deferred tax assets						
Provisions for employee benefits	2,032	(106)	(440)	(16)	(26)	1,444
Property, plant and equipment	1,077	(77)	-	-	-	1,000
Lease liabilities	188	59	-	-	(13)	234
Loss carry forward	1,393	3,650	-	-	(20)	5,023
Others	2,484	(74)	87	(3)	(102)	2,392
Total	7,174	3,452	(353)	(19)	(161)	10,093
Deferred tax liabilities						
Property, plant and equipment	(21,493)	775	-	-	480	(20,238)
Right-of-use assets	(13)	13	-	-	-	-
Other intangible assets	(3,941)	208	-	-	84	(3,649)
Financial assets	(3,126)	(2)	879	-	(5)	(2,254)
Others	(1,204)	261	20	1	72	(850)
Total	(29,777)	1,255	899	1	631	(26,991)
Net	(22,603)	4,707	546	(18)	470	(16,898)

Notes to
the Financial Statements

	Separate financial statements (Charged) / Credited to				At 31 December 2023
	At 1 January 2023	Profit or loss	Other comprehensive income (in million Baht)	Acquisition from transfers of businesses (see note 4)	
Deferred tax assets					
Provisions for employee benefits	798	6	(68)	4	740
Property, plant and equipment	503	41	-	249	793
Lease liabilities	126	79	-	57	262
Loss carry forward	3,411	(875)	-	-	2,536
Others	408	(308)	1,385	1	1,486
Total	5,246	1,057	1,317	311	5,817
Deferred tax liabilities					
Property, plant and equipment	(3,440)	(754)	-	(53)	(4,247)
Others	(2,532)	(163)	(31)	(13)	(2,739)
Total	(5,972)	(917)	(31)	(66)	(6,986)
Net	(726)	(1,974)	1,286	245	(1,169)

	Separate financial statements (Charged) / Credited to				At 31 December 2022
	At 1 January 2022	Profit or loss	Other comprehensive income (in million Baht)	Acquisition from transfers of businesses	
Deferred tax assets					
Provisions for employee benefits	897	(63)	(62)	26	798
Property, plant and equipment	541	(63)	-	25	503
Lease liabilities	71	53	-	2	126
Loss carry forward	-	3,411	-	-	3,411
Others	56	267	85	-	408
Total	1,565	3,605	23	53	5,246
Deferred tax liabilities					
Property, plant and equipment	(3,223)	(216)	-	(1)	(3,440)
Others	(3,246)	(107)	827	(6)	(2,532)
Total	(6,469)	(323)	827	(7)	(5,972)
Net	(4,904)	3,282	850	46	(726)

23 Promotional privileges

The Company has been granted promotional certificates by the Office of the Board of Investment relating to production of upstream, intermediate and downstream petrochemical, utilities and production support facilities, jetty for transportation and storage of liquid product and transportation by marine vessels, production of petroleum product. The Company has been granted several privileges including exemption and/or reduction from payment of income tax on the net profit derived from promoted operations with certain terms and conditions prescribed in the promotional certificates, which the Company must comply with.

	Separate financial statements					
	2023		Total (in million Baht)	2022		Total
	Promoted businesses	Non- promoted businesses		Promoted businesses	Non- promoted businesses	
Export sales	16,970	80,293	97,263	30,425	15,275	45,700
Domestic sales	41,806	355,859	397,665	282,304	170,181	452,485
Services income	-	474	474	-	582	582
Total revenues	58,776	436,626	495,402	312,729	186,038	498,767

Certain subsidiaries in the Group have been granted promotional privileges as same as the Company.

24 Earnings (loss) per share

	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	(in million Baht / in million shares)			
Profit (loss) attributable to ordinary shareholders of the parent company (basic)	999.13	(8,752.21)	20,264.71	2,589.51
Number of ordinary shares as at At 1 January	4,508.85	4,508.85	4,508.85	4,508.85
Weighted average number of ordinary shares (basic)	4,508.85	4,508.85	4,508.85	4,508.85
Earnings (loss) per share (basic) (in Baht)	0.22	(1.94)	4.49	0.57

The Company has no potential dilutive ordinary shares during the years ended 31 December 2023 and 2022. Therefore, there are no dilutive earnings per share effect.

25 Dividends

	Approval date	Payment schedule	Dividend rate per share (Baht)	Amount (in million Baht)
2023				
2022 Annual dividend	7 April 2023	26 April 2023	0.25	1,127
				1,127
2022				
2021 Annual dividend	4 April 2022	22 April 2022	1.75	7,890
2022 Interim dividend	22 August 2022	21 September 2022	0.75	3,382
				11,272

26 Financial instruments*(a) Carrying amounts and fair values*

Carrying amounts of cash and cash equivalents, investments in current financial assets, trade accounts receivable, other accounts receivables, short-term loans to related parties, short-term loans from financial institutions, trade payables, other payables, payables to contractor and short-term loans from related parties, which are measured at amortised cost. They are approximate to their fair values due to their short maturities.

Carrying amounts of long-term loans to related parties, other non-current assets, long-term loans from financial institutions with floating interest rates, long-term loans from other parties, long-term loans from related parties bearing floating interest rates, lease liabilities and other non-current liabilities measured at amortised cost. The value is close to the estimated fair value.

The following table shows the carrying amounts and fair values of financial assets and financial liabilities, including their levels in the fair value hierarchy, but does not include fair value information for financial assets and financial liabilities measured at amortised cost if the carrying amount is a reasonable approximation of fair value.

Notes to the Financial Statements

		Carrying amount				Consolidated financial statement				Fair value			
		Hedging instruments	Financial instruments measured at FVTPL	Financial instruments measured at FVOCI	Financial instruments measured at amortised cost	Total	Level 1	Level 2	Level 3	Total			
						(in million Baht)							
At 31 December 2023													
Financial assets													
Cash and cash equivalents	-	-	-	1	37,318	37,319	-	1	-	1			
Current financial assets	-	-	-	797	8,133	8,930	-	797	-	797			
Current derivatives assets	34	497	-	-	-	531	-	531	-	531			
Non-current financial assets	-	575	16,118	-	-	16,693	14,012	842	1,839	16,693			
Non-current derivatives assets	-	109	-	-	-	109	-	109	-	109			
Financial liabilities													
Current derivatives liabilities	-	74	-	-	-	74	-	74	-	74			
Long-term borrowings from financial institution	-	-	-	-	98,410	98,410	-	63*	-	63			
Debentures	-	-	-	-	164,189	164,189	-	151,900	-	151,900			
Non-current derivative liabilities	-	79	-	-	-	79	-	79	-	79			

* Fair value of long-term borrowings from financial institutions with fixed interest rate only.

	Carrying amount					Consolidated financial statement					Fair value	
	Hedging instruments	Financial instruments measured at FVTPL	Financial instruments measured at FVOCI	Financial instruments measured at amortised cost	Total <i>(in million Baht)</i>	Level 1	Level 2	Level 3	Total			
<i>At 31 December 2022</i>												
<i>Financial assets</i>												
Cash and cash equivalents	-	-	282	25,658	25,940	-	282	-	282			
Current financial assets	-	-	916	5,107	6,023	-	916	-	916			
Current derivatives assets	32	438	-	-	470	-	470	-	470			
Non-current financial assets	-	671	23,791	-	24,462	21,150	1,618	1,694	24,462			
Non-current derivatives assets	-	145	-	-	145	-	145	-	145			
<i>Financial liabilities</i>												
Current derivatives liabilities	1	1,621	-	-	1,622	-	1,622	-	1,622			
Long-term borrowings from financial institution	-	-	-	96,053	96,053	-	1,350*	-	1,350			
Debentures	-	-	-	176,974	176,974	-	160,394	-	160,394			
Non-current derivative liabilities	-	352	-	-	352	-	352	-	352			

* Fair value of long-term borrowings from financial institutions with fixed interest rate only.

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	Carrying amount			Separate financial statements				Fair value		
	Hedging instruments	Financial instruments measured at FVTPL	Financial instruments measured at FVOCI	Financial instruments measured at amortised cost	Total	Level 1	Level 2	Level 3	Total	
At 31 December 2023					<i>(in million Baht)</i>					
Financial assets										
Cash and cash equivalents	-	-	1	17,273	17,274	-	1	-	1	
Current financial assets	-	-	797	4,088	4,885	-	797	-	797	
Current derivatives assets	-	443	-	-	443	-	443	-	443	
Non-current financial assets	-	316	14,529	-	14,845	13,991	842	12	14,845	
Non-current derivatives assets	-	50	-	-	50	-	50	-	50	
Financial liabilities										
Current derivatives liabilities	-	25	-	-	25	-	25	-	25	
Long-term borrowings from related parties	-	-	-	74,266	74,266	-	66,995*	-	66,995	
Debentures	-	-	-	89,943	89,943	-	88,046	-	88,046	
Non-current derivatives liabilities	-	36	-	-	36	-	36	-	36	

* Fair value of long-term borrowings from related parties with fixed interest rate only.

	Carrying amount		Separate financial statements				Fair value		
	Hedging instruments	Financial instruments measured at FVTPL	Financial instruments measured at FVOCI	Financial instruments measured at amortised cost	Total	Level 1	Level 2	Level 3	Total
At 31 December 2022									
Financial assets									
Cash and cash equivalents	-	-	281	4,905	5,186	-	281	-	281
Current financial assets	-	-	916	3,439	4,355	-	916	-	916
Current derivatives assets	32	382	-	-	414	-	414	-	414
Non-current financial assets	-	383	22,212	-	22,595	20,967	1,618	10	22,595
Non-current derivatives assets	-	101	-	-	101	-	101	-	101
Financial liabilities									
Current derivatives liabilities	-	1,561	-	-	1,561	-	1,561	-	1,561
Long-term borrowings from related parties	-	-	-	90,676	90,676	-	75,977*	-	75,977
Debentures	-	-	-	89,930	89,930	-	88,452	-	88,452
Non-current derivatives liabilities	-	352	-	-	352	-	352	-	352

* Fair value of long-term borrowings from related parties with fixed interest rate only.

Measurement of fair values

Level 1 of fair values for debt instruments measured at fair value through profit or loss are based on quoted bid price as at the end of reporting period by references from the Stock Exchange of Thailand. For equity instruments measured at fair value through other comprehensive income are based on closing price as at the end of reporting period in the Stock Exchange of Thailand or New York Stock Exchange.

Level 2 of fair values for debt instruments measured at fair value through other comprehensive income are based on the yield rate quoted by the Thai Bond Market Association or other markets and for financial derivatives are based on broker quotes. Those quotes are tested for reasonableness by discounting expected future cash flows using market interest rate for a similar instrument at the measurement date. Fair values reflect the credit risk of the instrument and include adjustments to take account of the credit risk of the Group and counterparty when appropriate. For over-the-counter commodity derivatives are based on an estimated price by the organization that has expertise in petroleum and petrochemical areas as well as reliability from buyers and sellers in markets. The price forecast methodology takes account of fundamental factors including demand, supply and other factors that will affect the price direction in the future. For fixed-rate long-term borrowings are based on discounted future cash flows for the remaining periods using market interest rate for a similar instrument at the measurement date. For debentures are based on the last closing price on the Thai Bond Market Association at the measurement date.

Level 3 of fair value for debt instruments and equity instruments measured at fair value through profit or loss are as follows;

- For investment in a startup company, is based on valuation of the latest fundraising round.
- For investments in non-marketable securities, the fair values are based on the discounted present value of the future cash flows estimated based on available performance indicators at an appropriate interest rate.

Fair values for equity instruments measured at fair value through other comprehensive income are as follows;

- For investments in startup companies, the fair values are based on valuation of the latest fundraising round.
- For investments in non-marketable securities, the fair values are based on cost which considered as estimated fair values, except there are significant changes in their operations.
- For investments in funds, the fair values are referred to the net asset value of the funds.

Reconciliation of Level 3 fair values	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
Investments in non-current financial assets				
Balance as at 1 January	1,694	1,309	10	4
Total gains or (losses):				
in profit or loss	(35)	-	-	-
in other comprehensive income	(57)	(40)	2	(4)
Purchases/ issues	233	398	-	10
Effect from exchange differences on translating financial statements	4	27	-	-
Balance as at 31 December	1,839	1,694	12	10

Notes to the Financial Statements

	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
<i>Derivative liability in put option over non-controlling interest</i>				
Balance as at 1 January	-	470	-	-
Disposals/ settlements	-	(457)	-	-
Effect from exchange differences on translating financial statements	-	(13)	-	-
Balance as at 31 December	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

(b) *Financial risk management policies*

Risk management framework

The Group is exposed to normal business risks from changes in market interest rates, currency exchange rates and commodity prices and from non-performance of contractual obligations by counterparties. The Group does not hold or issue derivative financial instruments for speculative or trading purposes.

Risk management is integral to the whole business of the Group. The management continually monitors the Group's risk management process to ensure that an appropriate balance between risk and control is achieved.

Capital management

The Company's Board of Directors' policy is to maintain a strong capital base so as to maintain the confidence of investors, creditors, partners and other stakeholders. In addition, the Board monitors the return on capital and the level of dividends to ensure business sustainability.

(b.1) *Credit risk*

Credit risk is risk of financial loss of the Group if a customer or a counterparty to the financial instrument fails to perform its contractual obligations, most of which is from trade receivables and investment in debt securities of the Group.

(b.1.1) *Trade accounts receivables*

Credit risk of the Group is influenced by individual characteristics of customers. However, management has to consider other factors that may affect the customer's credit risk, including the risk of default in relation to industry and country of operations.

Management has a policy in place and the exposure to credit risk is monitored on an ongoing basis. Credit evaluations are performed on all customers requiring credit over a certain amount. At the reporting date, there were no significant credit risk and the concentration of credit risk. The maximum exposure to credit risk is represented by the carrying amount of each financial asset in the statement of financial position. However, the majority of the customers are on the long-term contracted commitment and parts of them are the Company's shareholders which the company has consistently collected from them. For the customers who do not have the long-term contracted commitments, the Group monitors the risk on an ongoing basis and would do the business only with the credible customers by limiting the credit lines and requesting the guarantee on some cases. For the export, the credit of counterparty will be considered. The Group will demand a payment on a case to case basis and also has commercial credit insurance. Management anticipates no material losses from its debt collection.

For trade receivables, the Group apply simplified approach in accordance with TFRS 9 to measure lifetime expected credit loss. The Group consider expected credit loss by using trade receivables provision table which estimate historical credit loss. The overdue circumstance adjusted to reflect current situation of receivables and the future economic conditions were taken into account.

(b.1.2) Loans to related parties

In assessing credit risk, the Company considers that most of subsidiaries and joint ventures in which have borrowings from the Company have the affordability that payments will be made under the agreements. However, the Company continually monitors the possibility of payments from counterparties.

(b.1.3) Cash and cash equivalents

The Group's exposure to credit risk arising from cash and cash equivalents and derivative assets is limited because the counterparties are financial institutions which are rated at investment grade. The Group constantly assesses the financial status and stability of those financial institutions and companies to manage risks from deposit and investing.

(b.1.4) Investment in debt securities

The Group considers that all debt investments measured at amortised cost and FVOCI have low credit risk. Marketable bonds are considered to be an investment grade credit rating published by external credit rating agencies. The credit risk of other non-marketable debt instruments is considered to be low when the risk of default is low and the issuer has a strong capacity to meet its contractual cash flow obligations.

(b.2) Liquidity risk

The Group monitors its liquidity risk and maintains a level of cash and cash equivalents deemed adequate by management to finance the Group's operations and to mitigate the effects of fluctuations in cash flows.

The following table shows the remaining contractual maturities of financial liabilities at the reporting date. The amounts are gross and undiscounted and include contractual interest payments and exclude the impact of netting agreements.

Notes to
the Financial Statements

<i>At 31 December</i>	Consolidated financial statements			
	1 year or less	More than 1 years but less than 5 years	More than 5 years	Total
	<i>(in million Baht)</i>			
2023				
<i>Non-derivative financial liabilities</i>				
Short-term borrowings from financial institutions	2,248	-	-	2,248
Trade payables	71,163	-	-	71,163
Other payables	19,501	-	-	19,501
Payables to contractors	2,493	-	-	2,493
Lease liabilities	3,005	8,892	19,772	31,669
Long-term borrowings from financial institutions	12,262	92,043	12,936	117,241
Long-term borrowings from other parties	49	138	113	300
Debentures	17,555	47,855	164,211	229,621
Other non-current liabilities	-	32	17	49
	128,276	148,960	197,049	474,285
<i>Derivative financial liabilities</i>				
Cash inflows from				
Foreign exchange forward contracts	10,270	532	-	10,802
Foreign currency and interest rate swap contracts	1,602	32,427	-	34,029
Commodity forward contracts	69	-	-	69
Cash outflows from				
Foreign exchange forward contracts	(10,049)	(524)	-	(10,573)
Foreign currency and interest rate swap contracts	(1,209)	(31,499)	-	(32,708)
Commodity forward contracts	(48)	-	-	(48)
	635	936	-	1,571

PTT Global Chemical Public Company Limited and its Subsidiaries
For the year ended 31 December 2023**Consolidated financial statements**

<i>At 31 December</i>	1 year or less	More than 1 years but less than 5 years (in million Baht)	More than 5 years	Total
2022				
<i>Non-derivative financial liabilities</i>				
Short-term borrowings from financial institutions	4,334	-	-	4,334
Trade payables	57,613	-	-	57,613
Other payables	17,488	-	-	17,488
Payables to contractors	3,717	-	-	3,717
Lease liabilities	2,693	7,792	20,695	31,180
Long-term borrowings from financial institutions	12,716	83,998	14,217	110,931
Long-term borrowings from other parties	47	144	31	222
Debentures	6,002	63,151	187,991	257,144
Other non-current liabilities	-	95	22	117
	104,610	155,180	222,956	482,746
<i>Derivative financial liabilities</i>				
Cash inflows from				
Foreign exchange forward contracts	11,094	311	-	11,405
Foreign currency and interest rate swap contracts	2,204	44,360	-	46,564
Commodity forward contracts	325	-	-	325
Cash outflows from				
Foreign exchange forward contracts	(11,076)	(308)	-	(11,384)
Foreign currency and interest rate swap contracts	(1,737)	(43,070)	-	(44,807)
Commodity forward contracts	(663)	-	-	(663)
	147	1,293	-	1,440

Notes to
the Financial Statements

<i>At 31 December</i>	Separate financial statements			Total
	1 year or less	More than 1 years but less than 5 years <i>(in million Baht)</i>	More than 5 years	
2023				
<i>Non-derivative financial liabilities</i>				
Trade payables	58,024	-	-	58,024
Other payables	8,982	-	-	8,982
Payables to contractors	3,230	-	-	3,230
Lease liabilities	1,849	6,419	16,708	24,976
Short-term borrowings from related parties	1,580	-	-	1,580
Long-term borrowings from financial institutions	8,112	43,246	7,512	58,870
Long-term borrowings from related parties	3,471	13,884	112,001	129,356
Debentures	14,508	35,666	56,655	106,829
Other non-current liabilities	-	22	17	39
	<u>99,756</u>	<u>99,237</u>	<u>192,893</u>	<u>391,886</u>
<i>Derivative financial liabilities</i>				
Cash inflows from				
Foreign exchange forward contracts	5,983	176	-	6,159
Foreign currency and interest rate swap contracts	1,508	31,748	-	33,256
Commodity forward contracts	69	-	-	69
Cash outflows from				
Foreign exchange forward contracts	(5,765)	(187)	-	(5,952)
Foreign currency and interest rate swap contracts	(1,110)	(30,807)	-	(31,917)
Commodity forward contracts	(48)	-	-	(48)
	<u>637</u>	<u>930</u>	<u>-</u>	<u>1,567</u>

PTT Global Chemical Public Company Limited and its Subsidiaries
For the year ended 31 December 2023

<i>At 31 December</i>	Separate financial statements			Total
	1 year or less	More than 1 years but less than 5 years (in million Baht)	More than 5 years	
2022				
<i>Non-derivative financial liabilities</i>				
Short-term borrowings from financial institutions	2,003	-	-	2,003
Trade payables	43,054	-	-	43,054
Other payables	7,063	-	-	7,063
Payables to contractors	3,314	-	-	3,314
Lease liabilities	1,497	5,169	14,819	21,485
Short-term borrowings from related parties	2,154	-	-	2,154
Long-term borrowings from financial institutions	9,052	36,763	8,422	54,237
Long-term borrowings from related parties	4,207	18,949	136,053	159,209
Debentures	2,404	48,758	58,071	109,233
Other non-current liabilities	-	95	17	112
	74,748	109,734	217,382	401,864
<i>Derivative financial liabilities</i>				
Cash inflows from				
Foreign exchange forward contracts	7,380	-	-	7,380
Foreign currency and interest rate swap contracts	1,965	41,885	-	43,850
Commodity forward contracts	325	-	-	325
Cash outflows from				
Foreign exchange forward contracts	(7,955)	-	-	(7,955)
Foreign currency and interest rate swap contracts	(1,477)	(40,477)	-	(41,954)
Commodity forward contracts	(663)	-	-	(663)
	(425)	1,408	-	983

The cash inflows/cash outflows disclosed in the above table represent the contractual undiscounted cash flows relating to derivative financial liabilities held for risk management purposes and which are not usually closed out before contractual maturity. The disclosure shows net cash flow amounts for derivatives that are net cash-settled and gross cash inflow and outflow amounts for derivatives that have simultaneous gross cash settlement.

(b.3) Market risk

The Group is exposed to the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risk is as follows:

Managing interest rate benchmark reform (IBOR reform)

The Group monitors and considers the transition from the IBOR discontinuation by determining that contracts reference IBOR will need to be amended to alternative rates. It provides periodic reports to management of interest rate risk and risks arising from IBOR discontinuation. As at 31 December 2023, the Group has finished the process of amending contractual terms for all of the LIBOR and THBFIX indexed exposures to SOFR and THOR.

(b.3.1) Foreign currency risk

The Group is exposed to foreign currency fluctuations risk in assets and liabilities and the gross profit (Product to Feed margin - P2F) of the Group that is referenced in foreign currency. Therefore, the Group has a policy in place to manage those risks by emphasizing the natural hedge on assets and liabilities held in foreign currency and the gross profit (P2F) of the Group that is referenced in foreign currency.

Moreover, the Group uses derivative hedges to mitigate the residual risk by entering into foreign currency forward contracts in accordance with the framework approved by the Risk Management Committee of the Group which will result in gain (loss) from derivatives which will be offset against the gross profit (P2F) in order to maintain the Group's net profit at the exchange rate specified in the business plan as follows:

- In the event that the Thai Baht appreciates more than the exchange rate in the foreign currency forward contracts, there will be gain on derivative. Meanwhile, the gross profit (P2F) which the Group received in cash will decrease due to the appreciation of the Thai Baht.
- On the contrary, in the event that the Thai Baht depreciates more than the exchange rate in foreign currency forward contracts, there will be loss on derivative. Meanwhile, the gross profit (P2F) which the Group received in cash will increase due to the depreciation of the Thai Baht.

Overall, the derivative hedge can mitigate the impact from fluctuations in foreign currency to the Group's performance.

