

The background of the cover is a vibrant blue with a subtle geometric pattern. A large, detailed illustration in white and light blue depicts a sustainable future. On the left, a modern city skyline with various skyscrapers is shown. In the center, there are solar panels and two wind turbines. To the right, a large, leafy tree stands prominently. In the foreground, silhouettes of people are shown: a family of four (two adults and two children) walking, a person riding a bicycle, and a person running. The entire scene is set against a backdrop of a bright sun or moon with rays emanating from it.

# SMART ENERGY

FOR

# EVOLVING LIFE

Sustainability Award  
Bronze Class 2022

S&P Global





### **Vision:**

The global leading innovative and sustainable power company



### **Aspiration:**

To be top 3 power company in Southeast Asia with more than half of MW from green portfolio



### **Mission:**

To be a PTT GROUP power and smart energy flagship that innovatively pursue operational excellence to create value for stakeholders by delivering reliable products to customers with responsibility to the planet





## The power and smart energy flagship of PTT Group.

We are the global leading innovative power company. Our core business is to generate and supply electricity and utilities to customers. We also expand into the new S-Curve business to create value for stakeholders by pursuing our **"4S Strategy"** for long-term value creation, innovation, sustainable energy, and sustainability for all.





## 4S CORPORATE STRATEGY



### STRENGTHEN AND EXPAND THE CORE

emphasises on strengthening the company's core businesses through best-in-class production that satisfies customers' requirement and also on expanding to other related businesses



### SCALE-UP GREEN ENERGY

increase generation capacity by scaling up solar and wind energy as well as an integration of energy storage system with renewable energy





## S-CURVE AND BATTERIES

continuously developing energy innovation and businesses of the future including an energy storage system and batteries for electric vehicles, as well as creating an added-value chain with new s-curves.



## SHIFT TO CUSTOMER-CENTRIC SOLUTIONS

providing solutions for customers' various needs including power and utility generation and comprehensive energy management service by using energy innovations and smart data platform to ensure of achieving optimal energy efficiency

# ROADMAP TO NET ZERO EMISSIONS

## 4 KEY ACTION PLANS

REDUCE FOSSIL  
USAGE



GROW  
RENEWABLES



ENHANCE  
INFRASTRUCTURE



TRADING/OFFSET  
ACTIVITY



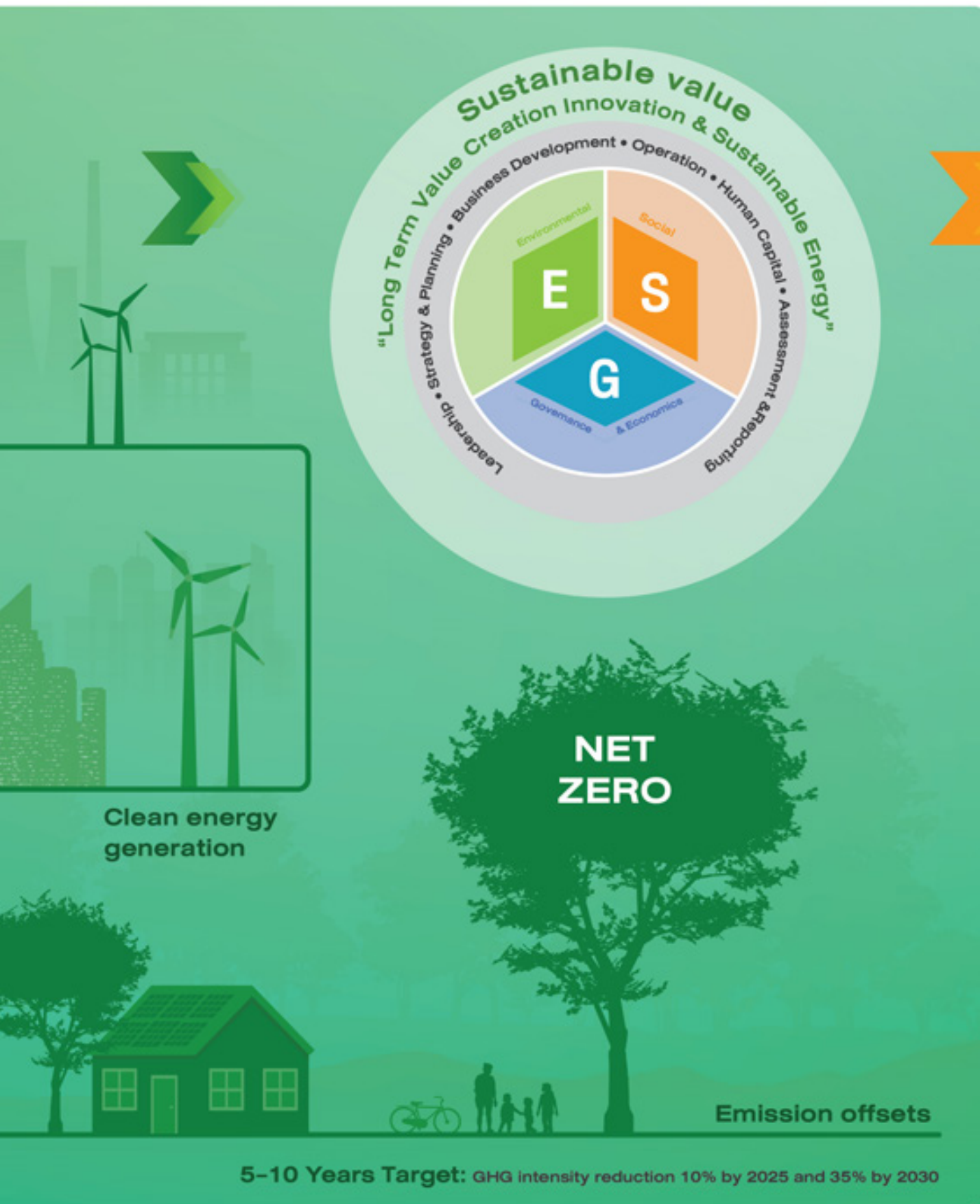
## TARGET

Net Zero Missions



Efficiency











## MESSAGE FROM THE CHAIRMAN & PRESIDENT AND CEO





**Dear Shareholders,**

Another challenging year has passed for Global Power Synergy Plc (GPSC) amid the ongoing Covid-19 pandemic and Thailand's overall energy situation, which saw GPSC maintain its financial and operating strengths while forging ahead with sustainable business. We steered our investment direction to sustain energy transformation as well as supporting consumption of clean energy-based electricity to lead us to Net Zero Emission under COP26, which had been agreed by countries around the world. Below are the highlights of our performance.

Our overall operations netted a profit of THB 7,319 million, a 3% decrease from the year before, mainly due to the dramatic surge in the average price of coal, notably in the latter half of the year. This year we conducted a power plant turnaround (planned and unplanned), thus reducing our IPP availability and SPP margins. Yet, we booked a great deal more profit from the Xayaburi Hydro Power Plant than last year, when the plant faced severe drought, as well as booking partial revenue from the insurance compensation of the Glow Energy Phase 5 Power Plant. We also booked over THB 1,633 million in synergy value resulting from the merger with Glow Energy PLC by this year.

Concerning driving business for sustainability, we relentlessly pursued growth opportunities by adding power capacities from renewables—expected to be a turning point for energy development—through our wholly-owned Global Renewable Synergy Co., Ltd. (GRSC). GRSC agreed to invest 41.6% in Avaada Energy Private Limited (Avaada) on the development of a solar farm in India, whose year-end capacity reached 4,608 MW. This plant has some 2,205 MW already under COD, with about 2,403 MW under construction; CODs will be gradually added in 2022-2023. In addition, GRSC has engaged in an agreement to trade shares with the CI-II and CI-III funds under the management of Copenhagen Infrastructure Partners (CIP) to invest 25% in the Changfang and Xidao (CFXD) projects. These are wind power projects derived from offshore wind in Taiwan with a total capacity of 595 MW, with CODs coming in stages in 2022-2024. The net result is that we will command 2,635 MW of extra renewables capacity, or about 37% of our combined capacity of 7,122 MW. We still maintained our focus on the development of energy technology innovations, as seen in the July 19, 2021, launch of Southeast Asia's maiden SemiSolid energy storage system plant with an initial capacity of 30 MW-hour/year in Map Ta Phut Industrial Estate, Rayong. To elaborate, this 24M Technology-based

G-Cell battery manufacturing commands safety and environmental friendliness and stores energy derived from renewables for added power distribution efficiency around the clock, while accommodating the EV industry, which forms part of GPSC's support to the public policy of driving Thailand toward Net Zero Emission, promoting the EV industry, and narrowing the long-term gap of renewable energy systems. We have finetuned our strategies in line with the National Energy Plan that pursues clean energy to ease climate change impacts, with a target to become a top-three world-class company for energy innovation for sustainability, with over 50% proportion in clean energy supply.