*Exposure to foreign currency
At 31 December*

	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
USD				
Financial assets	35,243	20,095	28,940	13,847
Financial liabilities	(16,872)	(18,673)	(80,367)	(98,481)
Statement of financial position exposure	18,371	1,422	(51,427)	(84,634)
Net derivatives	24,333	43,881	24,707	45,932
EUR				
Financial assets	395	671	51,495	47,694
Financial liabilities	(268)	(403)	(39)	(51)
Statement of financial position exposure	127	268	51,456	47,643
Net derivatives	1,233	411	-	-

Sensitivity analysis

A reasonably possible strengthening (weakening) of Thai Baht against all other foreign currencies at the reporting date would have affected the measurement of financial instruments denominated in a foreign currency. This analysis assumes that all other variables, in particular interest rates, remain constant.

Impact to profit or loss	Movement (%)	Consolidated financial statements		Separate financial statements	
		Strengthening	Weakening	Strengthening	Weakening
			<i>(in million Baht)</i>		
2023					
USD	10				
- Net gain (loss) on foreign exchange rate		(4,182)	4,182	2,672	(2,672)
- Other equity - gain (loss) on cash flow hedges		(88)	88	-	-
EUR	9				
- Net gain (loss) on foreign exchange rate		(122)	122	(4,631)	4,631
2022					
USD	10				
- Net gain (loss) on foreign exchange rate		(4,498)	4,498	3,902	(3,902)
- Other equity - gain (loss) on cash flow hedges		(32)	32	(32)	32
EUR	10				
- Net gain (loss) on foreign exchange rate		(68)	68	(4,764)	4,764

In addition to forward exchange contracts, the Group uses derivatives financial instruments, principally currency swaps and interest rate swaps, to manage exposure to fluctuations in exchange rates and interest rates. As at 31 December 2023, the Group has entered into foreign currency and interest rate swap contracts, totalling Baht 30,690 million (2022: Baht 41,291 million). Some of Sustainability-Linked currency swaps and interest rate swaps, the interest rates will be adjusted down in line with operational achievements of Sustainability Performance Targets (or SPTs) according to the agreement.

Notes to the Financial Statements

The following tables detail the foreign currency forward contracts outstanding at the reporting date for their hedged items. Foreign currency forward contract assets and liabilities are presented in the line “Derivatives” (either as asset or as liabilities) within the statement of financial position.

Consolidated financial statements				Carrying amount of the hedging instruments assets (liabilities)
	Average exchange rate (rate)	Notional value: Foreign currency (million foreign currency)	Notional value: Local currency (million Baht)	(million Baht)
At 31 December 2023				
Cash flow hedges				
<i>Sell (USD)</i>	35.23	26	916	34
At 31 December 2022				
Cash flow hedges				
<i>Buy (USD)</i>	31.15	9	289	27
Separate financial statements				Carrying amount of the hedging instruments assets (liabilities)
	Average exchange rate (rate)	Notional value: Foreign currency (million foreign currency)	Notional value: Local currency (million Baht)	(million Baht)
At 31 December 2022				
Cash flow hedges				
<i>Buy (USD)</i>	31.15	9	289	27

The Group assesses effectiveness by comparing the nominal amount of the net assets designated in the hedge relationship with the nominal amount of the hedging instruments. This is a simplified approach because the currency of the exposure and hedging instruments perfectly match and the company identified that there was no change in fair value for hedge ineffectiveness recognized in the income statement.

(b.3.2) Interest rate risk

Interest rate risk is the risk that future movements in market interest rates will affect the results of the Group's operations and its cash flows because the Group's finances loans which have both floating and fixed interest rates for their operations. The Group has managed this risk to ensure the appropriateness to the business operation.

The effective interest rates of interest-bearing liabilities as at 31 December 2023 and 2022 and the periods in which those liabilities mature or re-price were disclosed in note 17 to the financial statement.

Sensitivity analysis

The sensitivity analyses below have been determined based on the exposure to interest rates for financial liabilities at the reporting date. For floating rate liabilities, the analysis is prepared assuming the amount of liability outstanding at the reporting date was outstanding for the whole year and using an increase or decrease rate by considering the reasonably possible change in interest rates.

<i>Impact to profit or loss</i>	Consolidated financial statements		Separate financial statements	
	Increase in interest rate 1%	Decrease in interest rate 1%	Increase in interest rate 1%	Decrease in interest rate 1%
	<i>(Million Baht)</i>			
2023				
Finance costs	991	(991)	527	(527)
2022				
Finance costs	956	(951)	525	(525)

(b.3.3) Commodity price risk

The Group is exposed to commodity price risk which may occur from purchases and sales. The Group mitigates risk by closely monitoring market situation, feedstock price and product price to appropriately adjust sales and production plans through our value chain amid fluctuating market situations. Moreover, the Group primarily applies derivative and forward contracts to hedge the commodity prices, in order to protect crude oil price and spread in accordance with the framework approved by the Risk Management Committee of the Group, which are not lower than the business plan levels. Those hedging transactions will cause a gain (loss) from derivatives which will be offset against crude oil and product prices, to maintain the Group's gross profit and net profit stability as the business plan are as follows:

- In the event that the crude oil price or spread is less than the forward contracts, there will be gain on derivative. Meanwhile, the gross profit which the Group received in cash will decrease due to the decrease in the crude oil price or spread.
- On the contrary, in the event that the crude oil price or spread is more than the forward contracts, there will be loss on derivative. Meanwhile, the gross profit which the Group received in cash will increase due to the increase in the crude oil price or spread.

Overall, the commodity price risk hedging by using the forward contracts and/or the derivative hedge can mitigate the impact of Group's performance from price and spread fluctuations.

The Group and the Company recognised losses on commodity hedging of Baht 627 million for the year ended 31 December 2023 (2022: recognised losses of Baht 23,057 million) due to the products spread prices were higher compared to the hedged prices of the commodity hedging.

Commodity price sensitivity analysis

The following table details the Group's sensitivity to an increase and decrease in commodity price. The sensitivity analysis includes only outstanding commodity derivative contracts at the reporting date and using an increase or decrease rate by considering the reasonably possible change in commodity price.

	Consolidated financial statements		Separate financial statements	
	Increase	Decrease	Increase	Decrease
	<i>(in million Baht)</i>			
At 31 December 2023				
Net derivatives gain (loss)				
Petroleum Crack Spread				
hedging +/- 1 USD per BBL	(51)	51	(51)	51
Petrochemical Spread hedging				
+/- 1 USD per Ton	(1)	1	(1)	1
At 31 December 2022				
Net derivatives gain (loss)				
Petroleum Crack Spread				
hedging +/- 1 USD per BBL	(84)	84	(84)	84

27 Commitments with non-related parties

	Consolidated financial statements		Separate financial statements	
	2023	2022	2023	2022
	<i>(in million Baht)</i>			
Capital commitments				
<i>contracted but not provided for</i>				
Land	5	2	1	2
Plant, machinery and equipment	3,994	4,640	2,857	2,261
Buildings and furniture, fixtures and equipment	77	428	9	82
Others	279	436	233	332
Total	4,355	5,506	3,100	2,677
Non-cancellable lease commitments				
Within one year	115	88	107	83
After one year but within five years	80	68	77	62
Total	195	156	184	145
Other commitments				
Letters of credits	99	116	47	24
Bank guarantees	10,155	9,829	5,903	5,188
Electrical guarantee	7,484	7,247	7,484	7,247
Guarantees to subsidiaries and joint ventures for credit facilities, debentures and bank guarantees	4,600	207	86,706	97,449
Other agreements	5,915	5,187	376	444
Total	28,253	22,586	100,516	110,352

Under the Equity Contribution and Shareholders Support Agreement between the Company and a subsidiary, the Company will provide financial support in case of occurrence of cash deficiency to a subsidiary according to its shareholding interest not exceeding Baht 410.50 million. In February 2023, the Company has paid for additional paid-up capital of Baht 410.50 million to a subsidiary under this agreement in full amount.

Utilities and Other Services Agreements with minimum purchase quantity

The Group has 25 utilities and other services agreements which have minimum purchase quantity with other parties. These agreements are for the periods from 3 years to 30 years, commencing from the date as specified in each agreement and expiring in December 2024 to March 2036. The minimum purchase quantity, the selling price of products and the renewal of the contract will be subject as specified in the agreements.

28 Litigations

(a) Oil spill incident legal case

During the third quarter of 2014, a number of people in Rayong filed several lawsuits with the Civil Court and the Rayong Provincial Court against the Company to claim extra compensation from an oil spill incident and to perform the rehabilitation of the sea and natural environmental recovery. Some cases were dismissed and some cases had been passed a judgement by the Civil Court on 25 August 2016 which ordered the Company to compensate for damages including interest and rehabilitation of approximately Baht 11.26 million. The Company has appealed on 17 February 2017. Subsequently, on 11 May 2018, the Company made compromise agreements with the majority of plaintiffs at the Civil Court. On 20 December 2018, the Court of Appeal passed the judgement according to the compromise agreements for which the Company had already paid compensation in full amount. For the remaining plaintiffs, the Court of Appeal ordered the Company to pay compensation with interest according to the judgement of the Court of First Instance and reduced the amount of interest. The Company has paid the compensation to all plaintiffs completely and no petition was submitted to Supreme Court by any plaintiffs. This case has become final.

For the case at Rayong Provincial Court, on 28 September 2018, the Court made a judgement ordering the Company to pay damage costs with interest of approximately Bath 38 million by deducting the remedy payment paid to the plaintiffs of Baht 24 million. The Company deposited the remaining damage costs with interest with the Rayong Provincial Court on 25 February 2019. Some plaintiffs filed an appeal with the Rayong Provincial Court and the Company filed an answer to the appeal with the Rayong Provincial Court on 2 October 2019. Subsequently, on September 1, 2020, the Court of Appeal Region 2 passed the judgement ordering the Company to pay additional damages including interest to the plaintiffs. The Company deposited the additional amount of Baht 25 million to Rayong Provincial Court on 30 September 2020, which was to cover the additional damages ordered under the judgement. Afterwards, on 14 October 2020, the Rayong Provincial Court set an appointment to hear the judgement or the order of the Court of Appeal Region 2 on 26 November 2020. Then, the plaintiffs filed the Dika appeal period on 1 March 2021. The Supreme Court issued an order accepting the Dika appeal of the plaintiffs on 2 March 2022 and sent a copy of Dika appeal to the Company on 19 March 2022. The Company filed an answer to the Dika appeal on 13 September 2022. The case is currently under the trial by the Supreme Court.

Thereafter, on 28 July 2023, the Company received a related summons and a copy of the civil plaint which the Department of National Parks, Wildlife and Plant Conservation filed against the Company to Rayong Provincial Court regarding tort causing damage to natural recourses and claim for damages. The plaintiff claimed that the oil spill incident in 2013 caused damage to the plaintiff. The Company and legal advisor of the Company considered relevant facts, evidence and laws and are of the opinion that the Company had remedied and compensated for the damage and the natural resources and environment had been restored after the incident, therefore, the Company should not have liability as claimed. Accordingly, the Company has not recorded any provision for any losses resulting from such case.

(b) Transfer of right for the payment of raw materials legal case of the subsidiary

- (b.1) On 18 August 2017, Anatta Green Company Limited (“Anatta”), later changed its name to Thai Bio Innovation Company Limited, a subsidiary and Asia Capital Group Public Company Limited (“ACAP”) entered a tripartite MOU where Anatta agreed to be responsible for supplying crude palm oil to the subsidiary and ACAP agreed to provide financial support to Anatta for payment to its suppliers. On the same day, Anatta entered into a loan agreement with ACAP and transferred its right to receive payment for raw materials to ACAP, along with notifying the transfer of such claim to the subsidiary and the subsidiary has given consent to such transfer.

During the 2nd quarter of 2018, the subsidiary disclosed the material event of inventory issue to the Stock Exchange of Thailand. At the same time, ACAP has demanded that the subsidiary pay for the raw materials purchased from Anatta under the transfer of claim, a total of 11 items. The subsidiary considered the documents received and clarified to ACAP that such documents were not in the subsidiary's system and did not find evidence of the delivery of the raw materials from Anatta as specified.

Subsequently, on 20 August 2018, ACAP filed a lawsuit in the Civil Court, claiming Anatta and the subsidiary jointly to pay damages totalling Baht 324.65 million and 15% interest per annum. The subsidiary's legal advisor had considered the relevant facts and evidence and provided an opinion that the subsidiary is not liable for the allegation. Therefore, the subsidiary appointed a lawyer and submitted a statement to defend itself.

The Court of First Instance issued its judgement on 10 June 2020, requiring the subsidiary to compensate ACAP in the amount of Baht 289.56 million plus interest of 15% per annum from the date of default until the payment is complete. If the subsidiary does not pay the said debt in full, Anatta shall pay the remaining balance. The subsidiary filed a legal appeal on 25 November 2020.

On 20 January 2022, the Appeal Court upheld the judgment of the Court of First Instance. However, the subsidiary did not agree with the Appeal Court's decision and submitted a request for a petition to the Supreme Court on 9 March 2022. The subsidiary believes that its defenses in facts, laws, and the exercising rights in court in good faith, in the end, the Supreme Court will consider evidences in the case and adjudicate the subsidiary not to be liable for payment of debts according to the judgments of the Court of First Instance and the Court of Appeal. The subsidiary also believes that evidences that the subsidiary has submitted additionally in the Court of Appeal as important evidences, directly related to the issue of the case, and is new evidence that the inquiry official in criminal cases has gathered and prepared from the investigation after the Court of First Instance decided the case, are solid evidences that will make the Supreme Court hear that the transaction documents prepared by Anatta and assisted by former employees of the subsidiary including the evidence used by ACAP for filing against the subsidiary are dishonest and unlawful acts. This is consistent with the fact that the SEC has found fraudulent acts related to inventory issue and unlawful exploitation which caused the subsidiary to be damaged. It is considered as an offense under the Securities and Exchange Act B.E. 2535. The inquiry official has made recommendation to pursue prosecution in some criminal cases and submitted the investigation documents to the public prosecutor already. Therefore, the subsidiary believes that the subsidiary has no debts to be liable to ACAP under the contracts arising from dishonest and unlawful acts. However, the subsidiary has decided to record a provision for damages from the said case amounting to Baht 444 million during 2021.

On 31 March 2022, the enforcement officer at the request of ACAP issued an order to freeze the deposits of the subsidiary. The subsidiary filed a request to withdraw the execution with the Civil Court. Subsequently, on 17 May 2022, the Civil Court has investigated and issued an order granting permission to unfreeze the deposit of the subsidiary and order the subsidiary to provide a bank guarantee amounting to Baht 503.31 million to the Court as guarantee. The subsidiary has pledged certain deposits of the subsidiary as collateral against the guarantee that the subsidiary received from the bank.

Subsequently, on 20 February 2023, the Supreme Court has issued an order accepting the subsidiary's petition. Therefore, this case is not yet final until the Supreme Court renders its judgement.

- (b.2) In 2020, a company, which was a former supplier of the subsidiary, filed 3 civil lawsuits against the subsidiary regarding breach of agreements concerning the reclaiming of purchase price on raw materials and claiming damages. The total principal and interest are Baht 1,069.23 million. The subsidiary and the subsidiary's legal advisor have considered relevant facts and evidence and provided the opinion that the subsidiary has not breached the agreements and has no obligation to pay as claimed. The subsidiary has appointed a lawyer to assist with the defense. Currently, the cases are under the trial by the Court of First Instance and the Court of First Instance had judgement to dismiss some cases. Therefore, the subsidiary has not recorded any provision against any losses from the cases.

(c) *Civil Court plaintiff regarding tort, breach of agreements, breach of promise and claiming damages occurred in year 2021 of the subsidiary*

On 28 June 2021, the subsidiary received a summons and a copy of the Civil Court plaintiff in which a company filed a lawsuit against the subsidiary in the Civil Court regarding tort, breach of agreements, breach of promise and claiming damages amounting to Baht 449.77 million, together with interest at the rate of 7.5% per annum. The subsidiary and legal advisor of the subsidiary considered relevant facts and evidence and provided the opinion that the issue of this lawsuit is the same as the case that the subsidiary had filed against such company and the subsidiary has not committed a wrongful act and has not breached the agreements against the plaintiff as claimed. The subsidiary appointed a lawyer and submitted a file testimony with its defense. Subsequently, on 21 March 2022, the Civil Court has rendered its judgment to dismiss such case and on 29 May 2023, the Appeal Court affirmed the judgment of the Civil Court. However, the case is not yet final. If the plaintiff disagrees with the judgement of the Court of Appeal, the plaintiff is entitled to ask permission to petition the case to the Supreme Court which is allowed in case the court finds that the issue to petition is important matters as specified by the relevant law.

(d) *Oil spill incident legal case in 2022*

On 8 April 2023, the Company has received a summons and a copy of the civil plaintiff which the Local Fisheries Association, fishermen and merchants ("Plaintiffs") filed against Star Petroleum Refining Public Company Limited as the first defendant and the Company as the second defendant to Rayong Provincial Court regarding tort, claim for damages and request for marine resources restoration. The Plaintiffs claimed that the oil spill incident caused the Plaintiffs' loss of income. The Company and legal advisor of the Company considered relevant facts, evidence and laws and are of the opinion that the Company did not commit a wrongful act against the Plaintiffs as claimed and, therefore, it should have no liability as claimed. The Company submitted the statement of defense to the Rayong Provincial Court on 8 June 2023 and the case is under the trial by the Rayong Provincial Court. Accordingly, the Company has not recorded any provision for any losses resulting from such case.

29 Event after the reporting period

At the Board of Directors' meeting held on 12 February 2024, the Board approved to submit for approval at the Annual General Meeting of the Shareholders, a full year 2023 dividend payment at the rate of Baht 0.75 per share, amounting to Baht 3,382 million to the shareholders entitled to receive dividends. This dividend is subject to the approval of the Shareholders at the Annual General Meeting to be held on 9 April 2024.

4

Appendix



Technical Terms & Abbreviations

Technical Terms & Abbreviations

Acrylonitrile (AN)	AN, an intermediate product, is used for many applications such as acrylic fiber, automotive parts, and electric appliance parts.
Acetone	Acetone is an organic compound and serves as an important organic solvent in industry. It is an intermediate product which widely-used in textile industry, pharmaceutical industry and also used in the production of Bisphenol A (BPA).
Aromatics	A group of cyclic hydrocarbons containing one or more benzene rings of six carbon atoms characterized by single and double bonds, such as benzene, toluene, and xylene.
Benzene	Benzene is a raw material for intermediate petrochemical plants to make other chemicals including styrene monomer, cumene, and cyclohexane, which are used in the downstream petrochemical industry.
Bio-based Polybutylene Succinate (Bio-PBS)	Bio-PBS, a natural material made from bio-succinic acid and 1, 4-butanediol, used in applications such as paper coating, compound injection, and packaging.
Bisphenol A (BPA)	BPA, an intermediate product produced from phenol and acetone, is used to produce polycarbonate or epoxy resins.
Butadiene	Butadiene, derived from the extraction of mixed-C4, is used in making synthetic rubber.
Butene-1	Butene-1, a by-product of the cracking of petroleum (kerosene or gasoil) and naphtha distillation, or extraction of mixed-C4, is used as polymer feedstock.
Condensate	Condensate is typically separated out of a natural gas stream at the point of production when the temperature and pressure of the gas is dropped to atmospheric conditions. Condensate is mainly composed of propane, butane, pentane and heavier hydrocarbon fractions.
EO-based Performance Product	EO-based performance products refers to ethylene oxide derivatives such as ethylene oxide, ethylene glycol, ethanolamine products, and ethoxylate.
Ethane	Ethane is a gaseous hydrocarbon in natural gas. It is a by-product of the cracking and refining process of crude oil. It is used as a fuel and raw material in the petrochemical industry.
Ethanolamine (EA)	EA, obtained from the reaction between ethylene oxide and ammonia, is used in hair conditioner, fabric softener, cosmetics, and pharmaceuticals.
Ethoxylate	Ethoxylate, produced from ethylene oxide, is used as a surfactant in soap and detergent.
Ethylene	Ethylene, obtained from ethane, LPG, or naphtha, is feedstock for polyethylene, vinyl chloride monomer, styrene monomer, and ethylene oxide.

Technical Terms & Abbreviations

Ethylene Glycol (EG)	EG is synthesized from ethylene oxide reacting with water, producing mono ethylene glycol, diethylene glycol, triethylene glycol, and polyethylene glycol.
Ethylene Oxide (EO)	EO, obtained from the reaction between ethylene and oxygen, is a chemical intermediate of ethylene glycol, ethanolamine, and ethoxylate, and others.
Fatty Alcohol	Fatty alcohol, produced from methyl ester and hydrogen through hydrogenation, is used in personal care products.
Glycerin	Glycerin, a by-product of methyl ester production, is used in pharmaceuticals, food, and personal care products.
Hexamethylene Diisocyanate (HDI)	HDI, obtained from the reaction between hexamethylenediamine and phosgene, is used in polyurethane production.
Hexene-1	Hexene-1, an organic compound primary is used as a comonomer in production of polyethylene.
High Density Polyethylene (HDPE)	HDPE produced from ethylene monomers, HDPE is a very dense and crystallized thermoplastic used for containers, including plastic bags, bottles, fuel containers, tanks, and cartons.
Hydrocracking	Hydrocracking is a process of breaking up hydrocarbon molecules by breaking up carbon-carbon bonds with the use of hydrogen and catalysts.
Linear Low Density Polyethylene (LLDPE)	LLDPE, properties are between LDPE and HDPE, but it is softer and more ductile than LDPE and HDPE have been processed into film, relatively clear, soft, stretchable. Product type is clear, strong and sealable products such as vegetable bags, fruit bags, bread bags, food bags.
Low Density Polyethylene (LDPE)	LDPE, the appearance is quite clear, soft, flexible and resistant to acidic and alkaline chemicals. Can be easily processed. It is electrically insulated and including able to support the impact well. It widely used in various types of plastic bags such as industrial bags, ice bags, frozen food bags.
Methyl Ester	Methyl ester, derived from the reaction between crude plant/vegetable oil or animal fats and alcohols under esterification, is used for biodiesel production.
Methyl Methacrylate (MMA)	MMA is an intermediate product for Poly Methyl Methacrylate (PMMA) used for LCD screen light guide panels, automotive parts, and billboards.
Mixed C4	Mixed C4, the by-products produced from naphtha crackers for olefins production, can be isolated into butadiene, butane-1, and isobutene, and others.
Mixed Xylenes	Aromatics derived from naphtha undergoing a chemical reaction aided by catalysts. They consist of paraxylene, orthoxylene, and metaxylene, all capable of serving as reactants for higher-value aromatics and as industry solvents.

Technical Terms & Abbreviations

Mono Ethylene Glycol (MEG)	MEG is most commonly used as chemical intermediate in the manufacture of polyester resins and textile fibers. MEG is also widely used as automotive antifreeze due to its low freezing point when mixed with water and used as heat transfer fluids for ventilation and air-conditioning systems.
Naphtha	Naphtha is separated from crude oil in the fractional distillation process. Naphtha refers to the light fraction produced by distillation that is roughly in the gasoline boiling range. It serves as petrochemical feedstock and as a solvent.
Olefins	Olefins are unsaturated hydrocarbons with at least one carbon-carbon bond. The main olefins include ethylene, propylene, and butadiene.
Oleochemicals	Oleochemicals are natural chemicals derived from plant fats and animal fats, such as fatty alcohols, methyl ester, and glycerin.
O-xylene or Orthoxylylene (OX)	This aromatic compound with two methyl groups in the 1- and 2-positions of the benzene ring is used to produce phthalic anhydride, feedstock for plasticizers.
Phenol	Phenol is an intermediate-stream petrochemical product, which is created from Benzene and Propylene as feedstocks. It is used as an important substrate in the production of Bisphenol A (BPA) and Phenolic resin, plastic industry, agriculture industry, pharmaceutical manufacturing industry, etc.
Polymers	Chemicals with molecular weights of 5,000 or more, derived when certain individual monomers come together and link up. Examples are polyethylene, rubber, and cellulose.
Polypropylene	Polypropylene, a thermoplastic polymer derived from the reaction between propylene and catalysts, is used in containers, textiles, and injected plastics.
Polyethylene Terephthalate (PET)	PET is made by combining mono ethylene glycol and pure terephthalic acid. PET and mono ethylene glycol serve as feedstock for synthetic fiber, water bottles, audiotapes, adhesive tapes, film, food packaging, and others.
Polyols	Polyols is an intermediate petrochemical product, used as main feedstock to produce polyurethane.
Polystyrene	A thermoplastic made from styrene monomer.
Polyurethane (PU)	PU, a thermoplastic resulting from glycol and diisocyanate condensation, can be stiff, soft, or flexible, depending on the additives used. When blended with rubber, it provides shoe soles, heat insulators, windshield wipers, and others.
Polyvinyl Chloride (PVC)	PVC is a thermoplastic polymer produced from vinyl chloride monomers (VCM), and consists of unplasticized and plasticized PVC. It is used in water pipes, electric wire conduits, artificial leather, among others.
Powder Coating Resins	Powder coating resins are solids (not carried in water or solvent) which upon oven-baking forms a protective film that provides superior durability and weathering resistance to the coated object. They are commonly used to coat metals in applications ranging from agricultural and construction equipment, and household electrical appliances.

Technical Terms & Abbreviations

PP Compound	PP Compound, a polypropylene with additives added to reinforcing substances to enhance special features.
Premix Polyols	Premix Polyols, a mixture of various polyols and additives co-developed with customers to achieve desired properties.
Propylene	Propylene is an unsaturated hydrocarbon derived from propane, LPG, or naphtha. This feedstock of polypropylene is of three grades: refinery, chemical, and polymer, depending on the proportions of propylene and propane.
Propylene Oxide (PO)	PO, an important intermediate from propylene and used as feedstock in the manufacture of polyols and propylene glycol (PG).
Purified Terephthalic Acid (PTA)	PTA, an organic compound. The main raw material for polyethylene terephthalate (PET) and polyester fibers is produced by oxidizing paraxylene. Polyester fibers are used mainly in rugs, clothing, furniture and industrial applications, as well as other consumer products.
Paraxylene (PX)	Paraxylene is used in intermediate petrochemical plant as a raw material for PTA (Purified Terephthalic Acid) and is used to produce Polyester Fiber or Synthetic Fiber, which is used as a raw material for apparels such as clothing and fabric bag or used to produce PET (Polyethylene Terephthalate) bottle, which is commonly used to contain water and soft drink or used in the production of various plastic products such as film, food container and etc.
Pyrolysis Gasoline (Pygas)	Pygas, a by-product of olefins production. Pygas is a high octane number mixture which contains high aromatics content. Pygas can be used as a high-octane benzene blending component or used in aromatic extraction application.
Radiation-Curable Resins, or Radcure (RAD)	Radcure is made up of polymers that contain special functional groups that enable them to react and form a protective film upon the application of Ultra-Violet or Electron Beam radiation. They are commonly used in applications such as automotive industry, wood, plastic, cosmetic packaging and other industry.
Rotomolding Compound	A by-product produced from low-density polyethylene (LLDPE), is plastic powders which are processed through rotational moulding machine at suitable temperature. It is used to manufacture some products such as water tanks, chemical storage tanks, playground, kayaks and other common products.
Toluene	Toluene, an aromatic hydrocarbon with an aromatic ring molecular structure. Toluene usually undergoes different processes to make Paraxylene and Benzene. It can also be combined with Gasoline to boost the octane value, and can be used as a solvent for coating substances, insecticides, paint, and adhesive, etc.
Post-consumer Recycled (PCR)	Products are made from recycled plastic under mechanical recycling process to produce high quality post-consumer recycled (PCR) resins.

Attachment 1

Details of Directors, Executives, Controllers and Company Secretary

Directors' Profiles

PTT Global Chemical Public Company Limited

(As of 17 February 2024)

Mr. Predee Daochai

- **Chairman and Chairman of the Independent Director**
(Non-executive Director)

Age: 65 Years

Appointed: 15 November 2023

Education/Training

- Honorary Doctorate in Business Administration, Southeast Bangkok University
- Master's Degree (MCL), University of Illinois at Urbana-Champaign, U.S.A.
- Bachelor of Laws (Honors), Thammasat University
- Barrister-at-Law, Thai Bar Association
- National Defence Course for the Joint State Private Sector (Class 24), National Defence College of Thailand (NDC)
- Executive Program on Risk Management, U.K. Course, The Institute of International Finance
- Capital Market Leadership Program (Class 20/2015), Capital Market Academy
- Executive Program, Singularity University, Silicon Valley, California, U.S.A.
- Making Innovation Happen Programme, U.K. Course, London Business School
- Influence and Negotiation Strategies Program, U.S.A. Course, Stanford Graduate School of Business, Stanford University, U.S.A.
- Breakthrough Program for Senior Executives, Switzerland Course, IMD Business School
- Advanced Management Program, Harvard Business School, U.S.A.

Director Training

- Role of the Chairman Program (RCP), Class 51/2022, Thai Institute of Directors Association (IOD)
- Board Nomination and Compensation Program (BNCP), Class 14/2022, Thai Institute of Directors Association (IOD)
- Corporate Governance for Capital Market Intermediaries (CGI), Class 11/2016, Thai Institute of Directors Association (IOD)
- Ethical Leadership Program (ELP), Class 1/2015, Thai Institute of Directors Association (IOD)
- Financial Institutions Governance Program (FGP), Class 1/2010, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 56/2005, Thai Institute of Directors Association (IOD)

Board Industry Experience & Expertise

- Finance, Treasury, Capital Market, Laws, Organizational Management, Risk Management, Corporate Governance, Security, and Information Technology

**Board Member/Management in Listed Company –
The Stock Exchange of Thailand : 5**

- Chairman and Chairman of the Independent Director, PTT Global Chemical Public Company Limited
- Independent Director, Member of the Nomination and Remuneration Committee, Member of the Audit Committee, Bangkok Bank Public Company Limited
- Independent Director, and Member of the Audit and Risk Management Committee, Advanced Info Services Public Company Limited
- Independent Director, Gulf Energy Development Public Company Limited
- Independent Director, Chairman of the Nomination and Remuneration Committee, Chairman of the Corporate Governance Committee, Bangkok Dusit Medical Services Public Company Limited

**Board Member/Management in Non-Listed Company –
The Stock Exchange of Thailand : 2**

- Director, Siam Motors Company Limited
- Director, Advanced Wireless Network Company Limited

Position in Other Organizations/Institutions : None

Work Experiences (5-year Past Experiences)

22 Apr 2021 - 11 Nov 2023	Independent Director, Chairman of the Risk Management Committee, and Chairman of the Sustainability Development Committee, Carabao Group Public Company Limited
2021 - 2022	Chairman of the Executive Committee and Group CEO, The Mall Group Company Limited
2021 - 2021	Director, JD Food Public Company Limited
2020 - 2020	Chairman, National Digital ID Company Limited
2020 - 2020	Minister, Ministry of Finance
2020 - 2020	Chairman, Bank for Agriculture and Agricultural Cooperatives

2020 - 2020	Chairman, Beacon Venture Capital Company Limited
2017 - 2020	Chairman, National ITMX Company Limited
2016 - 2020	Chairman, KASIKORN Securities Public Company Limited
2016 - 2020	Chairman, Thai Bankers Association
2016 - 2020	EEC Policy Committee, the Eastern Economic Corridor Office of Thailand (EECO)
2016 - 2020	Committee, ASEAN Bankers Association
2016 - 2020	Member, National Strategy Committee
2016 - 2020	Committee, Payment Systems Committee (PSC), Bank of Thailand
2016 - 2020	Member of the Board of Investment, The Board of Investment of Thailand
2016 - 2020	Member of the Board of SMEs Promotion, The Office of SMEs Promotion
2015 - 2020	Vice Chairman and Chairman of the Corporate Governance Committee, Thai Institute of Directors Association (IOD)
2013 - 2020	Chairman, KASIKORN Factory and Equipment Company Limited
2013 - 2020	Director and President, KASIKORNBANK Public Company Limited
2010 - 2020	Director, Muangthai Group Holding Company Limited
2016 - 2019	Member, National Legislative Assembly
2021 - Sep 2023	Director, Siam Paragon Development Company Limited
2021 - May 2023	Director, Siam Paragon Retail Company Limited

Shareholding : None

**Relation among Family with other Directors, Management,
Major Shareholders of the Company or Subsidiaries : None**

Mr. Thanwa Laohasiriwong

- Independent Director (Non-executive Director)
- Chairman of the Audit Committee

Age: 58 Years

Appointed: 1 November 2023

Education/Training

- Bachelor of Engineering (Computer), King Mongkut's Institute of Technology Ladkrabang
- IBM/Harvard Management Development Program, 2001, Harvard Graduate School of Education
- IBM/INSEAD Management Development Program, 1998, INSEAD Business School, Singapore
- Diploma, National Defence College, The National Defence Course (Class 60), National Defence College of Thailand (NDC)
- Capital Market Leader Program (Class 30), Capital Market Academy
- The Executive Program in Energy Literacy for a Sustainable Future (Class 13), Thailand Energy Academy (TEA)
- Executive Program on Rule of Law and Development (RoLD) (Class 3/2019), Thailand Institute of Justice (TIJ)
- Environmental Governance for Executive Officer (Class 4/2016), Department of Environmental Quality Promotion (DEQP), Ministry of Natural Resources and Environment
- Cybersecurity, Cyber Resilience & Privacy Risk in the Era of Digital Transformation, 2018, ACIS Professional Center
- Cyber Resilience Program (2020), Bank of Thailand
- Cyber Resilience Program (2021), Bank of Thailand
- Security Awareness (2021) (By guest speaker), Krung Thai Bank Public Company Limited
- Cyber Security Awareness (2022) (By guest speaker), Krung Thai Bank Public Company Limited
- Corporate Governance for Director and Top Management of State-Owned Enterprise and Public Organization Course (Class 20/2019), King Prajadhipok's Institute

Director Training

- Director Leadership Certification Program (DLCP), Class 9/2023, Thai Institute of Directors Association (IOD)
- Hot Issue for Directors: Climate Governance, Class 2/2023, Thai Institute of Directors Association (IOD)
- Board Nomination and Compensation Program (BNCP), Class 13/2021, Thai Institute of Directors Association (IOD)
- Role of the Chairman Program (RCP), Class 45/2019, Thai Institute of Directors Association (IOD)
- Boardroom Success through Financing and Investment (BFI), Class 2/2017, Thai Institute of Directors Association (IOD)
- Driving Company Success with IT Governance (ITG), Class 2/2016, Thai Institute of Directors Association (IOD)

- Ethical Leadership Program (ELP), Class 1/2015, Thai Institute of Directors Association (IOD)
- Successful Formulation & Execution of Strategy (SFE), Class 22/2014, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 43/2004, Thai Institute of Directors Association (IOD)
- Finance for Non-Finance Directors Program (FND), Class 10/2004, Thai Institute of Directors Association (IOD)

Board Industry Experience & Expertise

- Energy, Petrochemicals and Materials Industry, Finance, Internal Audit, Organizational Management, Risk Management, Innovation, Security, Corporate Governance, and Information Technology

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 3

- Independent Director and Chairman of the Audit Committee, PTT Global Chemical Public Company Limited
- Independent Director, Chairman of the Nomination and Remuneration Committee, Member of the Audit Committee, and Member of the Risk Oversight Committee, Krung Thai Bank Public Company Limited
- Independent Director, Chairman of the Audit Committee and Director to the Nomination and Remuneration Committee, TPBI Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 2

- Independent Director and Director to the Audit Committee, Relationship Republic Company Limited
- Chairman, LTMH Public Company Limited

Position in Other Organizations/Institutions : 1

- Advisor, Investment Committee, BCPG Public Company Limited

Work Experiences (5-year Past Experiences)

- | | |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2020 - Jan 2024 | Department Member of the Support Research and Innovation Administration Committee, National Research Council of Thailand (NRCT) |
| 2019 - Jan 2024 | Member of the Compliance Committee, Krung Thai Bank Public Company Limited |
| 1 Apr 2022 - 30 Oct 2023 | Independent Director, Director to Corporate Governance and Sustainable Development Committee and Director to Audit Committee, Global Green Chemicals Public Company Limited |
| 2021 - 2022 | Independent Director, Supamitr General Hospital Public Company Limited |
| 2019 - 2020 | Independent Director and Member of the Audit Committee, State Railway of Thailand |
| 2018 - 2019 | Honorary Director, Thailand Research Fund Policy Committee, The Thailand Research Fund (TRF) |
| 2015 - 2019 | Chairman, Humanica Public Company Limited |

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Pakorn Nilprapunt

- Independent Director (Non-executive Director)
- Chairman of the Nomination & Remuneration Committee
- Director to the Audit Committee

Age: 55 Years

Appointed: 9 April 2018, 5 April 2021 (1st re-elected)

Education/Training

- Master of Laws (Trade Practices Law), The University of Sydney, Australia
- Public Sector Management and Organization Change, The Australian National University, Australia
- Bachelor of Laws, Thammasat University
- High-Level Budget Management 1st Edition, Bureau of the Budget
- Program for Chief Executive Training Course, Class 2, The Royal Thai Police
- Train the Trainers Program in Information Communication and Technology Law for the Justice Executive, Class 1, Office of the Secretary of the Electronic Transaction Commission
- Chief Executive Training Program: Leadership with Vision and Morality (AMP 64), The Office of the Civil Service Commission (List of Qualified Candidates for Training)
- East Asian Public Sector Leadership Challenges, National Graduate Institute for Policy Study, Tokyo, Japan

Director Training

- Director Accreditation Program (DAP), Class 153/2018, Thai Institute of Directors Association (IOD)

Board Industry Experience & Expertise

- Educational background in Trade Practices Laws
- Specialized in laws and rules concerning the environment
- Extensive experience in law practice relating to the chemical industry, which includes drafting legislation, and providing legal recommendation and consultation in compliance with the Rule of Law for the chemical industry

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 1

- Independent Director, Chairman of the Nomination & Remuneration Committee and Director to the Audit Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : None

Position in Other Organizations/Institutions : 9

- Securities Exchange Commissioner, Securities Exchange Commission Office
- Member of the Audit and Monitoring Committee, Chulabhorn Royal Academy Council
- Commissioner, Civil Service Commission, Office of the Civil Service Commission
- Commissioner, Public Sector Development Commission, Office of the Public Sector Development Commission (OPDC)
- Member, the National Law Reform Committee, The Prime Minister's Office
- Distinguished Member, Educational Innovation Area Policy, Ministry of Education
- Director, The Rehabilitation Committee, Thai Airways International Public Company Limited
- Committee Member, Bank of Thailand
- Secretary-General, Office of the Council of State, The Prime Minister's Office

Work Experiences (5-year Past Experiences)

25 Sep 2023 - 31 Oct 2023	Chairman of the Audit Committee, PTT Global Chemical Public Company Limited
23 Apr 2018 - 31 Dec 2022	Director to the Nomination & Remuneration Committee, PTT Global Chemical Public Company Limited
Jun 2018 - Jan 2019	Secretary-General, Office of the Public Sector Development Commission (OPDC)
Jun 2018 - Jan 2019	Director, The Strategic Reform Office on the Promotion of the National Reform, Strategy and Cohesion

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Professor Somkit Lertpaitoon

- Independent Director (Non-executive Director)
- Chairman of the Corporate Governance and Sustainability Committee

Age: 64 Years

Appointed: 9 April 2018, 5 April 2021 (1st re-elected)

Education/Training

- Doctorate, (Droit Public Interne), The University Paris II, France
- Degree of Profound Studies, (Droit Public Interne), The University Paris II, France
- Bachelor of Law, Thammasat University
- Barrister-at-Law, Institute of Legal Education Thai Bar Association
- Certification in Local Government, Institut International d' Administration Publique (IIAP), France
- The Executive Program in Energy Literacy for a Sustainable Future, Class 10, Thailand Energy Academy (TEA)

Director Training

- Director Accreditation Program (DAP), Class 181/2021, Thai Institute of Directors Association (IOD)
- Corporate Governance for Executives (CGE), Class 17/2021, Thai Institute of Directors Association (IOD)

Board Industry Experience & Expertise

- A legal specialist, and governing Board of National Science and Technology Development Agency (NSTDA) in 2017
- A former member of the Enterprise Risk Management Committee at PTT Public Company who steered and managed risks to ease business impacts such as oil price volatility (petroleum) by implementing policy for the optimal results while overseeing stakeholder management and business plans to reduce the possible impacts on each group of stakeholders

Board Member/Management in Listed Company -

The Stock Exchange of Thailand: 2

- Chairman, SKY ICT Public Company Limited
- Independent Director and Chairman of the Corporate Governance and Sustainability Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company -

The Stock Exchange of Thailand: None

Position in Other Organizations/Institutions : 7

- Independent Expert of Board Member, NSTDA Governing Board, National Science and Technology Development Agency (NSTDA)
- Chairperson of the Commissioner, Higher Education Commission
- Independent Expert of Board Member, Thai Health Promotion Foundation (ThaiHealth)
- Member, The National Law Reform Committee
- Honorary Board Member, King Prajadhipok's Institute
- Member, 10th Council of State, Office of the Council of State
- Professor of Faculty of Law, Thammasat University

Work Experiences (5-year Past Experiences)

23 Dec 2020 - 30 Jun 2022 Director, SKY ICT Public Company Limited

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Grisada Boonrach

- Independent Director (Non-executive Director)
- Chairman of the Risk Management Committee

Age: 66 Years

Appointed: 2 June 2020

Education/Training

- Master of Science (Political Science), Thammasat University
- Bachelor of Arts (Political Science), Ramkhamhaeng University
- Bachelor of Laws, Chiang Mai University
- Diploma, National Defence College, The National Defence Course, Class 53, National Defence College of Thailand (NDC)
- Intensive English Program (2019), English Language Center, Georgetown University
- The Management Development Participation, University Of Birmingham, U.K. (Scholarships offered by British Embassy, 2001)
- Senior Executives in State and Local Government, Kennedy School of Government Harvard University, U.S.A. (Scholarships offered by Office of the Civil Service Commission, 2009)
- Stability Security Transition and Reconstruction, Asia Pacific Center for Security Studies (APCSS), U.S.A (Scholarships offered by US Embassy, 2007)

Director Training

- Director Certification Program (DCP) Class 298/2020, Thai Institute of Directors Association (IOD)

Board Industry Experience & Expertise

- Experience in the agricultural sector serving as the Minister of the Ministry of Agriculture and Cooperative
- Specialized in agricultural policies, forestry, water resources, and irrigation
- Driving robust promotion and development of agriculture and cooperative systems especially for agricultural manufacturing and products, agricultural-based biotechnology, and guideline and standard for agricultural chemicals

Board Member/Management in Listed Company -

The Stock Exchange of Thailand : 1

- Independent Director and Chairman of the Risk Management Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company -

The Stock Exchange of Thailand : None

Position in Other Organizations/Institutions : 3

- Assistant Secretary General Thai Red Cross Society
- Director, Thai Red Cross Chapters Administration Office, Thai Red Cross Society
- Committee Member, Sai Jai Thai Foundation Under Royal Patronage

Work Experiences (5-year Past Experiences)

2017 - 2019 Minister, Ministry of Agriculture and Cooperative
2017 - 2019 Chairman of National Reform Committee for Public Administration, Office of the National Economic and Social Development Council

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Lieutenant General Nimit Suwannarat

- Independent Director (Non-executive Director)
- Director to the Audit Committee
- Director to the Nomination & Remuneration Committee

Age: 52 Years
Appointed: 1 January 2023

Education/Training

- Master of Arts in International Relations, Chulalongkorn University
- Master of Science in Electrical Engineering (Communications and Signal Processing), University of Minnesota, Minnesota, U.S.A.
- Bachelor of Science in Electrical Engineering, Virginia Military Institute, Virginia, U.S.A.
- Director's Briefing - Corporate Strategy beyond the Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- Public Key Infrastructure (Certification Authority, Digital Signature) Course, Ottawa, Canada
- Electronic Commerce Course, Orlando, Florida, U.S.A.
- Computer Emergency Response Team, Carnegie Mellon, Pittsburgh, Pennsylvania, U.S.A.
- National Crisis Management Course, APCSS, Honolulu, Hawaii, U.S.A.
- Command and General Staff Officer Course (Class 83), Command And General Staff College
- Joint Staff Course, Joint War College
- Intermediate Certificate Course in Political Leadership in the New Era (Class 2), King Prajadhipok's Institute

Director Training

- Director Certification Program (DCP), Class 216/2016, Thai Institute of Directors Association (IOD)

Board Industry Experience & Expertise

- Energy, Petroleum, Organizational Management, Risk Management, National Security, and Information Technology

Board Member/Management in Listed Company -

The Stock Exchange of Thailand: 3

- Independent Director, Member of the Nomination and Remuneration Committee, Member of the Compliance Committee and Member of the Risk Oversight Committee, Krung Thai Bank Public Company Limited
- Independent Director, Thaicom Public Company Limited
- Independent Director, Director to the Audit Committee and Director to the Nomination & Remuneration Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company -

The Stock Exchange of Thailand: None

Position in Other Organizations/Institutions: 2

- Special Advisor, Office of the Permanent Secretary for Defence
- Advisor to the Prime Minister

Work Experiences (5-year Past Experiences)

- | | |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 Sep 2014 - 31 Aug 2023 | Independent Director, Member of the Risk Management Committee, and Member of the Corporate Governance and Sustainability Committee, PTT Exploration and Production Public Company Limited |
| 2018 - 30 Sep 2021 | Deputy Chief of Office, Office of Military Affairs Coordination to the Ministry of Foreign Affairs, Office of Policy Planning Ministry of Defence, Ministry of Defence |

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Somkiat Prajamwong

- Independent Director (Non-executive Director)
- Director to the Nomination & Remuneration Committee

Age: 63 Years
Appointed: 4 April 2022

Education/Training

- Doctor of Philosophy in Agricultural and Irrigation Engineering, Utah State University, U.S.A.
- Master of Engineering (Water Resources Development), Asian Institute of Technology (AIT)
- Bachelor of Engineering (Irrigation Engineer), Kasetsart University
- Agricultural and Cooperative Development Course for Senior Management, Class 41, Ministry of Agriculture and Cooperatives
- Change Management Training Programme, RIPA International Training Center, United Kingdom
- Advanced Certificate Course in Public Economic Management for Executives, Class 7, King Prajadipok's Institute (2009)
- Diploma, National Defence College, The National Defence Course, Class 54, National Defence College of Thailand (NDC) (Honorable mentions for Individual Research)
- Foreign Affairs Executive Programme, Class 6, Devawongse Varopakarn Institute of Foreign Affairs, Ministry of Foreign Affairs (Outstanding Individual Research)
- Anti-Corruption Strategic Management for Senior Executives, Class 8, Sanya Dharmasakti National Anti-Corruption Institute, Office of the National Anti-Corruption Commission