As far as our CSR was concerned, GPSC has helped those suffering from the Covid-19 outbreaks and pandemic since November 2019, grouping activities into four forms. First, cash donation to aid patients. Second, donation of medical apparatus and needed items. Third, support through innovations to aid and ease the spread of the deadly disease. Fourth, rehabilitation projects or activities for those affected. In addition, in conjunction with PTT Group, we mobilized the SMART Farming Project under the group's project on innovation for smiles covering two areas: Ban Suan Ton Nam, Amphoe Khao Chamao, Rayong, and Ban Huai Khap, Amphoe Bo Kluea, Nana.



The idea was to apply PTT Group's innovation and technology to upgrade their planting processes and development of agricultural productivity, thus adding income to communities bearing the economic brunt. One of our other ongoing projects was the Light for a Better Life Project, whereby solar systems were installed in remote areas. This year the project's total installed capacity rose from 181.98 KW to 240.27 KW against the target of 1,000 KW of renewables access by communities by 2026. The GPSC Young Social Innovator 2021 (YSI) Project (Season 4) encouraged youths to apply their social innovation creativity with a focus on extending development to practical work and optimize results for communities and society. Participating youths made a name for Thailand by winning a gold medal at the International British Innovation, Invention, and Technology Expo (IBIX2021).

As for good governance, GPSC underwent assessment of Thai listed companies this year, rated "Excellent" for a sixth consecutive year. We also successfully renewed our CAC membership, illustrating our caliber for corporate governance all these years.

In view of our remarkable successes this year, we have garnered acceptance as well as recognition worldwide, including the international 11<sup>th</sup> Asian Excellence Awards 2021 (Asia's Best CEO, Best CFO, Best CSR, and Best Investor Relations for a second year); Rising Star Sustainability Award; and Sustainability Excellence Awards at the SET Awards 2021 event. GPSC was also named among Thailand Sustainability Investment (THSI) stocks this year for a fourth consecutive year.

Our commitment in 2022 will still be on developing green innovations while recognizing the value of earnest environmental, social, and governance (ESG) management in support of greenhouse gas reduction, underlying our stride toward Net Zero emission, which aligns with Thailand's and the United Nations' SDGs for developing power systems to deliver clean energy to communities and society, in turn leading to a better quality of life for sustainable economic growth.

The Board, management, and all employees do appreciate all shareholders' consistent trust and support all these years. Please rest assured that all of us will join hands in improving GPSC and achieve our goals.