Director Training

- Ethical Leadership Program (ELP), Class 28/2022, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 329/2022, Thai Institute of Directors Association (IOD)

Board Industry Experience & Expertise

- Energy, Organizational Management, Administration, and Corporate Governance

Board Member/Management in Listed Company -

The Stock Exchange of Thailand : 2

- Independent Director, Seven Utilities and Power Public Company Limited
- Independent Director and Director to the Nomination and Remuneration Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company -

The Stock Exchange of Thailand: None

Position in Other Organizations/Institutions : 2

- Chairman, Committee of the Fish Marketing Organization, Ministry of Agriculture and Cooperative
- Special Advisor, Water Management, the Eastern Economic Corridor Office of Thailand (EECO)

Work Experiences (5-year Past Experiences)

- | | |
|-------------|------------------------------------------------------------------|
| 2018 - 2021 | Secretary-General, Office of the National Water Resources (ONWR) |
|-------------|------------------------------------------------------------------|

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Surachai Achalaboon

- Independent Director (Non-executive Director)
- Director to the Corporate Governance and Sustainability Committee

Age: 58 Years
Appointed: 22 May 2023

Education/Training

- Master of Science (Forestry), Kasetsart University
- High-Level Anti-Corruption Strategy Executives, Class 11, The National Anti-Corruption Commission (NACC)
- Diploma, National Defence College, The National Defence Course, Class 61, National Defence College of Thailand (NDC)
- Transformational Leadership Program, Class 2, Civil Service Training Institute, Office of the Civil Service Commission (OCSC)
- Executive Development Training Program, The Royal Thai Police
- Environmental Governance for Executive Officer, Class 2, Ministry of Natural Resources and Environment
- The Civil Service Executive Development Program, Class 3, Civil Service Training Institute, Office of the Civil Service Commission (OCSC)
- Advanced Certificate Course in Public Economics Management for Executives, Class 8, King Prajadhipok's Institute

Director Training : None

Board Industry Experience & Expertise

- Materials Industry, Organizational Management, Human Resource Management, National Defence, Corporate Governance, and Environmental and Social Responsibility

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 1

- Independent Director and Director to the Corporate Governance and Sustainability Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : None

Position in Other Organizations/Institutions : 1

- Director-General, Royal Forest Department, Ministry of Natural Resources and Environment

Work Experiences (5-year Past Experiences)

- Oct 2020 - Sep 2021 Director-General of the Department of Environmental Quality Promotion, Ministry of Natural Resources and Environment
- Oct 2019 - Sep 2020 Inspector-General of the Ministry of Natural Resources and Environment, Ministry of Natural Resources and Environment
- Sep 2016 - Sep 2019 Deputy Director-General of the Department of Environmental Quality Promotion, Ministry of Natural Resources and Environment

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Police Colonel Dusadee Aryawuit

- Independent Director (Non-executive Director)
- Director to the Corporate Governance and Sustainability Committee

Age: 63 Years
Appointed: 1 November 2023

Education/Training

- Master of Political Science Program (Politics and Government), Chiang Mai University
- Bachelor of Political Science Program, Class 37, Royal Police Cadet Academy
- Diploma, National Defence College, The National Defence Course, Class 53, National Defence College of Thailand (NDC)
- The Executive Program in Justice System (Class 18), Judicial Training Institute
- The Civil Service Executive Development Program : Visionary and Moral Leadership, Class 47, Civil Service Training Institute, Office of the Civil Service Commission (OCSC)
- Senior Executive Development Programme (SEDP), Class 1, Civil Service Training Institute, Office of the Civil Service Commission (OCSC)
- ILEA Training Courses, Class 1, The International Law Enforcement Academy Bangkok
- Top Executive Program in Mahanakorn Development (Mahanakorn 2), Navamindradhiraj University

Director Training : None

Board Industry Experience & Expertise

- Organizational Management, Laws, Internal Audit, Security, Information Technology, and Corporate Governance

Board Member/Management in Listed Company –

The Stock Exchange of Thailand: 1

- Independent Director and Director to the Corporate Governance and Sustainability Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : None

Position in Other Organizations/Institutions : 6

- Advisor to Deputy Prime Minister and Minister of Energy
- Advisor to Minister of Justice
- Legal and Governance Advisor, T Life Assurance Public Company Limited
- Legal and Governance Advisor, TMBThanachart Bank Public Company Limited
- Legal and Governance Advisor, Thanachart Insurance Public Company Limited
- Legal and Governance Advisor, MBK Public Company Limited

Work Experiences (5-year Past Experiences)

- 2021 - 2023 Audit Committee, National Housing Authority
- 2021 - 2023 Corporate Governance Committee, National Housing Authority
- 2012 - 2020 Deputy Permanent Secretary of Ministry of Justice, Member of the Sub-Committee on Anti-corruption Inspection for Transport, Advisor to the Sub-Committee on Commerce and Intellectual Property, Ministry of Justice

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Patchara Anuntasilpa

- Director (Non-executive Director)
- Director to the Corporate Governance and Sustainability Committee

Age: 52 Years
Appointed: 7 April 2023

Education/Training

- Honorary Doctorate Degrees in Laws, Ramkhamhaeng University
- Master of Business Administration, Shenandoah University, U.S.A.
- Bachelor of Business Administration (Finance), Bangkok University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 16, Thailand Energy Academy (TEA)
- Director's Briefing – Corporate Strategy Beyond The Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- Director and Executive Development Program, The Royal Thai Police
- Super Series Program: Leadership & Effective Corporate Culture (Class 2), Institute of Research and Development for Public Enterprises (IRDP) in collaboration with Judge Business School, University of Cambridge
- Advanced Master of Management Program (Class 4), The National Institute of Development Administration (NIDA)
- The Executive Program in Justice System (Class 23), Judicial Training Institute
- Top Executive Program in Commerce and Trade: TEPCoT (Class 11), University of the Thai Chamber of Commerce
- Capital Market Leader Program (Class 24), Capital Market Academy
- Executive Program (Class 3), Office of the Civil Service Commission
- Foreign Affairs Executive Program (Class 3), Ministry of Foreign Affairs
- Fundamentals of Public Procurement, United Nations Development Programme: UNDP, Denmark
- WTO Advanced Regional Workshop on Government Procurement for Asia and Pacific Economies, WTO, China
- Executive Program for Senior Management, Kellogg School of Management, Maxwell School of Citizenship and Public Affairs and Schulich School of Business by Fiscal Policy Research Institute Foundation

Director Training

- Director Certification Program (DCP), Class 221/2016, Thai Institute of Directors Association (IOD)

Board Industry Experience & Expertise

- Energy, Petroleum, Finance and Treasury, Capital Market, Organizational Management, Risk Management and Corporate Governance

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 1

- Director and Director to the Corporate Governance and Sustainability Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : None

Position in Other Organizations/Institutions : 2

- Director General of the Public Debt Management Office (PDMO), Ministry of Finance
- Chairman, Government Housing Bank

Work Experiences (5-year Past Experiences)

Oct 2020 - 16 Dec 2023	Director-General of the Customs Department, Ministry of Finance
1 May 2018 - 15 Mar 2023	Director and Member of the Nominating and Remuneration Committee, PTT Exploration and Production Public Company Limited
26 Mar 2021 - 28 Dec 2022	Director, Judicial Administration Commission
2018 - 2022	Chairman, Board of Institute for Good Governance Promotion, Office of the Public Sector Development Commission (OPDC)
2017 - 2020	Honorable Director (Organization Development), Office of the Commission for Judicial Service
2019 - Jan 2021	Chairman, Thai Government Lottery Office
2019 - Jan 2022	Chairman, Government Savings Bank

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries: None

Mr. Chadil Chavanalikhorn

- Director (Non-executive Director)
- Director to the Corporate Governance and Sustainability Committee

Age: 57 Years
Appointed: 19 December 2022

Education/Training

- Master of Business Administration, Kasetsart University
- Bachelor of Engineering (Civil Engineering), Kasetsart University
- Certified Internal Auditor (CIA), The Institute of Internal Auditors
- Senior Energy Executive, Thailand Energy Academy, Ministry of Energy
- Administrative Psychological Operation, Institute of Security Psychology, National Defence Studies Institute
- High-Level Anti-Corruption Strategy Executives, The National Anti-Corruption Commission (NACC)
- Senior Executive Program (SEP), Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Leadership Development Program II, PTT-Harvard Business School, PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- Leadership Development Program III, PTT-IMD, PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- Leadership Succession Program (LSP), Institute of Research and Development for Public Enterprises (IRDP)
- The Executive Program in Energy Literacy for a Sustainable Future, Thailand Energy Academy (TEA)

Director Training

- Successful Formulation & Execution of Strategy (SFE), Class 17/2013, Thai Institute of Directors Association (IOD)
- Anti-corruption the Practical Guide (ACPG), Class 2/2013, Thai Institute of Directors Association (IOD)
- Company Secretary Program (CSP), Class 65/2015, Thai Institute of Directors Association (IOD)
- Independent Observer Program (IOP), Class 1/2016, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 340/2023, Thai Institute of Directors Association (IOD)

Board Industry Experience & Expertise

- Engineering, Energy, Organizational Management, Risk Management, Internal Audit, National Security, Sustainability, and Corporate Governance

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 2

- Director and Director to the Corporate Governance and Sustainability Committee, PTT Global Chemical Public Company Limited
- Senior Executive Vice President, Organization Effectiveness and Corporate Governance, PTT Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : 3

- Director, Energy Complex Company Limited
- Director, Business Services Alliance Company Limited
- Chairman, Business Professional Solutions Recruitment Company Limited

Position in Other Organizations/Institutions : 1

- Director (Human Resources Committee), Vidyasirimedhi Institute of Science and Technology (VISTEC)

Work Experiences (5-year Past Experiences)

2019 - 30 Sep 2022	Executive Vice President, Office of Corporate Audit, PTT Public Company Limited
2018 - 2019	Executive Vice President, Corporate Governance, PTT Public Company Limited

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries: None

Mr. Petai Mudtham

- Director (Non-Executive Director)
- Director to the Risk Management Committee

Age: 58 Years
Appointed: 12 February 2024

Education/Training

- Master of Science in Economics, Murray State University, U.S.A.
- Master of Science Program in Applied Statistics, The National Institute of Development Administration (NIDA)
- Bachelor of Economics, Ramkhamhaeng University
- Inspector General Program 2021, Government Inspection Development, Institute Office of the Permanent Secretary, Office of the Prime Minister
- Diploma, National Defence College, The National Defence Course, Class 62, National Defence College of Thailand (NDC)
- The Executive Program in Energy Literacy for a Sustainable Future, TEA 12, Thailand Energy Academy (TEA)
- Budgeting for Executives Program, BEP 5, Budget Bureau Personnel Development Institution, Budget Bureau

Director Training

- Director Certificate Program (DCP), Class 329/2022, Thai Institute of Directors Association (IOD)

Board Industry Experience & Expertise

- Energy, Petrochemicals, Economics, Business Management, Enterprise Risk Management, Security, and Corporate Governance

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Director and Director to the Risk Management Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand: None

Position in Other Organizations/Institutions : 1

- Chief of Inspector General, Ministry of Energy

Work Experiences (5-year Past Experiences)

- 2022 - 2024 Director and Member of the Nomination and Remuneration Committee, IRPC Public Company Limited
- 2020 - 2022 Acting Manager, Energy Conservation Promotion Fund (ENCON Fund)
- 2017 - 2020 Deputy Director General, Energy Policy and Planning Office, Ministry of Energy

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Noppadol Pinsupa

- Director (Non-executive Director)
- Director to the Risk Management Committee

Age: 59 Years
Appointed: 23 January 2023

Education/Training

- Master of Engineering (Electrical Engineering), Chulalongkorn University
- Bachelor of Engineering (Electrical Engineering), Chulalongkorn University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 14/2019, Thailand Energy Academy (TEA)
- Diploma, National Defence College, The National Defence Course, Class 60, National Defence College of Thailand (NDC)
- TIJ Executive Program on the Rule of Law and Development (RoLD Program), 2017, Thailand Institute of Justice (TIJ)
- Capital Market Leader Program (Class 22/2016), Capital Market Academy
- G-20Y Summit 2015, France
- Mitsui-Harvard Business School, Global Management Academy (Japan - U.S.A., 2015), MITSUI & CO.
- Program for Senior Executive on Justice Administration Batch, Class 19/2014, Judicial Training Institute
- Leadership Development Program III (LDP III), PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- Breakthrough Program for Senior Executives, International Leading Business School (IMD), Lausanne, Switzerland
- Assessor Training Program, Thailand Quality Award (TQA)

Director Training

- Briefing on International Anti-Corruption International Cases and Practices (October 14, 2015), Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 146/2011, Thai Institute of Directors Association (IOD)
- Financial Statements for Directors (FSD), Class 12/2011, Thai Institute of Directors Association (IOD)

Board Industry Experience & Expertise

- Energy, Petroleum and Petrochemical, Capital Market, Business Management and Risk Management, National Security, Sustainability and Corporate Governance, and Information Technology

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 3

- Director and Director to the Risk Management Committee, PTT Global Chemical Public Company Limited
- Chief Operating Officer, Downstream Petroleum Business Group, PTT Public Company Limited
- Director, Member of the Nomination and Remuneration Committee, Chairman of the Risk Management Committee, Global Power Synergy Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 1

- Chairman, PTT Tank Terminal Company Limited

Position in Other Organizations/Institutions : None

Work Experiences (5-year Past Experiences)

2 Jul 2021 - 1 Dec 2022	Director, Arun Plus Company Limited
1 Oct 2021 - 30 Sep 2022	Chief New Business and Infrastructure Officer, PTT Public Company Limited
1 Oct 2021 - 29 Sep 2022	Director and Director to the Corporate Governance and Sustainability Committee, PTT Global Chemical Public Company Limited
1 Oct 2021 - 22 Nov 2021	Director to the Nomination & Remuneration Committee, PTT Global Chemical Public Company Limited
4 Jan 2021 - 18 Oct 2021	Chairman, Global Renewable Power Company Limited
4 Dec 2020 - 18 Oct 2021	Director, Alpha Com Company Limited
7 Apr 2021 - 1 Oct 2021	Director, and Member of Corporate Governance Committee, PTT Oil and Retail Business Public Company Limited
Jan 2021 - 30 Sep 2021	Director, and Member of the Nomination and Remuneration Committee, IRPC Public Company Limited
1 Dec 2020 - 30 Sep 2021	Senior Executive Vice President, Innovation and Digital, PTT Public Company Limited
Apr 2019 - Jan 2021	Chairman, IRPC Public Company Limited
3 Jul 2020 - 30 Nov 2020	Senior Executive Vice President, PTT Public Company Limited, working on a secondment as President and Chief Executive Officer, IRPC Public Company Limited
1 Feb 2019 - 3 Jul 2020	Senior Executive Vice President, PTT Public Company Limited, working on a secondment as President, IRPC Public Company Limited
Feb 2019 - Aug 2019	Chairman, PTT Energy Solutions Company Limited
Oct 2017 - Jan 2019	Chairman, PTT Global LNG Company Limited
30 Sep 2022 - Dec 2022	Acting Chief Executive Officer and President, Thai Oil Public Company Limited
30 Sep 2022 - Dec 2022	Chief Operating Officer, Downstream Petroleum Business Group, PTT Public Company Limited, working on a secondment as Acting Chief Executive Officer, Thai Oil Public Company Limited
2 Dec 2020 - Mar 2021	Chairman, PTT Digital Solutions Company Limited

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Cherdchai Boonchoochaey

- **Director** (Non-Executive Director)
- **Director to the Risk Management Committee**

Age: 56 Years

Appointed: 19 December 2022

Education/Training

- Master of Engineering (Chemical Engineering), Chulalongkorn University
- Master of Business Administration, Chulalongkorn University
- Bachelor of Science (Chemical Technology) Chulalongkorn University

Director Training

- Director Certification Program (DCP), Class 320/2022, Thai Institute of Directors Association (IOD)

Board Industry Experience & Expertise

- Engineering, Energy, Petroleum, Petrochemical, Business Management, Marketing, International Business, Innovation, and Risk Management

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 2

- Director and Director to the Risk Management Committee, PTT Global Chemical Public Company Limited
- Senior Executive Vice President, Innovation and New Ventures, PTT Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 2

- Director, Arun Plus Company Limited
- Chairman, Alpha Com Company Limited

Position in Other Organizations/Institutions : None

Work Experiences (5-year Past Experiences)

1 Nov 2021 - 7 Mar 2023	Chairman, Sakari Resources Limited
8 Oct 2021 - 1 Mar 2023	Chairman, PTT Energy Resources Company Limited
11 Oct 2021 - 10 Feb 2023	Chairman, PTT Global management Company Limited
1 Aug 2021 - 30 Sep 2022	Executive Vice President, Strategy & Portfolio Management, PTT Public Company Limited
29 Apr 2019 - 1 Oct 2021	Director, PTT Natural Gas Distribution Company Limited
12 Sep 2019 - 27 Sep 2021	Director, Trans Thai-Malaysia (Thailand) Limited
12 Sep 2019 - 27 Sep 2021	Director, Trans Thai-Malaysia (Malaysia) Limited
13 Aug 2019 - 27 Sep 2021	Director, TTM Sukuk Berhad
1 Nov 2019 - 31 Jul 2021	Executive Vice President, Natural Gas Supply & Trading, PTT Public Company Limited
1 Oct 2018 - 30 Sep 2019	Executive Vice President, Strategic Planning, Gas Business Unit, PTT Public Company Limited

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Kongkrapan Intarajang

- Director (Executive Director) and Secretary to the Board of Directors
- Director to the Risk Management Committee
- Chief Executive Officer and President

Age: 56 Years

Appointed: 1 October 2019, 4 April 2022 (1st re-elected)

Education/Training

- Doctor of Philosophy (Ph.D.) in Chemical Engineering, University of Houston, U.S.A.
- Bachelor of Engineering (Chemical Engineering), (Second-Class Honors), Chulalongkorn University
- Executive Development Training Program, The Royal Thai Police
- Capital Market Leader Program (Class 30), Capital Market Academy
- Leadership Development Program (LDP 3), Class 4, PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- The Executive Program in Energy Literacy for a Sustainable Future, Class 14, Thailand Energy Academy (TEA)
- Diploma, National Defence College, The National Defence Course, Class 60, National Defence College of Thailand (NDC)
- Breakthrough Program for Senior Executives, IMD Business School

Director Training

- Role of the Chairman Program (RCP), Class 21/2009, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 119/2009, Thai Institute of Directors Association (IOD)

Board Industry Experience & Expertise

- He serves as a member of United Nations Global Compact (UNGC) LEAD level and World Business Council for Sustainable Development (WBCSD), and Council of Thailand Business Council for Sustainable Development (TBCSD). He exercises role model for good stewardship and duties on ESG issues to generate long-term sustainable value at national, regional, and global level.
- On international relations, currently, he is the co-Chair of the France-Thailand Business Forum (FTBF). In this capacity, he leads and promotes economic collaboration, as well as two-way trade and investment, between Thailand and France.
- He had the extensive experience in managing international business. He was the CEO of Emery Oleochemicals Group and used to be a member of the Board of Directors in several international subsidiaries such as Emery Oleochemicals Group in Malaysia, Vencorex Holding in France, PTTGC Innovation America Corporation in USA, and NatureWorks LLC in USA.
- He has more than 25 years of experience in the global petrochemical and natural-based chemical arenas. His areas of expertise include overseeing corporate strategy, business development, corporate finance & investor relations, R&D, major project development, international M&A and joint venture management.
- Educational background and Doctor of Philosophy in Chemical Engineering

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 4

- Chairman, Global Green Chemicals Public Company Limited
- Senior Executive Vice President reporting to Chief Operating Officer, Downstream Petroleum Business Group, PTT Public Company Limited

- Director and Secretary to the Board of Directors, Director to the Risk Management Committee and Chief Executive Officer & President, PTT Global Chemical Public Company Limited
- Director and Member of the Risk Management Committee, Global Power Synergy Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 2

- Chairman and Chairperson of Advisory Committee in relation to its investment in allnex, PTTGC International (Netherlands) B.V.

- Chairman, PTTGC International Private Limited

Position in Other Organizations/Institutions : 13

- Committee, Chulalongkorn University Alumni Association under the Royal Patronage of His Majesty the King
- Board Member, National Energy Technology Center, National Science and Technology Development Agency (NSTDA)
- Adviser of Small and Medium Industrial Institute, The Federation of Thai Industries
- Director and Member of The Nomination Committee and Remunerating Committee, Thai Institute of Directors Association (IOD)
- Director, Association of Capital Market Academy Alumni
- Director, The Federation of Thai Industries
- Vice President (Supporting), Thailand Swimming Association
- Member of Vidyasirimedhi Institute Council, Vidyasirimedhi Institute of Science and Technology (VISTEC)
- Member of Trustee, The Petroleum Institute of Thailand (PTIT)
- Council of Trustee, Thailand Business Council of Sustainable Development (TBCSD)
- Executive Director, Thailand Energy Academy
- Director, Kamnoetvidya Science Academy (KVSI)
- Co-Chairman, France-Thailand, Business Forum

Work Experiences (5-year Past Experiences)

- | | |
|---------------------------|-------------------------------------------------------------------------------------------------------|
| 1 Oct 2020 - 31 Mar 2022 | Advisor of the Member Relations, The Federation of Thai Industries |
| 1 Sep 2020 - 15 Feb 2022 | Chairman, GC International Corporation |
| 1 Jul 2015 - 15 Feb 2022 | Chairman, PTTGC America Corporation |
| 1 Jul 2015 - 15 Feb 2022 | Chairman, PTTGC America LLC |
| 24 Aug 2020 - 25 Mar 2021 | Committee Member, Sustainable Energy Foundation |
| 6 Nov 2019 - 20 Oct 2020 | Director, Global Green Chemicals Public Company Limited |
| Nov 2019 - Sep 2020 | Director, Power of Innovation Foundation |
| Oct 2019 - Sep 2020 | Director, Power of Learning Foundation |
| 31 Oct 2019 - 31 Aug 2020 | Director, GC International Corporation |
| 9 Sep 2008 - 31 Aug 2020 | Director, PTTGC International Private Limited |
| May 2017 - Jan 2020 | Director, Thai Tank Terminal Limited |
| Apr 2017 - 30 Sep 2019 | Chief Operating Officer - Upstream Petrochemical Business, PTT Global Chemical Public Company Limited |
| Jul 2015 - Sep 2019 | Director and President & CEO, PTTGC America Corporation |
| Apr 2015 - Sep 2019 | Director, GC America Sustainability Corporation |
| Feb 2015 - Sep 2019 | Director, PTTGC International (Netherlands) B.V. |
| Jan 2015 - Sep 2019 | Director, Vencorex Holding |
| Nov 2008 - Sep 2019 | Director, Emery Oleochemicals (M) Sdn. Bhd. |
| Nov 2008 - Sep 2019 | Director, Emery Specialty Chemicals Sdn. Bhd. |

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Profile of GC Executives

PTT Global Chemical Public Company Limited

Mr. Kongkrapan Intarajang

Chief Executive Officer and President

Age: 56 Years

Appointed: 1 October 2019

Education/Training

- Doctor of Philosophy (Ph.D.) in Chemical Engineering, University of Houston, U.S.A.
- Bachelor of Engineering (Chemical Engineering), (Second-Class Honors), Chulalongkorn University
- Executive Development Training Program, The Royal Thai Police
- Capital Market Leader Program (Class 30), Capital Market Academy
- Leadership Development Program (LDP 3), Class 4, PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- The Executive Program in Energy Literacy for a Sustainable Future, Class 14, Thailand Energy Academy (TEA)
- Diploma, National Defence College, The National Defence Course, Class 60, National Defence College of Thailand (NDC)
- Breakthrough Program for Senior Executives, IMD Business School

Director Training

- Role of the Chairman Program (RCP), Class 21/2009 Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 119/2009, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 4

- Chairman, Global Green Chemicals Public Company Limited
- Senior Executive Vice President reporting to Chief Operating Officer, Downstream Petroleum Business Group, PTT Public Company Limited
- Director and Secretary to the Board of Directors, Director to the Risk Management Committee and Chief Executive Officer & President, PTT Global Chemical Public Company Limited
- Director and Member of the Risk Management Committee, Global Power Synergy Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 2

- Chairman and Chairperson of Advisory Committee in relation to its investment in allnex, PTTGC International (Netherlands) B.V.
- Chairman, PTTGC International Private Limited

Position in Other Organizations/Institutions : 13

- Committee, Chulalongkorn University Alumni Association under the Royal Patronage of His Majesty the King

- Board Member, National Energy Technology Center National Science and Technology Development Agency (NSTDA)
- Adviser of Small and Medium Industrial Institute, The Federation of Thai Industries
- Director and Member of The Nomination Committee and Remunerating Committee, Thai Institute of Directors Association (IOD)
- Director, Association of Capital Market Academy Alumni
- Director, The Federation of Thai Industries
- Vice President (Supporting), Thailand Swimming Association
- Member of Vidyasirimedhi Institute Council, Vidyasirimedhi Institute of Science and Technology (VISTEC)
- Member of Trustee, The Petroleum Institute of Thailand (PTIT)
- Council of Trustee, Thailand Business Council of Sustainable Development (TBCSD)
- Executive Director Thailand Energy Academy
- Director, Kamnoetvidya Science Academy (KVIS)
- Co-Chairman, France-Thailand Business Forum

Work Experiences (5-year Past Experiences)

- | | |
|---------------------------|-------------------------------------------------------------------------------------------------------|
| 1 Oct 2020 - 31 Mar 2022 | Advisor of the Member Relations, The Federation of Thai Industries |
| 1 Sep 2020 - 15 Feb 2022 | Chairman, GC International Corporation |
| 1 Jul 2015 - 15 Feb 2022 | Chairman, PTTGC America Corporation |
| 1 Jul 2015 - 15 Feb 2022 | Chairman, PTTGC America LLC |
| 24 Aug 2020 - 25 Mar 2021 | Committee Member, Sustainable Energy Foundation |
| 6 Nov 2019 - 20 Oct 2020 | Director, Global Green Chemicals Public Company Limited |
| Nov 2019 - Sep 2020 | Director, Power of Innovation Foundation |
| Oct 2019 - Sep 2020 | Director, Power of Learning Foundation |
| 31 Oct 2019 - 31 Aug 2020 | Director, GC International Corporation |
| 9 Sep 2008 - 31 Aug 2020 | Director, PTTGC International Private Limited |
| May 2017 - Jan 2020 | Director, Thai Tank Terminal Limited |
| Apr 2017 - 30 Sep 2019 | Chief Operating Officer - Upstream Petrochemical Business, PTT Global Chemical Public Company Limited |
| Jul 2015 - Sep 2019 | Director and President & CEO, PTTGC America Corporation |
| Apr 2015 - Sep 2019 | Director, GC America Sustainability Corporation |
| Feb 2015 - Sep 2019 | Director, PTTGC International (Netherlands) B.V. |
| Jan 2015 - Sep 2019 | Director, Vencorex Holding |
| Nov 2008 - Sep 2019 | Director, Emery Oleochemicals (M) Sdn. Bhd. |
| Nov 2008 - Sep 2019 | Director, Emery Specialty Chemicals Sdn. Bhd. |

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Toasaporn Boonyapipat

— Chief Operating Officer –
Base and Intermediate Chemicals

Age: 58 Years

Appointed: 1 February 2022

Education/Training

- Master of Business Administration, Burapha University
- Bachelor of Engineering (Mechanical) (Second-Class Honors), Chiang Mai University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 19, Thailand Energy Academy (TEA)
- ASEAN Executive Program (AEP), General Electric Crotonville, U.S.A.
- PTTCHEM Leadership Development Program, TBS/IMBA, Thammasat University, 2010
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC), Role of the Chairman Program (RCP), Class 47/2021 and Director Certification Program (DCP), Class 197/2014, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 1

- Chief Operating Officer - Base and Intermediate Chemicals, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : 3

- Vice Chairman of the Board of Directors, AGC Vinythai Public Company Limited
- Director, Thai Tank Terminal Limited
- Director, GC Maintenance and Engineering Company Limited

Position in Other Organizations/Institutions : 1

- Association President, Community Partnership Association (CPA) or Puenchumchon

Work Experiences (5-year Past Experiences)

- 1 Nov 2021 - 8 Nov 2023 Association Vice President, Community Partnership Association (CPA) or Puenchumchon
- 28 Feb 2022 - 31 Mar 2023 Chairman, GC Oxirane Company Limited
- 21 Feb 2022 - 31 Mar 2023 Chairman, PTT Phenol Company Limited
- 23 Feb 2022 - 25 Aug 2022 Chairman, GC Glycol Company Limited
- 5 Jan 2021 - 16 Feb 2022 Chairman, GC Estate Company Limited
- 1 Jan 2021 - 31 Jan 2022 Senior Executive Vice President - Upstream Petrochemical Business, PTT Global Chemical Public Company Limited
- 1 Jan 2021 - 1 Aug 2021 Director, Global Power Synergy Public Company Limited
- 2019 - 2020 Executive Vice President reporting to Chief Executive Officer, PTT Global Chemical Public Company Limited appointed as Secondment to PTTGC America LLC
- 28 Jul 2017 - 15 Oct 2020 Director, PTTGC International (Netherlands) B.V.
- 28 Jul 2014 - 15 Oct 2020 Director, Vencorex Holding
- 16 Mar 2017 - 1 Oct 2020 Director, PTTGC America Corporation
- 16 Mar 2017 - 1 Oct 2020 Director, PTTGC America LLC
- 6 Dec 2016 - 1 Oct 2020 Director, Emery Oleochemicals (M) Sdn. Bhd.
- 6 Dec 2016 - 1 Oct 2020 Director, Emery Specialty Chemicals Sdn. Bhd.
- 16 Jan 2016 - 1 Oct 2020 President & CEO, PTTGC America LLC
- 2018 - 2019 Director, GC Ventures Company Limited
- 14 Dec 2018 - 1 Oct 2019 Director, NatureWorks LLC
- 13 Dec 2018 - 1 Oct 2019 Director, GC International Corporation, formerly known as PTTGC International (U.S.A.) Inc.

Shareholding: None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Saroj Putthammawong

- Chief Operating Officer - Value Added Products
- Acting Senior Vice President - Marketing and Sales, Industry Platforms

Age: 55 Years
Appointed: 1 January 2024

Education/Training

- Master of Business Administration, Thammasat University
- Bachelor of Engineering (Chemical Engineering), Chulalongkorn University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 11/2018, Thailand Energy Academy (TEA)
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC) and Director Certification Program (DCP), Class 220/2016, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company - The Stock Exchange of Thailand : 2

- Director/Director to Nomination and Remuneration Committee/Director to Risk Management Committee, Global Green Chemicals Public Company Limited
- Chief Operating Officer - Value Added Products, Acting Senior Vice President - Marketing and Sales, Industry Platforms, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company - The Stock Exchange of Thailand : 6

- Chairman, HMC Polymers Company Limited
- Chairman, GC Marketing Solutions Company Limited
- Chairman, GC Polyols Company Limited
- Chairman, GC Logistics Solutions Company Limited
- Director, PTTGC International Private Limited
- Director, PTT Asahi Chemical Company Limited

Work Experiences (5-year Past Experiences)

28 Jan 2021 - 11 Jan 2024	Director, HMC Polymers Company Limited
18 Jan 2023 - 31 Dec 2023	Director, Revolve Group Limited
1 Jan 2023 - 31 Dec 2023	Executive Vice President - Marketing and Sales, Industry Platforms, PTT Global Chemical Public Company Limited
17 Mar 2021 - 31 Dec 2022	Director, PTT Phenol Company Limited
22 Feb 2022 - 7 Feb 2023	Chairman, GC-M PTA Company Limited
22 Feb 2022 - 7 Feb 2023	Chairman, Thai PET Resin Company Limited
18 Dec 2017 - 31 Dec 2022	Director, GC Treasury Center Company Limited
2 Jun 2017 - 31 Dec 2022	Director, GC Oxirane Company Limited
1 Oct 2019 - 31 Dec 2022	Executive Vice President - Marketing, Commercial and Supply Chain, PTT Global Chemical Public Company Limited
28 Oct 2019 - 19 Oct 2022	Director, GC Marketing Solutions Company Limited
27 Dec 2016 - 25 Aug 2022	Director, GC Glycol Company Limited
29 Sep 2020 - 28 Mar 2022	Committee Member of Industry Standards (ISC), The Federation of Thai Industries
27 Aug 2018 - 2020	Committee Member of Industrial Excellence Center (IEC), The Federation of Thai Industries
Oct 2015 - Sep 2019	Senior Vice President - Marketing, Commercial and Supply, PTT Global Chemical Public Company Limited
2017 - 2019	Director, GC Logistics Solutions Company Limited

Shareholding: 4,900 Shares (0.000109%)
As of 31 December 2023

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Narongsak Jivakanun

— Chief Operating Officer –
International Business

Age: 55 Years

Appointed: 1 February 2022

Education/Training

- Master of Science (Chemical Engineering), Oregon State University, Oregon, U.S.A.
- Bachelor of Engineering (Chemical Engineering), Chulalongkorn University
- IMD - TLCA Leadership Development Program (LDP), Class 1, 2013, Organized by Thai Listed Companies Association (TLCA) and IMD Business School, Switzerland
- The Executive Program in Energy Literacy for a Sustainable Future, Class 8, Thailand Energy Academy (TEA)
- Subsidiary Governance, Business and Legal Issues for Directors and Executives, 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC) and Director Certification Program (DCP) Class 165/2012, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Chief Operating Officer - International Business, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 12

- Chairman of the Board of Directors, Emery Oleochemicals UK Limited
- Chairman of the Board of Directors, GC Ventures America Corporation
- Chairman of the Board of Directors, GC Ventures Company Limited
- Chairman of the Board of Directors, GC America Sustainability Corporation
- Chairman of the Board of Directors, NatureWorks LLC
- Chairman of the Board of Directors, Vencorex Holding
- Chairman of the Board of Directors, GC International Corporation
- Chairman of the Board of Directors, PTTGC America Corporation
- Chairman of the Board of Directors, PTTGC America LLC
- Director and Managing Director, PTTGC International Private Limited
- Director and President and Member of Advisory Committee, PTTGC International (Netherlands) B.V.
- Director, Kuraray GC Advanced Materials Company Limited

Work Experiences (5-year Past Experiences)

- | | |
|---------------------------|--------------------------------------------------------------------------------------------------------------------|
| 24 Nov 2020 - 23 Nov 2023 | Director, Chairman of Risk and Audit Committee and Chairman of Executive Committee, Emery Oleochemicals UK Limited |
| 1 Oct 2019 - 1 Apr 2022 | President, GC International Corporation |
| 1 Oct 2020 - 16 Feb 2022 | President and CEO, PTTGC America LLC |
| 1 Oct 2019 - 31 Jan 2022 | Executive Vice President - International Business Operations, PTT Global Chemical Public Company Limited |
| 1 Oct 2019 - 1 Nov 2021 | Director and Executive Committee, Emery Specialty Chemicals Sdn. Bhd. |
| 1 Oct 2019 - 1 Nov 2021 | Director and Executive Committee, Emery Oleochemicals (M) Sdn. Bhd. |
| 21 Sep 2017 - 21 Nov 2019 | Director, Vice Chairman and Director to the Nomination and Remuneration Committee, Vinythai Public Company Limited |
| 2 Jun 2017 - 9 Nov 2019 | Director, GC Polyols Company Limited |
| 23 Jan 2018 - 14 Oct 2019 | Chairman, GC Estate Company Limited |
| 18 Feb 2016 - 14 Oct 2019 | Director and Director to the Risk Management Committee, Global Green Chemicals Public Company Limited |
| 1 Jan 2017 - 30 Sep 2019 | Executive Vice President - Corporate Strategy, PTT Global Chemical Public Company Limited |
| 11 Apr 2016 - 30 Sep 2019 | Director, PTT Phenol Company Limited |

Shareholding: None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Pirun Krimwongrut

— Chief Operating Officer –
Center of Excellence

Age: 55 Years
Appointed: 1 January 2023

Education/Training

- Master of Engineering Science (Electrical Engineering), University of New South Wales, Sydney, Australia
- Bachelor of Engineering (Electrical Engineering), (Second-Class Honors), Khon Kaen University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 18/2023, Thailand Energy Academy (TEA)
- Leadership Development Program (LDP 1), PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- Role of the Chairman Program (RCP), Class 55/2023, Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC), and Director Certification Program (DCP), Class 257/2018, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 1

- Chief Operating Officer - Center of Excellence, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : 8

- Chairman, NPC Safety and Environmental Service Company Limited
- Chairman, GC Maintenance and Engineering Company Limited
- Chairman, GC Estate Company Limited
- Director, GC America Sustainability Corporation
- Director, PTTGC America LLC
- Director, PTTGC America Corporation
- Director, GC International Corporation
- Director, PTT Asahi Chemical Company Limited

Work Experiences (5-year Past Experiences)

- | | |
|---------------------------|---------------------------------------------------------------------------------------------------------------------|
| 23 Jan 2018 - 10 Jan 2023 | Director,
GC Estate Company Limited |
| 28 Nov 2019 - 5 Jan 2023 | Director, Sport Services
Alliance Company Limited |
| 11 Oct 2019 - 1 Jan 2023 | Director, PTT Digital Solutions
Company Limited |
| 1 Oct 2020 - 31 Dec 2022 | Executive Vice President -
Organizational Effectiveness,
PTT Global Chemical Public
Company Limited |
| Nov 2019 - Nov 2020 | Director, GC Styrenics
Company Limited |
| 1 Oct 2019 - 30 Sep 2020 | Acting Executive Vice President -
Organizational Effectiveness,
PTT Global Chemical Public
Company Limited |
| Mar 2018 - Dec 2019 | Director, Thai Tank Terminal
Limited |
| Mar 2018 - Oct 2019 | Director, Eastern Fluid
Transport Company Limited |
| Apr 2018 - Sep 2019 | Senior Vice President - Group
Performance Center - Utilities,
PTT Global Chemical Public
Company Limited |

Shareholding: 27,033 Shares (0.000600%)

As of 31 December 2023

**Relation among Family with other Directors, Management,
Major Shareholders of the Company or Subsidiaries :** None

Miss Pattaralada Sa-NGasang

Executive Vice President - Finance and Accounting

Age: 58 Years

Appointed: 1 January 2021

Education/Training

- Master of Business Administration, Thammasat University
- Mini Master of Business Administration, The National Institute of Development Administration (NIDA)
- Bachelor of Accounting (Commerce and Accountancy), Thammasat University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 17, Thailand Energy Academy (TEA)
- Advanced International Trade Law (IT Bar 2022), The Central Intellectual Property and International Trade Court
- Diploma, National Defence College, The National Defence Course, Class 61, National Defence College of Thailand (NDC)
- Capital Market Leader Program (Class 22), Capital Market Academy
- PTT - HBS Leadership Development Program, Class 2, Harvard Business School, U.S.A.
- IMD - TLCA Leadership Development Program (LDP), Class 1, organized by Thai Listed Companies Association (TLCA) and IMD Business School, Switzerland
- Treasury Management Program, Class 2, Fiscal Policy Research Institute Foundation, Ministry of Finance
- Executive Development Program (EDP), Class 5, Thai Listed Companies Association (TLCA)
- Global Leadership Business, Class 2, Cornell University, U.S.A.
- Leadership Succession Program, Class 11, Institute of Research and Development for Public Enterprises (IRDP)
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for new Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC), Strategic Board Master Class (SBM), Class 1/2017, Role of the Chairman Program (RCP), Class 38/2016 and Director Certification Program (DCP), Class 151/2011, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company - The Stock Exchange of Thailand : 2

- Executive Vice President - Finance and Accounting, PTT Global Chemical Public Company Limited
- Senior Executive Vice President reporting to Chief Financial Officer, PTT Public Company Limited

Board Member/Management in Non-Listed Company - The Stock Exchange of Thailand : 12

- Chairperson, GC Treasury Center Company Limited
- Director, GC America Sustainability Corporation
- Director and Executive Committee, Thai Tank Terminal Limited

- Director, PL Global Transport Company Limited
- Director, GC Logistics Solutions Company Limited
- Director, Emery Oleochemicals UK Limited
- Director, GC Polyols Company Limited
- Director, PTTGC International Private Limited
- Director, Vencorex Holding
- Director, PTTGC America LLC
- Director, GC International Corporation
- Director, PTTGC America Corporation

Position in Other Organizations/Institutions : 3

- Board Member and Public Relations, The Federation of Accounting Professions Under The Royal Patronage of His Majesty The King
- Advisor of the Management Accounting Profession Committee, The Federation of Accounting Profession under The Royal Patronage of His Majesty The King
- Subcommittee of Sustainability Committee, Thailand Management Association (TMA)

Work Experiences (5-year Past Experiences)

22 Aug 2020 - 21 Aug 2023	Board Member and Chairman of the Management Accounting Profession Committee, The Federation of Accounting Professions Under The Royal Patronage of His Majesty The King
11 Jan 2021 - 29 Mar 2023	Director, GC Oxirane Company Limited
1 Jan 2021 - 31 Jan 2022	Director, GC America Sustainability Corporation
15 Jan 2021 - 1 Nov 2021	Director, Emery Specialty Chemicals Sdn. Bhd.
15 Jan 2021 - 1 Nov 2021	Director, Emery Oleochemicals (M) Sdn. Bhd.
May 2017 - 31 Dec 2020	Chairperson, Thaioil Treasury Center Company Limited
Mar 2017 - 31 Dec 2020	Director, Thaioil Energy Services Company Limited
Apr 2016 - 31 Dec 2020	Director, Thaioil Ethanol Company Limited
Dec 2015 - 31 Dec 2020	Director, Sapthip Company Limited
1 Oct 2015 - 31 Dec 2020	Executive Vice President - Finance and Accounting, Thai Oil Public Company Limited
Jan 2010 - 31 Dec 2020	Director, Ubon Bio Ethanol Public Company Limited

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Chaya Chandavasu

Executive Vice President – Sustainability

Age: 50 Years
Appointed: 1 February 2022

Education/Training

- Doctor of Chemical Engineering, New Jersey Institute of Technology, U.S.A.
- Master of Chemical Engineering, New Jersey Institute of Technology, U.S.A.
- Bachelor of Science (Chemistry), (First-Class Honors), Mahidol University
- Climate Action Leaders Forum (CAL Forum) Class 2/2023, Thailand Greenhouse Gas Management Organization (Public Organization)
- The Executive Program in Energy Literacy for a Sustainable Future, Class 16/2022, Thailand Energy Academy (TEA)
- Advanced Senior Executive Program, Sasin & Kellogg School of Management, 2008
- Subsidiary Governance and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC) and Director Certification Program (DCP), Class 152/2011, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 1

- Executive Vice President - Sustainability, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : 5

- Chairman, Solution Creation Company Limited
- Director, GC America Sustainability Corporation
- Director, GC Ventures Company Limited
- Director, GC Ventures America Corporation
- Director, Sarn Palung Social Enterprise Company Limited

Position in Other Organizations/Institutions : 2

- Chairman of Sub-Committee on Climate Change Policy under Executive Committee of Thailand Carbon Neutral Network (TCNN)
- Committee Member of Board of Director, Marketing Association of Thailand (MAT)

Work Experiences (5-year Past Experiences)

28 Feb 2022 - 15 May 2023	Director, Solution Creation Company Limited
Oct 2021 - Feb 2022	Director, Emery Oleochemicals UK Limited
1 Oct 2019 - 31 Jan 2022	Senior Vice President - Sustainability and Corporate Branding, PTT Global Chemical Public Company Limited
22 Oct 2020 - 1 Nov 2021	Director, Emery Oleochemicals (M) Sdn. Bhd.
22 Oct 2020 - 1 Nov 2021	Director, Emery Specialty Chemicals Sdn. Bhd.
23 May 2018 - 30 Oct 2019	Managing Director, GC Ventures Company Limited
27 Jan 2016 - 30 Sep 2019	Director, Solution Creation Company Limited
1 Nov 2015 - 30 Sep 2019	Senior Vice President - Science and Innovation, PTT Global Chemical Public Company Limited
2016 - 2019	Director, GC America Sustainability Corporation
2013 - 2019	Chairman, Auria BioChemicals Company Limited

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries :

Spouse : Mrs. Rattiya Chandavasu,
Senior Vice President, Secondment as Senior Vice President - Strategy Office and Special Projects, allnex Holding GmbH

Mrs. Chananchida Wiboonkanarak

— Executive Vice President –
Corporate Strategy

Age: 50 Years

Appointed: 1 January 2024

Education/Training

- Master of Engineering (Chemical Engineering), Chulalongkorn University
- Bachelor of Science (Chemical Engineering), Chulalongkorn University
- Leadership Development Program (LDP 2), 2015, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Leadership Development Program (LDP 2), General Electric, GE, New York, U.S.A.
- PTT-HBS Leadership Development Program (LDP1), Harvard Business School Campus, Shanghai, The People's Republic of China
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for new Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC) and Director Certification Program (DCP), Class 267/2018, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 1

- Executive Vice President - Corporate Strategy, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : 10

- Director, GC America Sustainability Corporation
- Director, PTTGC America LLC
- Director, PTTGC America Corporation
- Director, GC Polyols Company Limited
- Director, GC Ventures America Corporation
- Director, GC Ventures Company Limited
- Director, PTTGC International Private Limited
- Director, AGC Vinythai Public Company Limited
- Director, Emery Oleochemicals UK Limited
- Director, Kuraray GC Advanced Materials Company Limited

Work Experiences (5-year Past Experiences)