**Mr. Pailin Chuchottaworn**

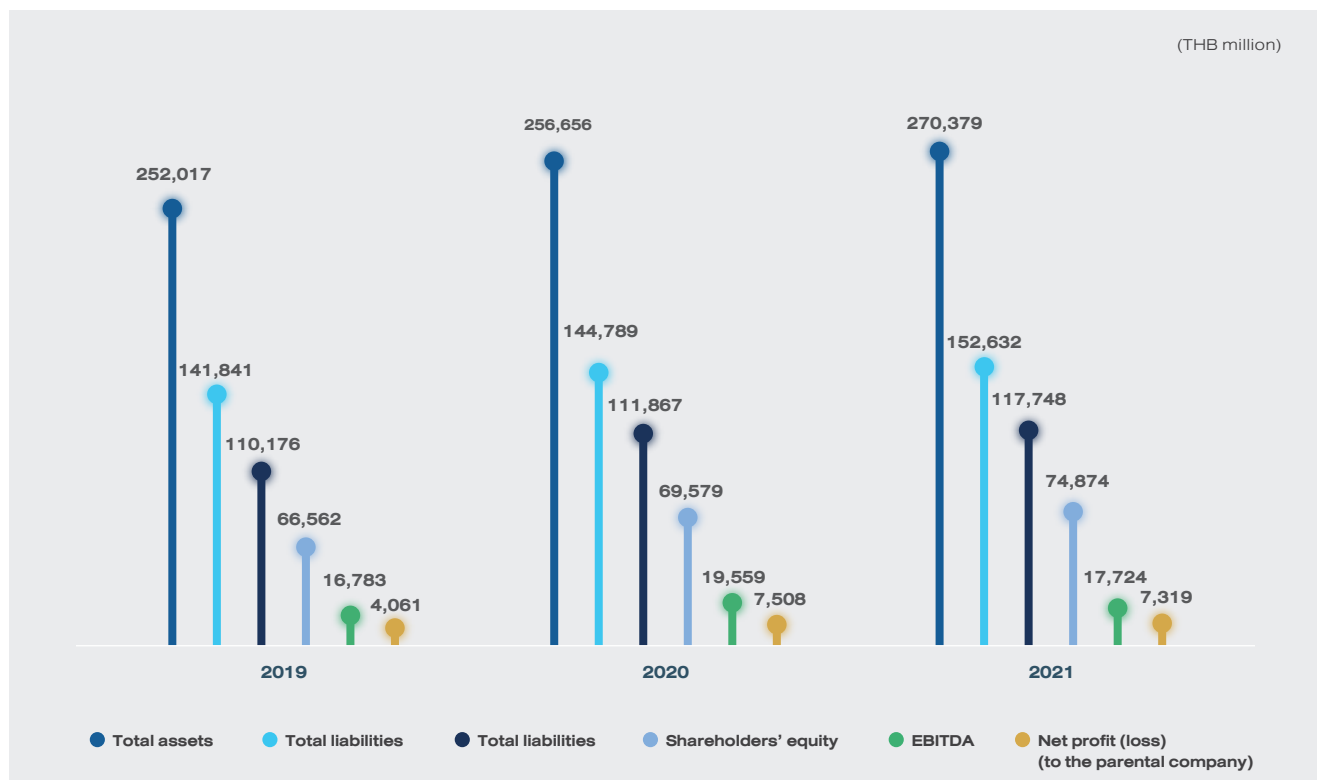
Chairman



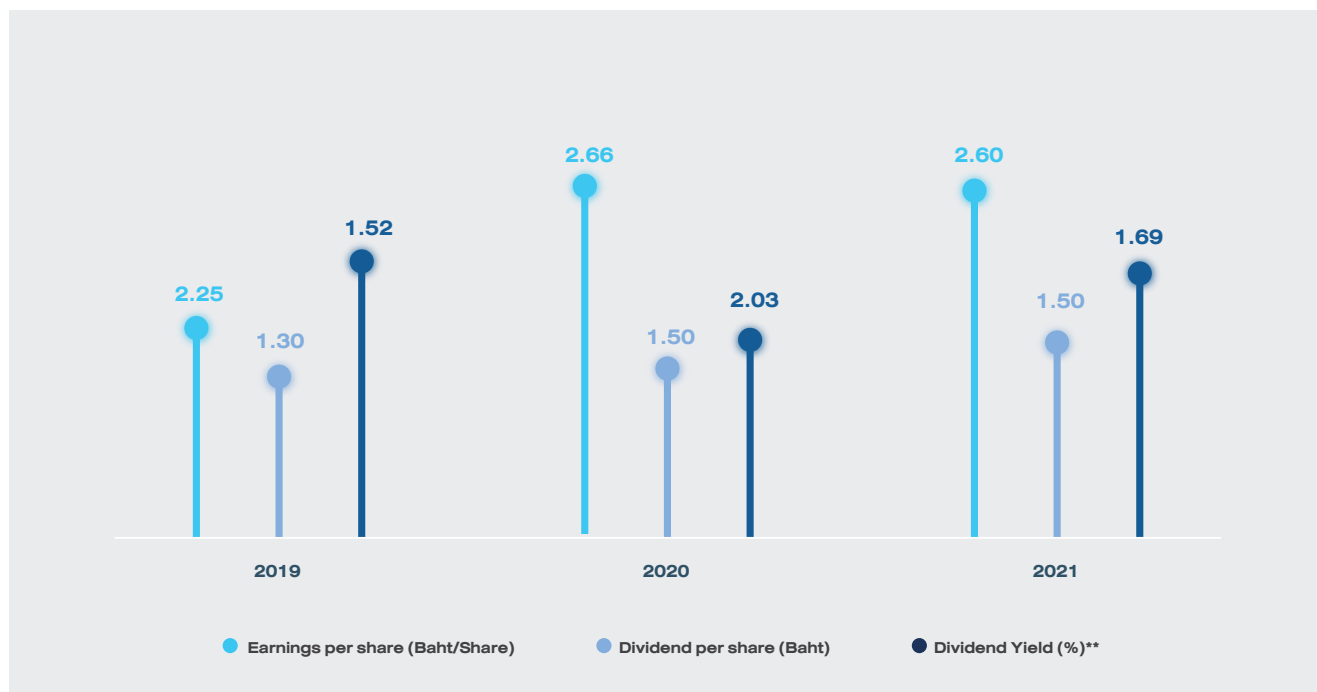
**Mr. Worawat Pitayasiri**

President & CEO

## OPERATIONAL HIGHLIGHT



Remark : \* Total revenue, including revenue from sales, services and financial lease



Remark : \* Dividend payment from the 2021 operating results is divided into interim dividend for the first half of 2021 at THB 0.50 per share which was paid to shareholders. The remaining dividend for the second half operating results for 2021 will be paid at THB 1.00 per share. However, the right to receive dividend payment is subject to the approval of the 2022 Annual General Meeting of Shareholders.