- | | |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------|
| 20 Oct 2022 - 16 Jan 2024 | Director, GC Marketing Solutions Company Limited |
| 1 Apr 2022 - 1 Jan 2024 | Chairperson, PTT MCC Biochem Company Limited |
| 9 Dec 2020 - 1 Jan 2024 | Director, PTT Asahi Chemical Company Limited |
| 9 Oct 2019 - 1 Jan 2024 | Director, Solution Creation Company Limited |
| 11 Oct 2018 - 1 Jan 2024 | Executive Committee Member, HMC Polymers Company Limited |
| 1 Apr 2018 - 31 Dec 2023 | Senior Vice President - Strategy, Business Development and Commercial Excellence, PTT Global Chemical Public Company Limited |
| 1 Oct 2019 - 31 Mar 2023 | Director, PTT Phenol Company Limited |
| 13 Nov 2019 - 25 Aug 2022 | Director, GC Glycol Company Limited |
| 8 Feb 2018 - 31 Mar 2022 | Director and Chairperson of the Executive Committee, PTT MCC Biochem Company Limited |
| 15 Oct 2020 - 1 Mar 2022 | Director, Vencorex Holding |
| 15 Oct 2020 - 16 Feb 2022 | Director, PTTGC International (Netherlands) B.V. |
| 2 Sep 2020 - 16 Feb 2022 | Director, NatureWorks LLC |
| 27 Dec 2018 - 22 Dec 2019 | Director, GC-M PTA Company Limited |
| 27 Dec 2018 - 22 Dec 2019 | Director, Thai PET Resin Company Limited |

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Anutin Chuaypen

- Executive Vice President - Organizational Effectiveness

Age: 57 Years
Appointed: 1 January 2023

Education/Training

- Master of Science (Computer & Engineering Management), Assumption University
- Bachelor of Science (Chemical Engineering), Chulalongkorn University
- Leadership Development Program (LDP 2), PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC) and Director Certification Program (DCP), Class 200/2015, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company - The Stock Exchange of Thailand : 1

- Executive Vice President - Organizational Effectiveness, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company - The Stock Exchange of Thailand : 3

- Director, GC Estate Company Limited
- Director, Sport Services Alliance Company Limited
- Director, PTT Digital Solutions Company Limited

Work Experiences (5-year Past Experiences)

29 Oct 2019 - 4 Jan 2023	Director, NPC Safety and Environmental Service Company Limited
1 Oct 2019 - 31 Dec 2022	Senior Vice President - Aromatics, PTT Global Chemical Public Company Limited
22 Nov 2019 - 25 Aug 2022	Director, GC Styrenics Company Limited
27 Apr 2015 - 1 Jan 2020	Director, Thai Tank Terminal Limited
10 Jul 2014 - 30 Oct 2019	Director, GC Maintenance and Engineering Company Limited
1 Jan 2014 - 30 Sep 2019	Senior Vice President - Group Performance Center, Refinery and Shared Facilities, PTT Global Chemical Public Company Limited

Shareholding : 36,591 Shares (0.000812%)
As of 31 December 2023

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Siridech Kumvongdee

- Executive Vice President - Marketing, Commercial and Supply Chain

Age: 58 Years
Appointed: 1 January 2023

Education/Training

- Master of Science (Chemical Engineering), Washington University, U.S.A.
- Bachelor of Science (Chemistry), Ramkhamhaeng University
- Advanced Management Programme (AMP), INSEAD University
- Certificate of Leadership Development Program (LDP 3), Class 2, PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- Certificate of Senior Executive Program (SEP), Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Certificate of Politics and Governance in Democratic Systems for Senior Executives, Class 24/2020, King Prajadipok's Institute
- Role of the Chairman Program (RCP), Class 53/2023, Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities and Ethical Leadership for new Era, 2021 (In-house Programs by GC), Board Matters and Trends (BMT), Class 2/2017 and Director Certification Program (DCP), Class 209/2015, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company - The Stock Exchange of Thailand : 1

- Executive Vice President - Marketing, Commercial and Supply Chain, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company - The Stock Exchange of Thailand : 4

- Chairman, GC-M PTA Company Limited
- Chairman, Thai PET Resin Company Limited
- Director, GC Treasury Center Company Limited
- Director and Executive Chairman, HMC Polymers Company Limited

Work Experiences (5-year Past Experiences)

22 Jun 2020 - 12 Dec 2022	Director, Basell Advanced Polyolefins (Thailand) Company Limited
19 Dec 2019 - 12 Dec 2022	Director, Rayong Olefins Company Limited
13 Dec 2019 - 12 Dec 2022	President, HMC Polymers Company Limited
15 Nov 2016 - 1 Oct 2019	Director, Vencorex Holding
3 Feb 2015 - 1 Oct 2019	Director, PTT Digital Solutions Company Limited
1 Jan 2017 - 30 Sep 2019	Executive Vice President - Organizational Effectiveness, PTT Global Chemical Public Company Limited

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mrs. Jeeranee Pimthanothai

- Executive Vice President - Technical, Engineering and Maintenance

Age: 59 Years
Appointed: 1 July 2022

Education/Training

- Master of Engineering (Petrochemical Technology), Chulalongkorn University
- Bachelor of Science (Chemical Technology), Chulalongkorn University
- Leadership Innovation & Strategy, GE Crotonville, U.S.A.
- Leadership Development Program (LDP 1), PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- NIDA-Wharton Executive Leadership Program, NIDA-Wharton, U.S.A.
- The Columbia Senior Executive Program, Columbia, U.S.A.
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for new Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC), Director Certification Program (DCP), Class 249/2017 and Corporate Governance: The Role of Manager in Supporting Directors, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company - The Stock Exchange of Thailand : 1

- Executive Vice President - Technical, Engineering and Maintenance, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company - The Stock Exchange of Thailand : 1

- Director, GC Maintenance and Engineering Company Limited

Work Experiences (5-year Past Experiences)

1 Nov 2018 - 29 Dec 2022	Director, PTT Energy Solutions Company Limited
1 Sep 2015 - 30 Jun 2022	Senior Vice President - Technical, Engineering and Maintenance, PTT Global Chemical Public Company Limited
2017 - 2019	Director, PTT Asahi Chemical Company Limited

Shareholding : 15,543 Shares (0.000345%)
As of 31 December 2023

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Pukpong Wungrattanasopon

- Executive Vice President - Olefins

Age: 53 Years
Appointed: 1 April 2020

Education/Training

- Master of Science (Petrochemical Technology), The Petroleum and Petrochemical College, Chulalongkorn University
- Bachelor of Science (Chemical Technology), Chulalongkorn University
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC) and Director Certification Program (DCP), Class 236/2017, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company - The Stock Exchange of Thailand : 1

- Executive Vice President - Olefins, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company - The Stock Exchange of Thailand : 1

- Director, HMC Polymers Company Limited

Position in Other Organizations/Institutions : 1

- Vice President, Thai Institute of Chemical Engineering and Applied Chemistry

Work Experiences (5-year Past Experiences)

17 Nov 2016 - 31 Mar 2023	Director, PTT Phenol Company Limited
2 Jan 2020 - 19 Sep 2022	Director, Thai Tank Terminal Limited
2 Jan 2020 - 19 Sep 2022	Executive Committee Member, Thai Tank Terminal Limited
1 Jan 2021 - 5 Aug 2022	Director, GC Glycol Company Limited
1 Oct 2019 - 31 Mar 2020	Acting Executive Vice President - Group Performance Center, PTT Global Chemical Public Company Limited
1 Aug 2016 - 30 Sep 2019	Senior Vice President - Group Performance Center, Aromatics, PTT Global Chemical Public Company Limited

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Pornsak Mongkoltrirat

- Executive Vice President - Polymers

Age: 57 Years
Appointed: 1 April 2020

Education/Training

- Master of Business Administration (Management), Kasetsart University
- Bachelor of Engineering (Mechanical Engineering), Kasetsart University
- Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC), Role of the Chairman Program (RCP), Class 48/2021 and Director Certification Program (DCP), Class 263/2017, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company - The Stock Exchange of Thailand : 1

- Executive Vice President - Polymers, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company - The Stock Exchange of Thailand : 8

- Chairman, ENVICCO Limited
- Chairman, Revolve Group Limited
- Chairman of the Executive Committee, PTT Asahi Chemical Company Limited
- Director, GC Logistics Solutions Company Limited
- Director, GC-M PTA Company Limited
- Director, Thai PET Resin Company Limited
- Director, Dynachisso Thai Company Limited
- Executive Committee Member, HMC Polymers Company Limited

Work Experiences (5-year Past Experiences)

15 Jan 2023 - 19 Feb 2024	Chairman, GC Logistics Solutions (Vietnam) Company Limited
12 Nov 2019 - 19 Feb 2024	Chairman, PL Global Transport Company Limited
1 Jan 2023 - 31 Dec 2023	Managing Director, GC Logistics Solutions Company Limited
12 Nov 2019 - 20 Dec 2023	Chairman, GC Logistics Solutions Company Limited
28 Feb 2022 - 8 May 2023	Chairman, Solution Creation Company Limited
23 Feb 2021 - 8 May 2023	Director, Solution Creation Company Limited
28 Oct 2019 - 19 Oct 2022	Director, GC Marketing Solutions Company Limited
11 Nov 2019 - 24 Aug 2022	Chairman, GC Styrenics Company Limited
28 Sep 2020 - 22 May 2022	Director, Revolve Group Limited
29 Mar 2019 - 15 Feb 2022	Director, GC Maintenance and Engineering Company Limited
1 Oct 2019 - 30 Mar 2020	Acting Executive Vice President - Group Performance Center - Polymers Business Unit, PTT Global Chemical Public Company Limited
27 Dec 2018 - 12 Nov 2019	Director, GC-M PTA Company Limited
27 Dec 2018 - 12 Nov 2019	Director, Thai PET Resin Company Limited
16 Jul 2017 - 1 Oct 2019	Director and Managing Director, GC Glycol Company Limited

Shareholding : 15,258 Shares (0.000338%),
Spouse 16,158 Shares (0.000358%)
As of 31 December 2023

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Kamel Ramdani

- Executive Vice President - Product Innovation
- Acting Senior Vice President - Innovation Growth Platforms and Corporate Venture Capital

Age: 51 Years
Appointed: 1 January 2024

Education/Training

- Doctor of Philosophy (Ph.D.) in Chemical Engineering, French Institute of Petroleum & French National Research Center, Lyon, France
- Master of Business Administration, Wharton School Philadelphia, U.S.A.
- Master of Science (Chemistry and Catalysis), University Pierre & Marie Curie, Paris VI, France
- Bachelor of Engineering (Chemical Engineering), University Claude Bernard, Lyon, France

Board Member/Management in Listed Company - The Stock Exchange of Thailand : 1

- Executive Vice President - Product Innovation, Acting Senior Vice President - Innovation Growth Platforms and Corporate Venture Capital, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company - The Stock Exchange of Thailand : 4

- Director, PTT MCC Biochem Company Limited
- Director, Vencorex Holding
- Director and Managing Director, GC Ventures Company Limited
- Director, GC Ventures America Corporation

Work Experiences (5-year Past Experiences)

1 Dec 2021 - 31 Dec 2023	Senior Vice President - Product Innovation and Acting Senior Vice President - Innovation Growth Platforms and Corporate Venture Capital, PTT Global Chemical Public Company Limited
2013 - 2021	Senior Vice President - Research & Innovation, Global Technology VP Solvay Group, Global Business Unit Novocare, Princeton, New Jersey, U.S.A.

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mrs. Pilasphan Udomjarumanee

- Senior Vice President – Corporate Governance and Legal and Company Secretary

Age: 58 Years
Appointed: 1 October 2019

Education/Training

- Master Degree of Business Administration (Finance), Royal Melbourne Institute of Technology, Melbourne, Australia
- Post Graduate Diploma Degree in Business Administration, Victoria University, Melbourne, Australia
- Bachelor of Arts (English), Silpakorn University
- Leadership Development Program (LDP 2), PLLI, INSEAD
- Supply Chain and Supply Sourcing, McKinsey
- Strategy Management Program, 2018, Fiscal Policy Research Institute Foundation, Ministry of Finance
- M&A Training for Senior Leadership, 2018, Institute for Merger, Acquisition & Alliance
- Leadership Development Program (LDP 2), 2015, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Anti-Corruption Practical Guide (ACPG), Class 64/2023, Board Nomination & Compensation Program (BNCP), Class 16/2023, Ethical Leadership (EPL), Class 27/2022, Company Secretary Refreshment Training Program (RFP), Class 4/2021, Subsidiary Governance, Business and Legal Issues for Directors and Executives, and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for new Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC), Board Reporting Program (BRP), Class 35/2020, Company Reporting Program (CRP), Class 26/2020, Company Secretary Program (CSP), Class 107/2020, Corporate Governance for Executives (CGE), Class 16/2020 and Director Certification Program (DCP), Class 287/2019, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Senior Vice President - Corporate Governance and Legal and Company Secretary, PTT Global Chemical Public Company Limited

Position in Other Organizations/Institutions : 1

- Committee Member of Thai Company Secretary Club, Thai Listed Companies Association

Work Experiences (5-year Past Experiences)

1 Sep 2016 - 30 Sep 2019 Vice President - Strategy and Planning Department, PTT Global Chemical Public Company Limited

Shareholding : 18,400 Shares (0.000408%)

As of 31 December 2023

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Chatchawalit Dhammasaroj

- Senior Vice President – Internal Audit

Age: 56 Years
Appointed: 1 January 2024

Education/Training

- Master of Business Administration, Chulalongkorn University
- Master of Science (Electrical Engineering), Virginia Polytechnic Institute and State University (VPI&SU)
- Bachelor of Science (Electrical Engineering), Virginia Polytechnic Institute and State University (VPI&SU)
- Advance People Management (APM) Class 43, Personnel Management Association of Thailand (PMAT)
- Advanced Certificate Course in Public Administration and Law for Executives, Class 14, King Prajadhipok's Institute
- GC X INSEAD Global Leadership Acceleration Program, 2022 (G-LAP), (In-house Programs by GC), INSEAD
- Leadership Development Program (LDP 1/2016 and LDP 2/2017) (In-house Programs by GC), PacRim Group
- Advanced Audit Committee Program (AACP), Class 51/2024 and Director Certification Program (DCP), Class 265/2018, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 1

- Senior Vice President - Internal Audit, PTT Global Chemical Public Company Limited

Position in Other Organizations/Institutions : 1

- Director and Treasurer, Vibul Aryuravej Foundation

Work Experiences (5-year Past Experiences)

16 Jul 2022 - 31 Dec 2023 Vice President - HR Business Partner, PTT Global Chemical Public Company Limited

1 May 2021 - 15 Jul 2022 Vice President - HR Management, PTT Global Chemical Public Company Limited

16 Apr 2019 - 30 Apr 2021 Vice President - HR Operation and Services, PTT Global Chemical Public Company Limited

Shareholding : 100,021 Shares (0.002218%)

As of 1 January 2024

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Sakesiri Piyavej

- Senior Vice President -
Quality, Safety, Occupational Health
and Environment

Age: 57 Years
Appointed: 1 January 2022

Education/Training

- Master of Public Administration, (Honor Class),
The National Institute of Development Administration (NIDA)
- Bachelor of Engineering (Electrical Engineering),
Chulalongkorn University
- Bachelor of Safety Science, Rajabhat Rajanagarindra
University
- Subsidiary Governance, Business and Legal Issues for
Directors and Executives and Transformative Leadership
for Global Enterprise, 2022 (In-house Programs by GC) and
Director Certification Program (DCP), Class 321/2022,
Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company - The Stock Exchange of Thailand : 1

- Senior Vice President - Quality, Safety, Occupational
Health and Environment, PTT Global Chemical Public
Company Limited

Board Member/Management in Non-Listed Company - The Stock Exchange of Thailand : 1

- Director, NPC Safety and Environmental Service
Company Limited

Work Experiences (5-year Past Experiences)

Oct 2018 - Dec 2021 Vice President - Technical Safety and
PSM, PTT Global Chemical Public
Company Limited

Shareholding : 10,000 Shares (0.000222%), Spouse 1,000
Shares (0.000022%) As of 31 December 2023

**Relation among Family with other Directors, Management,
Major Shareholders of the Company or Subsidiaries :** None

Mrs. Chatsuda Kanjanarat

- Senior Vice President -
Transformation Excellence

Age: 55 Years
Appointed: 1 July 2017

Education/Training

- Bachelor of Engineering (Electrical-Electronics)
(Second-Class Honors), King Mongkut's Institute
of Technology Ladkrabang
- PTT-HBS Leadership Development Program (LDP 1),
PTT Leadership and Learning Institute (PLLI),
PTT Public Company Limited
- Leading Digital Business Transformation (LDBT) 2017,
Institute for Management Development (IMD)
- Executive Education Certificate Program in Cybersecurity
(Executive CISO), Class 1, National Cyber Security
Agency (NCSA)
- Subsidiary Governance, Business and Legal Issues for
Directors and Executives and Transformative Leadership
for Global Enterprise, 2022, Director's Legal Liabilities,
Ethical Leadership for New Era and High Performing
Board & Board Effectiveness, 2021 (In-house Programs
by GC) and Director Certification Program (DCP), Class
249/2017, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company - The Stock Exchange of Thailand : 1

- Senior Vice President - Transformation Excellence,
PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company - The Stock Exchange of Thailand : 1

- Director, PTT Digital Solutions Company Limited

Shareholding : None

**Relation among Family with other Directors, Management,
Major Shareholders of the Company or Subsidiaries :** None

Mr. Rachean Chanthaweekul

— Senior Vice President –
Procurement

Age: 55 Years
Appointed: 1 January 2024

Education/Training

- Bachelor of Engineering (Mechanical Engineering), King Mongkut's University of Technology Thonburi
- The Mastery of Inspirational Leader Program (2023), Sauce Skills
- GC X INSEAD Global Leadership Acceleration Program 2022, (In-house Programs by GC), INSEAD
- Leadership Development Program (LDP 2), PTT Global Chemical Public Company Limited

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 1

- Senior Vice President - Procurement, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : 1

- Director, GC Estate Company Limited

Work Experiences (5-year Past Experiences)

- 1 Jun 2019 - 31 Dec 2023 Vice President, Secondment as Vice President, Kuraray GC Advanced Materials Company Limited, PTT Global Chemical Public Company Limited
- 1 Dec 2014 - 31 May 2019 Vice President – Procurement, PTT Global Chemical Public Company Limited

Shareholding : 8,800 Shares (0.000195%)

As of 1 January 2024

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Krit Kumpabooth

— Senior Vice President –
CAPEX Excellence

Age: 50 Years
Appointed: 1 January 2024

Education/Training

- Master of Science (Petrochemical Technology), The Petroleum and Petrochemical College, Chulalongkorn University
- Bachelor of Science (Industrial Chemistry), (Second-Class Honors), King Mongkut Institute of Technology North Bangkok
- The Young Executive Program in Energy Literacy for a Sustainable Future, Class 1, 2016, Thailand Energy Academy (TEA)
- Leadership Development Program (LDP 1/2015 and LDP 2/2017), PTT Global Chemical Public Company Limited
- Extraordinary Leader, 2017, PTT Global Chemical Public Company Limited
- GC X INSEAD Global Leadership Acceleration Program 2022 (G-LAP), (In-house Programs by GC), INSEAD
- Targeted Selection: Interviewer 2017 (In-house Programs by GC), DDI - Development Dimensions International

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 1

- Senior Vice President - CAPEX Excellence, PTT Global Chemical Public Company Limited

Position in Other Organizations/Institutions : 1

- Steering Committee - Industrial Segment, The Thai Institute of Chemical Engineering and Applied Chemistry (TIChE)

Work Experiences (5-year Past Experiences)

- 1 May 2019 - 1 Jan 2023 Vice President - Innovation Strategy and Management, PTT Global Chemical Public Company Limited
- 1 Aug 2016 - 30 Apr 2019 Vice President - Technology, PTT Global Chemical Public Company Limited

Shareholding : 3,513 Shares (0.000078%)

As of 1 January 2024

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Paisarn Sarapee

— Senior Vice President –
EO and Derivatives

Age: 60 Years
Appointed: 1 January 2023

Education/Training

- Master of Business Administration, Graduate School of Commerce, Burapha University
- Bachelor of Science (Industrial Chemistry), Chiang Mai University
- Head of Company Program, INSEAD University
- Senior Executive Program (SEP) 2005, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC), Financial Statements for Directors (FSD), Class 41/2020 and Director Certification Program (DCP), Class 286/2019, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Senior Vice President - EO and Derivatives, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 2

- Director, NPC Safety and Environmental Service Company Limited
- Director, GC Maintenance and Engineering Company Limited

Work Experiences (5-year Past Experiences)

- | | |
|--------------------------|------------------------------------------------------------------------------------------------------------------------|
| 1 Jul 2022 - 30 Mar 2023 | Director and Managing Director, GC Oxirane Company Limited |
| 1 May 2022 - 30 Jun 2022 | Senior Vice President under Chief Operating Officer - Value Added Products, PTT Global Chemical Public Company Limited |
| 1 Oct 2019 - 30 Apr 2022 | Director and Managing Director, PTT Phenol Company Limited |
| 1 Oct 2019 - 30 Apr 2022 | Senior Vice President - Phenol Business Unit, PTT Global Chemical Public Company Limited |
| 1 Jan 2015 - 30 Sep 2019 | Vice President - Phenol Operation Department, PTT Phenol Company Limited |

Shareholding : None

Relation among Family with other Directors, Management,
Major Shareholders of the Company or Subsidiaries : None

Mr. Sawat Trongdilokrat

— Senior Vice President –
Phenol and Derivatives

Age: 56 Years
Appointed: 1 May 2022

Education/Training

- Master of Business Administration (Marketing), Sripatum University
- Bachelor of Science (Chemical Engineering), Chulalongkorn University
- Leadership Development Program (LDP 1 and LDP 2), PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022 (In-house Programs by GC) and Director Certification Program (DCP), Class 325/2022, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Senior Vice President - Phenol and Derivatives, PTT Global Chemical Public Company Limited

Work Experiences (5-year Past Experiences)

- | | |
|--------------------------|---------------------------------------------------------------------------------------------------------------|
| 1 May 2022 - 31 Mar 2023 | Director and Managing Director, PTT Phenol Company Limited |
| 1 Apr 2022 - 30 Apr 2022 | Vice President under Chief Operating Officer Value Added Products, PTT Global Chemical Public Company Limited |
| 1 Oct 2019 - 31 Mar 2022 | Vice President - Aromatics Maintenance, PTT Global Chemical Public Company Limited |
| 1 Jan 2017 - 30 Apr 2019 | Vice President - Aromatics Plant 2, PTT Global Chemical Public Company Limited |

Shareholding : 15,000 Shares (0.000333%)
As of 31 December 2023

Relation among Family with other Directors, Management,
Major Shareholders of the Company or Subsidiaries : None

Mr. Ratchada Sawasdirak

— Senior Vice President -
Refinery

Age: 55 Years
Appointed: 1 October 2019

Education/Training

- Master of Public Administration, Chulalongkorn University
- Bachelor of Engineering (Mechanical Engineering), Mahanakorn University of Technology
- Ethical Leadership 2020: Ethical Challenges in New Normal, PTT Global Chemical Public Company Limited
- Subsidiary Governance and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC) and Director Certification Program (DCP), Class 287/2019, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Senior Vice President - Refinery, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 1

- Director, NPC Safety and Environmental Service Company Limited

Work Experiences (5-year Past Experiences)

2 Jan 2020 - 19 Sep 2022 Director,
Thai Tank Terminal Limited

Shareholding : None

**Relation among Family with other Directors, Management,
Major Shareholders of the Company or Subsidiaries :** None

Mr. Sombat Silsangwon

— Senior Vice President -
Aromatics

Age: 54 Years
Appointed: 1 March 2023

Education/Training

- Bachelor of Industrial Technology, King Mongkut's Institute of Technology Ladkrabang
- GC X INSEAD Global Leadership Acceleration Program, 2022 (G-LAP) (In-house Programs by GC and INSEAD), PTT Global Chemical Public Company Limited
- Advance Management Program, 2019, PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- Management Development Program, Class 24/2016, Thailand Management Association (TMA)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Senior Vice President - Aromatics,
PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 2

- Director, GC-M PTA Company Limited
- Director, Thai PET Resin Company Limited

Work Experiences (5-year Past Experiences)

1 Oct 2016 - 28 Feb 2023 Vice President - Olefins Plant II,
PTT Global Chemical Public
Company Limited

Shareholding : Spouse 2,000 Shares (0.000044%)
As of 31 December 2023

**Relation among Family with other Directors, Management,
Major Shareholders of the Company or Subsidiaries :** None

Mr. Panchoak Auetanapa

— Senior Vice President -
Utilities

Age: 52 Years
Appointed: 1 January 2024

Education/Training

- Bachelor of Engineering (Electrical Engineering), Chulalongkorn University
- GC X INSEAD Global Leadership Acceleration Program, 2022 (G-LAP) (In-house Program by GC), PTT Global Chemical Public Company Limited
- Extraordinary Leader, 2017, PTT Global Chemical Public Company Limited
- Leadership Development Program (LDP 1/2015 and LDP 2/2017), PTT Global Chemical Public Company Limited
- Subsidiary Governance, Business and Legal Issues for Directors and Executives, Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC) and Director Certification Program (DCP), Class 305/2021, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company -

The Stock Exchange of Thailand : 1

- Senior Vice President - Utilities, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company -

The Stock Exchange of Thailand : 2

- Director, GC Estate Company Limited
- Director, Eastern Fluid Transport Company Limited

Work Experiences (5-year Past Experiences)

- | | |
|--------------------------|-------------------------------------------------------------------------------------------------|
| 1 Jan 2023 - 31 Dec 2023 | Acting Senior Vice President - Utilities, PTT Global Chemical Public Company Limited |
| 1 Jul 2022 - 31 Dec 2022 | Vice President - PS Plant, PTT Global Chemical Public Company Limited |
| 1 Feb 2021 - 30 Jun 2022 | Director and Managing Director, GC Styrenics Company Limited |
| 1 Mar 2019 - 31 Jan 2021 | Vice President - Utilities Technology & Maintenance, PTT Global Chemical Public Company Limited |
| 1 Nov 2017 - 28 Feb 2019 | Vice President - Utilities Support, PTT Global Chemical Public Company Limited |

Shareholding : None

Relation among Family with other Directors, Management,
Major Shareholders of the Company or Subsidiaries : None

Mr. Thitipol Artsanchorn

— Senior Vice President -
Marketing and Sales -
General Application

Age: 53 Years
Appointed: 1 July 2022

Education/Training

- Master of Business Administration (Executive MBA Program), Kasetsart University
- Bachelor Degree in Mechanical Engineering, Kasetsart University
- Leadership Program 2012, Ashridge Business School, U.K.
- Supply Chain Process Optimization 2010, Marcus Evans, Singapore
- Key Account Management - Leadership 2001, Cranfield, Bangkok
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC) and Director Certification Program (DCP), Class 273/2019, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company -

The Stock Exchange of Thailand : 1

- Senior Vice President - Marketing and Sales - General Application, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company -

The Stock Exchange of Thailand : 9

- Chairman, GC Marketing Solutions (Shanghai) Company Limited
- Chairman, PT GCM Marketing Solutions Indonesia
- Chairman, GC Marketing Solutions Myanmar Company Limited
- Chairman, GC Marketing Solutions Vietnam Company Limited
- Chairman, GCM Polymer Trading DMCC
- Director, ENVICCO Limited
- Executive Committee Member, HMC Polymers Company Limited
- Director, PL Global Transport Company Limited
- Director and Managing Director, GC Marketing Solutions Company Limited

Work Experiences (5-year Past Experiences)

- | | |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 31 Oct 2019 - 20 Dec 2023 | Director, GC Logistics Solutions Company Limited |
| 1 Mar 2019 - 30 Jun 2022 | Senior Vice President under Chief Operating Officer - Downstream Petrochemical Business, PTT Global Chemical Public Company Limited |
| 26 Mar 2019 - 28 Sep 2020 | Director, Revolve Group Limited |
| 2 May 2016 - 28 Feb 2019 | General Manager, Pivon Asia Pacific |
| 2 May 2016 - 28 Feb 2019 | General Manager, Pivon Indonesia, Jakarta, Indonesia |

Shareholding : None

Relation among Family with other Directors, Management,
Major Shareholders of the Company or Subsidiaries : None

Miss Kornkamol Korpaisarn

- Senior Vice President – Strategy, Business Development and Commercial Excellence

Age: 48 Years
Appointed: 1 January 2024

Education/Training

- Master of Business Administration (MBA), University of California at Berkeley, U.S.A.
- Bachelor of Business Administration (Finance and Banking) (First-Class Honors and Gold Medal - Ananda Mahidol Scholarship for highest GPA), Thammasat University
- Asia Petrochemical Industry Conference, 2012, Malaysian Petrochemical Association, Malaysia
- The 8th ICIS World Oleochemical Conference, 2011, Australia
- Private Equity Training, Euromoney Training, 2011, U.K.
- Leadership Development Program (LDP 1 and LDP 2), PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness, 2021 (In-house Programs by GC) and Director Certification Program (DCP), Class 255/2018, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Senior Vice President - Strategy, Business Development and Commercial Excellence, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 7

- Chairperson, PTT MCC Biochem Company Limited
- Director, Revolve Group Limited
- Director, GC Marketing Solutions Company Limited
- Director, HMC Polymers Company Limited
- Director, Solution Creation Company Limited
- Director, PTT Asahi Chemical Company Limited
- Director, GC Polyols Company Limited

Work Experiences (5-year Past Experiences)

- | | |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14 Nov 2017 - 31 Dec 2023 | Senior Vice President - Value Added Products Secondment as Managing Director, GC Polyols Company Limited, PTT Global Chemical Public Company Limited |
| 14 Nov 2017 - 31 Dec 2023 | Director and Managing Director, GC Polyols Company Limited |

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Panod Awaiwanond

- Senior Vice President – US Second Home

Age: 55 Years
Appointed: 1 February 2022

Education/Training

- Master of Business Administration (Finance), University of Akron, Ohio, U.S.A.
- Bachelor of Arts (Economic), Southern Illinois University at Carbondale, Illinois, U.S.A.
- Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise, 2022 (In-house Programs by GC), Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Senior Vice President - US Second Home, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 2

- Director, President & CEO, PTTGC America LLC
- Director and Managing Director, PTTGC America Corporation

Work Experiences (5-year Past Experiences)

- | | |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 1 Dec 2019 - 30 Sep 2021 | Vice President under Executive Vice President - International Business Operations, PTT Global Chemical Public Company Limited |
| 1 Jun 2017 - 30 Nov 2019 | Vice President - US Business Development, PTT Global Chemical Public Company Limited |

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Miss Wanlapa Sophiskhuankhant

- Senior Vice President - International Finance and Strategy
- Acting Senior Vice President - Specialty Business

Age: 44 Years
Appointed: 1 January 2024

Education/Training

- Master of Engineering (Chemical Engineering), King Mongkut's University of Technology Thonburi
- Bachelor of Engineering (Chemical Engineering), King Mongkut's Institute of Technology Ladkrabang
- Executive Development Program (EDP), Class 23, Thai Listed Company Association (TLCA)
- CFO Orientation, Strategic CFO and CFO Refresher Program, The Stock Exchange of Thailand
- CFO Certification Program, Federation of Accounting Professions Under The Royal Patronage of His Majesty The King
- Director Certification Program (DCP), Class 270/2019, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company - The Stock Exchange of Thailand : 1

- Senior Vice President - International Finance and Strategy, Acting Senior Vice President - Specialty Business
PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company - The Stock Exchange of Thailand : 2

- Member of the Board of Directors and Executive Committee and Risk & Audit Committee, Emery Oleochemicals UK Limited
- Member of the Governance Board of NatureWorks LLC

Position in Other Organizations/Institutions : 1

- Member of Industrial Advisory Board, Faculty of Engineering, King Mongkut's Institute of Technology Ladkrabang

Work Experiences (5-year Past Experiences)

24 Aug 2015 - 31 Dec 2023	Vice President, Corporate Finance and Accounting, Global Green Chemicals Public Company Limited
2020 - 2022	Director and Managing Director, Thai Fatty Alcohols Company Limited
2018 - 2020	Director, GGC Biochemical Company Limited
2018 - 2020	Director, Thai Eastern Top Seeds Oil Company Limited

Shareholding : None

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None



Executive Vice President / Senior Vice President Appointed as Executives of GC's Subsidiaries

(As of 1 January 2024)

1. Mr. Kridsada Prasertsuko

Executive Vice President –
Value Added Products
Secondment as Managing Director,
Global Green Chemicals Public
Company Limited

2. Mr. Kasem Leewongjaroen

Senior Vice President –
Base and Intermediate Chemicals
Secondment as President,
GC-M PTA Company Limited
and Thai PET Resin Company Limited

3. Mrs. Panida Chinayone

Senior Vice President –
Value Added Products
Secondment as Managing Director,
GC Logistics Solutions Company Limited

4. Mr. Sarawuth Nuntavadeepisarn

Senior Vice President –
Center of Excellence
Secondment as Managing Director,
GC Maintenance and Engineering
Company Limited

5. Mr. Prakart Buttamart

Senior Vice President –
Center of Excellence
Secondment as Managing Director,
NPC Safety and Environmental Service
Company Limited

6. Mr. Theerapol Muenpakdee

Senior Vice President –
Reporting to Chief Executive Officer and President,
Business Process Redesign Project

7. Miss Kamolwan Wongkolkitsilp

Acting Senior Vice President –
Value Added Products
Secondment as Managing Director,
GC Polyols Company Limited

8. Miss Varanyanan Inthathon

Acting Senior Vice President –
Base and Intermediate Chemicals
Secondment as Managing Director,
Thai Tank Terminal Limited

9. Mrs. Rattiya Chandavas

Senior Vice President –
International Business
Secondment as Senior Vice President –
Strategy Office and Special Projects,
allnex Holding GmbH

Profile of The Person Supervising Accounting (Chief Accountant) PTT Global Chemical Public Company Limited

Miss Duanthip Wuttichartkreingkrai

— Acting Vice President –
Financial Accounting 1

Age: 51 Years
Appointed: 1 January 2023

Education/Training

- Bachelor of Accounting, Thammasat University
- Accountants in the Digital 4.0 Era and Financial Information Technology, 2019
- Thai Financial Reporting Standards Workshop for GC Group, 2019
- Taxes from International Payments and the Double Taxation Treaty, 2019
- Highlighted Principles and Issues of Group's Investment Reporting, 2019
- Fintech: Disruptive & Innovation, 2019
- Thai Financial Reporting Standards Workshop, 2020
- Accounting Adjustment and Period Ended Closing in Accordance with TFRS, 2020
- Thai Financial Reporting Standards Workshop, 2021
- Financial statement Analysis, 2021
- Accounting Information System 1, 2022
- TFRS update, 2022
- CFO in Practice Certification Program Class 11/2023

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Vice President, Accounting Policy and Tax Strategy and Acting Vice President, Financial Accounting I, Finance and Accounting, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company– The Stock Exchange of Thailand : None

Work Experiences (5-year Previous Experiences)

- | | |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 Oct 2019 - 31 Dec 2022 | Vice President - Financial Accounting II, Finance and Accounting, PTT Global Chemical Public Company Limited |
| 1 May 2019 - 30 Sep 2019 | Acting Vice President - Financial Accounting II, Finance and Accounting, PTT Global Chemical Public Company Limited |
| 1 Oct 2018 - 30 Apr 2019 | Acting Vice President - Financial Accounting I, Finance and Accounting, PTT Global Chemical Public Company Limited |
| 1 Nov 2015 - 30 Sep 2018 | Division Manager - General Accounting and Consolidation Financial Accounting I, Finance and Accounting, PTT Global Chemical Public Company Limited |

Shareholding : None

Relation among Family with Other Directors, Management,
Major Shareholders of the Company or Subsidiaries : None

Mrs. Ratana Warinpramote

— Acting Vice President –
Financial Accounting 1

Age: 54 Years
Appointed: 1 August 2023

Education/Training

- Master of Business Administration, Kasetsart University
- Bachelor of Accounting, University of the Thai Chamber of Commerce
- Navigating AI Governance and ESG Reporting for the Future
- Embracing the ISSB Standard Connecting Sustainability and Financial Reporting
- CFO Conference 2023: Embracing Changes & Unveiling the Path to Business Resilience and Success
- Anti-corruption for Executive Program: Fraud Risk Management in Practice
- Decarbonization Standards & Governance
- Carbon Credit & Market Mechanism
- Financial Reporting Standards Training for PTTGC Group, 2023

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Acting Vice President, Financial Accounting I, Finance and Accounting, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company– The Stock Exchange of Thailand : None

Work Experiences (5-year Past Experiences)

- | | |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 Nov 2014 - 31 Jul 2023 | Division Manager - Tax Management Financial Accounting I, Finance and Accounting, PTT Global Chemical Public Company Limited |
| 19 Oct 2011 - 31 Oct 2014 | Division Manager - Consolidation Financial Statements Financial Accounting I, Finance and Accounting, PTT Global Chemical Public Company Limited |

Shareholding: None

Relation among Family with other Directors, Management,
Major Shareholders of the Company or Subsidiaries : None

Attachment 2

Details of Directors of Subsidiaries

List of the Board of Directors in Subsidiaries / Associates / Related Companies
(As of 16 February 2024)

No.	Name Surname	GC	Subsidiaries			Associates / Related Companies	
			GGC	GC Inter	GC BV	GPSC	PTT
1	Mr. Predee Daochai	▲					
2	Mr. Thanwa Laohasiriwong	■					
3	Mr. Pakorn Nilprapunt	■					
4	Professor Somkit Lertpaithoon	■					
5	Mr. Grisada Boonrach	■					
6	Lieutenant General Nimit Suwannarat	■					
7	Mr. Somkiat Prajamwong	■					
8	Mr. Patchara Anuntasilpa	■					
9	Mr. Chadil Chavanalikhikorn	■					●
10	Mr. Surachai Achalaboon	■					
11	Police Colonel Dusadee Aryawuit	■					
12	Mr. Petai Mudtham	■					
13	Mr. Noppadol Pinsupa	■				■	●
14	Mr. Cherdchai Boonchoochaui	■					●
15	Mr. Kongkrapan Intarajang	■ ●	▲	▲	▲	■	●

Remarks: ▲ = Chairman ■ = Director ● = Executive

Subsidiaries

GGC = Global Green Chemicals Public Company Limited
GC Inter = PTTGC International Private Limited
GC BV = PTTGC International (Netherlands) B.V.

Associates / Related Companies

GPSC = Global Power Synergy Public Company Limited
PTT = PTT Public Company Limited

List of GC'S Executives in Subsidiaries / Associates / Joint Ventures / Related Companies (As of 16 February 2024)

No.	Name - Surname	GC	Subsidiaries															Associates / Joint Ventures / Related Companies											
			GGC	GCME	NPC	GCTC	GCEC	GCM	GCA Corp	GCA	GCAS	GC Inter	GCI	GC BV	Vencorex	GCV	GCVA	GCP	PTT	GPSC	GCL	PLGT	PTTAC	HMC	TTT	KGC	AVT	EOUK	NatureWorks
1	Mr. Kongkrapan Intarajang	●■	▲								▲		▲						●	■									
2	Mr. Saroj Putthammawong	●	■				▲				■						▲			▲			▲						
3	Mr. Toasaporn Boonyapipat	●																						■					
4	Mr. Pirun Krimwongrut	●		▲				■				■										■							
5	Mr. Narongsak Jivakanun	●						▲	▲	■●		■		▲											■		▲		
6	Miss Pattaralada Sa-ngasang	●			▲			■	■	■				■						■						■		■	

Remarks: ▲ = Chairman ■ = Director ● = Executive

Subsidiaries		Associates / Joint Ventures		Related Companies			
GGC	= Global Green Chemicals Public Company Limited	GCAS	= GC America Sustainability Corporation	GCL	= GC Logistics Solutions Company Limited	PTT	= PTT Public Company Limited
GCME	= GC Maintenance and Engineering Company Limited	GC Inter	= PTGG International Private Limited	PLGT	= PL Global Transport Company Limited	GPSC	= Global Power Synergy Public Company Limited
NPC	= NPC Safety and Environmental Service Company Limited	GCI	= GC International Corporation	PTTAC	= PTT Asahi Chemical Company Limited		
GCTC	= GC Treasury Center Company Limited	GC BV	= PTGG International (Netherlands) B.V.	HMC	= HMC Polymers Company Limited		
GCEC	= GC Estate Company Limited	Vencorex	= Vencorex Holding	TTT	= Thai Tank Terminal Limited		
GCM	= GC Marketing Solutions Company Limited	GCV	= GC Ventures Company Limited	KGC	= Kuraray GC Advanced Materials Company Limited		
GCA Corp	= PTGGC America Corporation	GCVA	= GC Ventures America Corporation	AVT	= AGC Vinythai Public Company Limited		
GCA	= PTGGC America LLC	GCP	= GC Polyols Company Limited	EOUK	= Emery Oleochemicals UK Limited		
				NatureWorks	= NatureWorks LLC		

List of Directors in Subsidiaries wholly 100% owned by GC (As of 16 February 2024)

1. Solution Creation Company Limited

List of Directors		Position
1	Mr. Chaya Chandavas	Chairman
2	Assoc. Prof. Dr. Singh Intrachoto	Director
3	Mr. Pirat Sirikwanchai	Director
4	Miss Kornkamol Korpaisarn	Director
5	Mr. Airin Rattanaiyathikul	Director/ Managing Director

2. GC Maintenance and Engineering Company Limited

List of Directors		Position
1	Mr. Pirun Krimwongrut	Chairman
2	Mr. Toasaporn Boonyapipat	Director
3	Mr. Paisarn Sarapee	Director
4	Mrs. Jeeranee Pimthanothai	Director
5	Mr. Sarawuth Nuntavadeepisarn	Director/ Managing Director

3. NPC Safety and Environmental Service Company Limited

List of Directors		Position
1	Mr. Pirun Krimwongrut	Chairman
2	Mr. Paisarn Sarapee	Director
3	Mr. Ratchada Sawasdirak	Director
4	Mr. Sakesiri Piyavej	Director
5	Mr. Prakart Buttamart	Director/ Managing Director

4. GC Treasury Center Company Limited

List of Directors		Position
1	Miss Pattaralada Sa-ngasang	Chairman
2	Mr. Siridech Kumvongdee	Director
3	Miss Kanoknun Buranapunsi	Director
4	Mr. Chakrid Nondakovit	Director/ Managing Director

5. GC Estate Company Limited

List of Directors		Position
1	Mr. Pirun Krimwongrut	Chairman
2	Mr. Anutin Chuaypen	Director
3	Mr. Panchoak Auetanapa	Director
4	Mr. Rachean Chanthaweekul	Director
5	Mrs. Wacharee Hanwongpaiboon	Director/ Managing Director

6. GC Marketing Solutions Company Limited

List of Directors		Position
1	Mr. Saroj Putthammawong	Chairman
2	Miss Kornkamol Korpaisarn	Director
3	Mr. Thitipol Artsanchorn	Director/ Managing Director

7. PTGC America Corporation

List of Directors		Position
1	Mr. Narongsak Jivakanun	Chairman
2	Mr. Pirun Krimwongrut	Director
3	Miss Pattaralada Sa-ngasang	Director
4	Mrs. Chananchida Wiboonkanarak	Director
5	Mr. Panod Awaiwanond	Director/ Managing Director

8. PTGC International Private Limited

List of Directors		Position
1	Mr. Kongkrapan Intarajang	Chairman
2	Mr. Saroj Putthammawong	Director
3	Miss Pattaralada Sa-ngasang	Director
4	Mrs. Chananchida Wiboonkanarak	Director
5	Mr. Narongsak Jivakanun	Director/ Managing Director

9. GC Ventures Company Limited

List of Directors		Position
1	Mr. Narongsak Jivakanun	Chairman
2	Mrs. Chananchida Wiboonkanarak	Director
3	Mr. Chaya Chandavas	Director
4	Mr. Kamel Ramdani	Director/ Managing Director



Attachment 3

Details of the Heads of the Internal Audit and Compliance Units

Head of Internal Audit and Head of Corporate Compliance

(1) Head of Internal Audit

The Audit Committee Meeting No. 8/2017 convened on September 18, 2017 resolved to approve the appointment of Mr. Amorn Putiphrawan as Senior Vice President – Internal Audit, effective January 1, 2018. As Mr. Amorn Putiphrawan retired in December 2023, the Committee resolved at the Audit Committee Meeting (special meeting) No. 1/2023 convened on September 17, 2023 to appoint Mr. Chatchawalit Dhammasaroj as Senior Vice President – Internal Audit, effective January 1, 2024, to be responsible for evaluating and enhancing internal control effectiveness, supervising the operations of the internal audit function to be in accordance with the objectives and international standards, providing objective and independent consultation on the Company's operations, and reporting directly to the Audit Committee.

Name – Surname : Mr. Amorn Putiphrawan
Senior Vice President – Internal Audit

Age : 60 Years

Appointed : 1 January 2018

Education : Master of Engineering (Chemical Engineering), Chulalongkorn University
 : Bachelor of Science (Fuel Technology), Chulalongkorn University

Training : Leadership Development Program (LDP 1) & (LDP 2),
 PTT Leadership and Learning Institute
 : Subsidiary Governance and Business and Legal Issues for Directors and Executives 2022,
 Director's Legal Liabilities, Ethical Leadership for New Era
 and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC),
 Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company – The Stock Exchange of Thailand : 1

: Senior Vice President - Internal Audit, PTT Global Chemical Public Company Limited

Board Member / Management in Non-Listed Company – The Stock Exchange of Thailand : None

Position in Other Organizations / Institutions : None

Work Experiences (5-year past experiences)

1 Oct 2017 - 31 Dec 2017 Vice President reporting to Chief Executive Officer and President,
 PTT Global Chemical Public Company Limited

16 Jun 2014 - 30 Sep 2017 Vice President - Corporate Risk Management and Internal Control System,
 PTT Global Chemical Public Company Limited

Shareholding : None

**Relation among Family with Other Directors, Management, Major Shareholders of the Company
 or Subsidiaries** : None

Name – Surname : **Mr. Chatchawalit Dhammasaroj**
Senior Vice President – Internal Audit

Age : 56 Years

Appointed : 1 January 2024

Education : Master of Science in Electrical Engineering at Virginia Polytechnic Institute and State University (VPI&SU)

: Master of Business Administration at Chulalongkorn University

: Bachelor of Science in Electrical Engineering at Virginia Polytechnic Institute and State University (VPI&SU)

Training : Advanced Certificate Course in Public Administration and Law for Executives at King Prajadhipok's Institute (Class 14)

: Director Certification Program (DCP) (Class 265) at Thai Institute of Directors (IOD)

: GC X INSEAD Global Leadership Acceleration Program 2022 (G-LAP)
(In-house Programs by GC and INSEAD)

: Leadership Development Program (LDP 1/2016 and LDP 2/2017)
(In-house Programs by GC and Pacrim)

Board member / Management in Listed Company – The Stock Exchange of Thailand : 1

: Senior Vice President - Internal Audit

PTT Global Chemical Public Company Limited

Board member / Management in Non-Listed Company – The Stock Exchange of Thailand : 1

: Director and Treasure, Vibul Aryuravej Foundation

Position in Other Organizations / Institutions : None

Work Experiences (5-years past experiences)

16 Jul 2022 - 31 Dec 2023 Vice President - HR Business Partner
PTT Global Chemical Public Company Limited

1 May 2021 - 15 Jul 2022 Vice President - HR Management
PTT Global Chemical Public Company Limited

16 Apr 2019 - 30 Apr 2021 Vice President - HR Operation and Services
PTT Global Chemical Public Company Limited

1 Jan 2017 - 15 Apr 2019 Vice President - General Administration
PTT Global Chemical Public Company Limited

2 Feb 2016 - 31 Dec 2016 Division Manager - International Business Planning & Relation
PTT Global Chemical Public Company Limited

Shareholding : 100,021 Shares (0.002218%) As of 31 December 2023

Relation among Family with other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

(2) Head of Corporate Compliance

Miss Darawadee Denpaibul has been appointed as Acting Vice President of Corporate Governance, effective February 16, 2024, and Mrs. Rattana Nakasiri, Vice President of Corporate Governance, served as Head of Corporate Compliance from October 15, 2015 to December 31, 2023. The responsibilities include overseeing corporate compliance, promoting corporate governance in business practices, and ensuring that the Executives and employees of GC Group comply with laws, rules, and regulations in countries where GC operates.

Name – Surname : Miss Darawadee Denpaibul
Acting Vice President – Corporate Governance

Age : 49 Years
Appointed : 16 February 2024
Education : Master of Law (LLM.), Case Western Reserve University, School of Law, Cleveland, OH, U.S.A.
 : Bachelor of Law (LLB), Thammasat University, Faculty of Law
Training : Fraud 2023 organized by Federation of Accounting Professions under the Royal Patronage of His Majesty the King
 : Integrated Enterprise Risk Management 2023 organized by PWC Thailand
 : Anti-Corruption for executive program 2023 organized by PTT Global Chemical Public Company Limited
 : Segregation of Duties 2022 organized by PTT Global Chemical Public Company Limited
 : Three Lines Model 2022 organized by PTT Global Chemical Public Company Limited
 : dEXI SPARK- Data Science & Engineering 2021 organized by PTT Global Chemical Public Company Limited
 : Ethical Leadership : Turning Ethics into Action 2021 organized by PTT Global Chemical Public Company Limited
 : GC Compliance for management 2021 organized by PTT Global Chemical Public Company Limited
 : GCMS Lead Assessor, GCMS Assessment, Scoring, and Report, and Writing, and GCMS Principles and Criteria Group 2, 2021 organized by PTT Global Chemical Public Company Limited
 : CG Role Model Focus on Action Group 5, 2019 organized by PTT Global Chemical Public Company Limited
 : Mandatory Compliance 2019 organized by PTT Global Chemical Public Company Limited
 : Roles of Executives vs Internal Control Group 3, 2018 organized by PTT Global Chemical Public Company Limited
 : Management Development Program Group 2, 2014 organized by PTT Global Chemical Public Company Limited
 : HR for Section Heads (4B1L) 2013 organized by DDI: Development Dimensions International
 : Internship in Legal Department 2001, Forest City Enterprise Inc., Cleveland, OH, U.S.A.
 : Passed a training course and examination of lawyer's license in 1998 as set by the Lawyer Council of Thailand under the Royal Patronage

Board Member / Management in Listed Company – The Stock Exchange of Thailand : 1

: Acting Vice President - Corporate Governance,
PTT Global Chemical Public Company Limited

Board Member / Management in Non-Listed Company – The Stock Exchange of Thailand : None

Position in Other Organizations / Institutions : None

Work Experiences (5-year past experiences)

1 Aug 2022 - 15 Feb 2024 Division Manager - Governance Risk and Compliance,
PTT Global Chemical Public Company Limited
 16 Jan 2019 - 31 Jul 2022 Division Manager - Subsidiary Governance and Policy,
PTT Global Chemical Public Company Limited
 1 Jun 2014 -15 Jan 2019 Division Manager - Subsidiary Management,
PTT Global Chemical Public Company Limited

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Name – Surname : **Mrs. Rattana Nakasiri**
Vice President – Corporate Governance

Age : 60 Years

Appointed : 15 October 2015

Education : Master of Business Administration, National Institute of Development Administration
: Bachelor of Economics, Ramkhamhaeng University

Training : PTTGC Group VP: Leadership Development Program (LDP 2) 2015 (by GC)
: Business Simulation for VP: CELEMI Decision Base, KNOWLEDGE CO., LTD
: Corporate Compliance Overview - Executive, Hunton & Williams
: Company Secretary Challenges in Building Trust in the Boardroom Seminar 2022, Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC), Director Certification Program (DCP) Class 290/2020, Ethical Leadership Program (ELP) Class 15/2019, Risk Management Program for Corporate Leaders (RCL) Class 11/2018, IT Governance and Cyber Resilience Program (ITG) Class 8/2018, Company Reporting Program (CRP) Class 17/2017, Roles of Company Secretaries in Corporate Governance Promotion Seminar, IOD Open House 1/2017, Company Secretary Program (CSP) Class 69/2016, Board Reporting Program (BRP) Class 20/2016, Effective Minute Taking (EMT) Class 35/2016, Anti-Corruption: The Practical Guide (ACPG) Class 29/2016, and Corporate Governance for Executive (CGE) Class 7/2016, Thai Institute of Directors Association (IOD)

Board Member / Management in Listed Company – The Stock Exchange of Thailand : 1

: Vice President - Corporate Governance, PTT Global Chemical Public Company Limited

Board Member / Management in Non-Listed Company – The Stock Exchange of Thailand : None

Position in Other Organizations / Institutions : None

Work Experiences (5-year past experiences)

29 Oct 2019 - 1 Oct 2021 Director, GC Estate Company Limited

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Attachment 4

Assets Used in Business Operations and Details of Asset Valuations

Property, Plant, and Equipment

As at December 31, 2023, the net book value of GC's and subsidiaries' operating fixed assets less accumulated depreciation and allowance for impairment was Bath 285,860 million. The total fixed assets shown in the consolidated financial statements are GC's and subsidiaries' owned assets.

(Unit: Million Baht)

No.	Item	Ownership	Book Value	Obligation
			Dec 31, 2023	
1	Land and land improvement	GC and subsidiaries	16,676	45
2	Plant, machinery, equipment, and factory tools	GC and subsidiaries	225,756	7,418
3	Buildings and buildings improvement	GC and subsidiaries	18,862	1,091
4	Furniture, fixtures, and equipment	GC and subsidiaries	1,076	-
5	Vehicles	GC and subsidiaries	90	-
6	Assets under construction	GC and subsidiaries	23,400	-
Total			285,860	8,554

Investment Properties

(Unit: Million Baht)

No.	Item	Ownership	Book Value
			Dec 31, 2023
1	Land	GC and subsidiaries	6,035
2	Buildings and buildings improvement	GC and subsidiaries	37
3	Investment property under construction	GC and subsidiaries	1
Total			6,073

Rights of Use

As at December 31, 2023, GC and its subsidiaries' right-of-use assets less accumulated depreciation and allowance for impairment was Baht 25,475 million in net value, as detailed below.

(Unit: Million Baht)

No.	Item	Ownership	Book Value Dec 31, 2023	Remaining Lease Period (From FA)
1	Land and land improvement	Long-term lease	8,243	1-87 years
2	Plant, machinery, equipment, and factory tools	Long-term lease	15,116	1-17 years
3	Buildings and buildings improvement	Long-term lease	1,260	1-74 years
4	Furniture, fixtures, and equipment	Long-term lease	252	1-5 years
5	Vehicles	Long-term lease	604	1-9 years
Total			25,475	

Details of Significant Rights of Use

Other Land Leasehold Rights

Land Lease Agreements with PTT

1. A land lease agreement for the construction of a jetty and a seaside tank farm for liquid chemicals in Map Ta Phut Sub-district, Rayong, with a term of 22 years and 4 days from December 28, 2014 to December 31, 2037, consisting of:
 - The rental rate of a 8-2-70.90 rai land parcel to which PTT has gained the right through expropriation by the Treasury Department.
 - The rental rate of a 67-2-52.90 rai land parcel owned by PTT.
2. A land lease agreement for a parcel of land of 5 rai, 3 ngan, and 56.73 square wah, with a term of 17 years from January 1, 2021 to December 31, 2037.
3. A land lease agreement for a portion of land in PTT Gas Separation Plant for a power station with a total area of 2 ngan and 50 square wah, with a term of 3 years from 1 January 2022 to 31 December 2024.
4. An agreement for use of assets for the installation of underground wiring in PTT Gas Separation Plant with a total area of 2 ngan and 74.5 square wah with a term of 3 years from 1 January 2022 to 31 December 2024.

Lease Agreement and Service Agreement with Energy Complex Company Limited

555/1 Energy Complex Building A

- A lease agreement for a 14,227 sq.m. office space in Lobby A, on Floors 14-18 in Building A, storage and pantry for a term of 3 years from October 1, 2021, to September 30, 2024, consisting of:
 - (1) 302 sq.m. office space in Lobby A;
 - (2) 13,675 sq.m. office space on Floors 14-18;
 - (3) 135 sq.m. storage space on Floors 14, 16-17;
 - (4) 65 sq.m. storage space on M Floor in Building F; and
 - (5) 50 sq.m. pantry
 As of November 1, 2022, the rental of the 715 sq.m. office space on Floor 15 and the 10 sq.m. pantry on Floor 15 was discontinued.

Lease Agreement with the State Railway of Thailand

An area in the Map Ta Phut train station with a total area of 15,900 square meters with a term of 3 years from 16 June 2022 to 15 June 2025.

Intangible Assets

The intangible assets of GC and its subsidiaries as at December 31, 2023 consist of:

(Unit: Million Baht)

Intangible Asset	Net book value after accumulated amortization and allowance for impairment	Useful Life
Production license fees	4,811	10-35 years
Computer software	3,439	3-20 years
Customer contracts and the related customer relationships	16,091	5-25 years
Right to use others	33,904	10-23 years
Intangible assets under development	779	
Total	59,024	

Details of Significant Intangible Assets

PTT Global Chemical Public Company Limited

Rights to Use Pipe Racks

GC has been granted the right to charge right-of-use fees from users making a request to lay pipes on its pipe racks at the rate specified in the pipe rack agreement. The amount of the right-of-use fee charged to each user will depend on the value of GC's investment and the location where the user is laying pipes.

Electricity Generation Licenses

- (1) GC (Branch 2) was granted a license to operate an electricity generation business with a capacity of over 150 megawatts from the Energy Regulatory Commission.
 - Installed capacity of 357.230 megawatts (capacity expansion of 35.300 megawatts on June 2, 2021)
 - The license is valid for 15 years from December 3, 2009 to December 2, 2024.
- (2) GC (Branch 2) was granted a license to operate an electricity sale business from the Energy Regulatory

Commission. The license is valid for 15 years from October 19, 2011, to December 2, 2024.

- (3) GC (Branch 2) was granted a license to operate an electricity distribution system business from the Energy Regulatory Commission. The license is valid for 15 years from October 19, 2011 to December 2, 2024.
- (4) GC (Branch 6) was granted a license to operate an electricity generation business with an installed capacity of over 10 megawatts but not exceeding 150 megawatts from the Energy Regulatory Commission.
 - Installed capacity of 98.752 megawatts.
 - The first license was valid for 10 years from February 14, 2011 to February 13, 2021.
 - The license was renewed (first renewal) for another five years from February 14, 2021 to February 13, 2026. The renewal was approved on January 27, 2021.
 - Four specific conditions to operate an electricity business were stipulated (specified in the license).

Thai Tank Terminal Company Limited, A Joint Venture Company

Thai Tank Terminal Company Limited (TTT) has been granted a concession from the Industrial Estate Authority of Thailand to manage and operate a liquid product handling and storage business in Map Ta Phut Industrial Estate in Tambon Map Ta Phut, Amphoe Muang, Rayong. On December 9, 2022, TTT entered into a Public Private Partnership (PPP) with the Industrial Estate Authority of Thailand in a public jetty management project for the handling of liquid products in Map Ta Phut Industrial Estate, Rayong for a period of 30 years from the signature date.

BOI Investment Promotion Certificates

GC and its subsidiaries have been granted investment promotion certificates from the Thailand Board of Investment (BOI), which offer tax privileges such as exemption from import duty on machinery and business taxes on imported machinery and equipment as well as exemption from corporate income taxes on net profit derived from business operation from the date on which income is first generated.

The details of the investment promotion certificates that BOI approved and awarded to GC and its subsidiaries and that were in effect as of December 31, 2023 as given below.

No.	Promoted Project	Date of Issuance	Product and Capacity	Expiration of Corporate Income Tax Privilege	Remark
1	Scientific laboratories Certificate No. 2265(4)/Or./2554	October 19, 2011	Provision of scientific laboratory services related to petrochemicals, petroleum, chemicals, polymers, water, and the environment; approximately 60,000 assignments per year.	January 18, 2023	Transferred from PTTCH on October 19, 2011
2	Manufacture of petrochemicals Certificate No. 2266(2)/Or./2554	October 19, 2011	Production of approximately 75,000 tons of butadiene per year, approximately 40,000 tons of butene-1 per year, and approximately 95,000 tons of by-products, namely isobutene, isobutylene, n-Butane, raffinate, C4 acetylene, and C5+.	April 29, 2027	Transferred from PTTCH on October 19, 2011
3	Production of electricity and steam Certificate No. 2267(2)/Or./2554	October 19, 2011	Electricity production capacity of 112.5 megawatts and steam production capacity of 560 tons/hour	February 28, 2025	Transferred from PTTCH on October 19, 2011
4	Manufacture of downstream petrochemicals Certificate No. 1938(2)/Or./2556	July 1, 2013	Production of approximately 16,000 tons of compound plastics	June 3, 2023	Transferred from BPE on July 1, 2013

No.	Promoted Project	Date of Issuance	Product and Capacity	Expiration of Corporate Income Tax Privilege	Remark
5	Manufacture of petrochemicals Certificate No. 1616(2)/2556	May 8, 2013	Production of approximately 137,760 tons of paraxylene per year, approximately 73,800 tons of benzene per year, approximately 46,700 tons of toluene per year, and approximately 21,900 tons of othoxylene per year	December 22, 2028	
6	Manufacture of chemicals Certificate No. 1623(2)/2556	May 10, 2013	Production of approximately 154,176,000 cubic meters of purified hydrogen per year	January 30, 2030	
7	Manufacture of petrochemicals Certificate No. 1715(2)/2557	June 9, 2014	Production of approximately 55,000 tons of hexene-1 per year and approximately 4,000 tons of heavy polymers per year	May 29, 2031	
8	Manufacture of petrochemicals Certificate No. 2215(2)/2557	September 30, 2014	Production of approximately 400,000 tons of polyethylene (PE) per year	January 7, 2031	
9	Manufacture of petrochemicals Certificate No. 60-1300-0-00-1-0	November 20, 2017	Approximately 521,430 tons of ethylene per year Approximately 272,140 tons of propylene per year	March 1, 2034	ORP Project
10	Utilities and basic services Certificate No. 61-1336-0-00-1-0	November 15, 2018	Goods handling and marine vessels; oil and petroleum product handling capacity of approximately 3,000,000 tons per year	13 years after income recognition	Jetty 4 Project
11	Research and development Certificate No. 64-0228-1-00-2-0	March 3, 2021	Pilot research and development for the manufacturing of catalysts for various types of polymerization	8 years after income recognition	
12	Research and development Certificate No. 64-0264-1-00-2-0	March 12, 2021	Pilot research and development for the manufacturing of polyethylene products	8 years after income recognition	
13	Manufacture of petrochemicals Certificate No. 64-1078-1-04-1-0	October 14, 2021	Energy efficiency improvement. Production of ethylene, propylene, mixed C4 and pyrolysis gas products	3 years after income recognition	OMP

No.	Promoted Project	Date of Issuance	Product and Capacity	Expiration of Corporate Income Tax Privilege	Remark
14	Manufacture of other chemicals Certificate No. 65-1158-0-00-0-2	September 14, 2022	Production of approximately 60,000 tons of purified ethylene oxide per year	December 4, 2028	Previous certificate No. 2384(2)/Or./2557 dated October 31, 2014, transferred from GC Glycol
15	Manufacture of petrochemicals Certificate No. 65-1159-0-00-0-2	September 14, 2022	Approximately 3,100 tons of TEG per year Approximately 1,600 tons of by-products, namely PEG, per year	October 21, 2030	New TEG Project Previous certificate No. 61-0448-1-18-1-0 dated April 23, 2018, transferred from GC Glycol
16	Manufacture of petrochemicals Certificate No. 65-1154-1-04-1-2	September 14, 2022	Energy efficiency improvement Production of approximately 88,500 tons of polystyrene per year (Operating 24 hours/day: 333 days/year)	3 years after income recognition	Previous certificate No. 65-0327-1-04-1-0, dated March 23, 2022, transferred from GC Styrenics
17	Manufacture of petrochemicals Certificate No. 65-1250-1-05-1-0	October 6, 2022	Machinery adjustment for partial production efficiency improvement. Production of approximately 149,110 tons of propylene per year (Operating 24 hours/day: 360 days/year)	3 years after income recognition	OIP
18	Manufacture of petrochemicals Certificate No. 66-0314-0-00-0-2	March 9, 2023	Production of approximately 179,580 tons of bisphenol-A (BPA) per year and by-products, consisting approximately 7,008 tons of TAR per year and approximately 350 tons of purge light oil per year	January 7, 2024	Previous certificate No. 1609(2)/2551, dated June 16, 2008, transferred from PPCL

No.	Promoted Project	Date of Issuance	Product and Capacity	Expiration of Corporate Income Tax Privilege	Remark
19	Manufacture of petrochemicals Certificate No. 66-0315-0-00-1-2	March 9, 2023	Production of approximately 301,125 tons of phenol per year, approximately 186,700 tons of acetone per year, and by-products, consisting of approximately 2,285 tons of benzene & dips drag per year, approximately 2,520 tons of aromatics per year, approximately 13,190 tons of heavy residue per year, and approximately 11,620 tons of alpha-methylstyrene (AMS) per year.	April 24, 2029	Previous certificate No. 1126(2)/2556, dated January 30, 2023, transferred from PPCL
20	Manufacture of petrochemicals Certificate No. 66-0316-0-00-1-2	March 9, 2023	Production of approximately 76,650 tons of epoxy resin per year	13 years after income recognition	Previous certificate No. 61-0709-0-00-1-0, dated June 20, 2018, transferred from PPCL
21	Manufacture of petrochemicals Certificate No. 66-0124-0-00-1-2	January 24, 2023	Approximately 228,000 tons of propylene oxide per year By-products consist of: Approximately 3,420 tons of fuel gas per year Approximately 33,288 tons of fuel oil per year	November 13, 2033	Previous certificate No. 60-0769-0-00-1-0, dated July 13, 2017, transferred from GCO
Vencorex					
22	Manufacture of chemical products for industries Certificate No. 1403(2)/2557	March 28, 2014	Production of approximately 18,000 tons of hexamethylene diisocyanate derivatives (HDI Derivatives) per year	April 6, 2029	
GC Polyols					
23	Manufacture of petrochemicals Certificate No. 60-0770-0-00-1-0	July 13, 2017	Approximately 198,000 tons of polyols per year, consisting of polyether polyols (PPG), polymer polyols (POP), and formulated polyols (PREMIX)	September 28, 2033	
ENVICCO					
24	Manufacture of recycled plastic: rPET (FOOD GRADE) and rHDPE Certificate No. 63-1102-1-00-1-0	June 17, 2020	Production of approximately 35,040 tons of rPET (FOOD GRADE) per year, approximately 16,650 tons of rHDPE, and by-products, consisting of metal scraps, plastic scraps (excluding PET and HDPE), and scraps and waste from manufacturing	13 years after income recognition	

Attachment 5


GC Policy and Practices of Corporate Governance and Business Code of Conduct

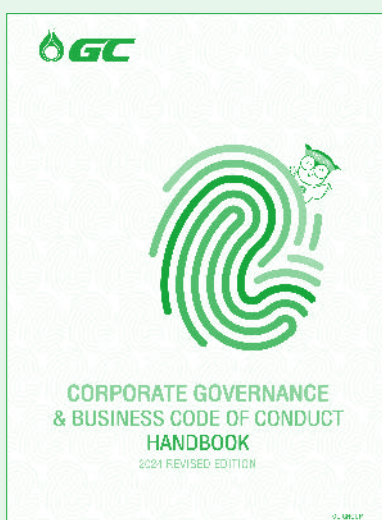
PTT Global Chemical Public Company Limited operates its business responsibly, transparently, accountably, fairly, ethically and with due regard to all of its stakeholders by adhering to the principles of good corporate governance. The Company recognizes that its adherence to the principles of good corporate governance will contribute to the operational and management efficiency of the GC Group. The Company also bolsters its credibility and fosters sustainable growth, not only for the Company itself but also for the society and the nation as a whole in order to achieve its vision “To Be a Leading Chemical Company for Better Living”.

In order to accomplish such goal, the Board of Directors has integrated the Corporate Governance Policy into the Company’s Business Operations Policy and has made the Corporate Governance and Business Code of Conduct Handbook. This handbook has been distributed throughout the Company since its establishment in order for directors, executives and employees to adhere to code of conduct and all policies when performing their duties.

To express intention to develop and improve our good corporate governance to be rated “Excellence” in accordance with international standard, the Company has reviewed and revised the handbook so as to keep them up-to-date, and to keep them abreast of any changes. This handbook must also be in line with business strategies and corporate governance principles, both domestically and internationally and related regulations. This handbook has been comprehensively and directions communicated to all Directors, Executives and Employees, who have acknowledged and understood it entirely, and are expected to stringently implement the handbook as a guideline for executing their duties. They are also required to inform individuals involved in GC Group’s businesses, namely suppliers, customers and joint-business partners, both local and overseas, of the Corporate Governance and Business Code of Conduct Handbook in order for all concerned parties to understand and comply with these important practices.

In this regard, the full details of the Company’s policies and practices from the Corporate Governance and Business Code of Conduct Handbook can be found on the GC website:

 <https://www.pttggroup.com/en/corporate-governance/corporate-governance/handbook/corporate-governance-and-business-code-of-conduct-handbook>





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