\*\* Calculated from GPSC's closing share price on period end



## FINANCIAL RATIOS

FINANCIAL RATIOS	2019	2020	2021
EBITDA to Revenue from Sale (%)	25.21	28.11	23.67
Interest Coverage Ratio (times)	1.86	2.78	2.36
Net Debt to Equity Ratio (times)	0.78	0.75	0.78
Return on Equity (%)	5.76	7.37	6.93
Return on Assets (%)	3.79	3.34	2.97

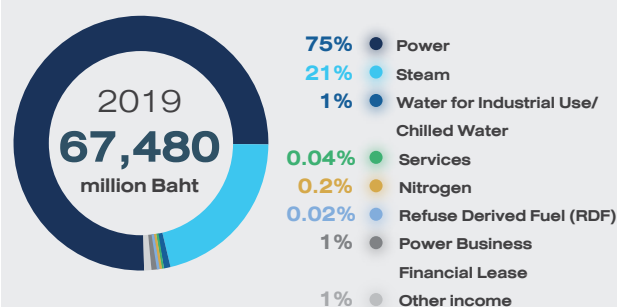
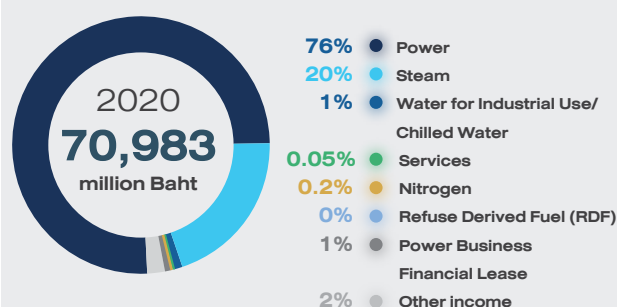
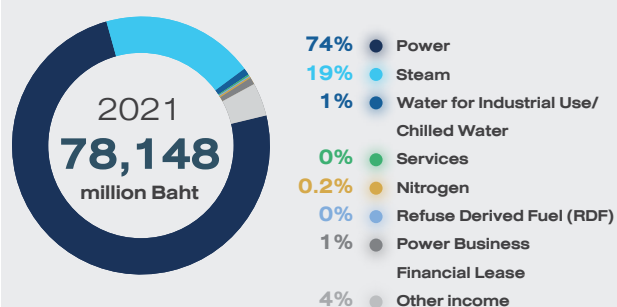
### PRODUCTS

	2019	2020	2021
 <b>POWER</b> (Gigawatt-hour, GWh)	17,566	19,684	<b>20,132</b>
 <b>STEAM</b> (kiloton)	12,821	13,871	<b>15,090</b>
 <b>CHILLED WATER</b> (kilo-refrigeration ton)	29,343	27,847	<b>25,228</b>
 <b>WATER FOR INDUSTRIAL USE</b> (million cubic meter)	14	15	<b>15</b>
 <b>REFUSE DERIVED FUEL</b> (ton)	13,707	18,500	<b>0*</b>

Remark:

\* No sale volume for refuse derived fuel due to feed as fuel to RDF Power Plant

### TOTAL INCOME



# AWARDS OF ACHIEVEMENTS 2021

## Sustainable Development



## Organization of Excellence



## Sustainable Development

- Sustainable Disclosure Award  
By: Thaipat Institute
- The Sustainability Yearbook 2021  
By: S&P Global
- Asia's Best Integrated Report (First Time) – Silver Class and Asia's Best Materiality Reporting – Bronze Class  
By: CSR Works International Pte Ltd.
- Rising Star Sustainability Awards in the Sustainability Excellence Category  
By: The Stock Exchange of Thailand and Money & Banking Magazine
- Thailand Sustainability Investment (THSI)  
By: The Stock Exchange of Thailand and Money & Banking Magazine
- ESG 100  
By: Thaipat Institute
- Excellence Award in the Low Carbon and Sustainable Business Index (LCSi) Project  
By: Thailand Greenhouse Gas Management Organization (Public Organization)

## Organization of Excellence

- Best Investor Relations Company  
By: Corporate Governance Asia
- Asia's Best CEO  
By: Corporate Governance Asia

- Asia's Best CFO  
By: Corporate Governance Asia
- International Business Magazine Award 2021 in the Most Innovative Sustainable Company and Best IR Company Categories  
By: International Business Magazine
- Awards from the Zero Accident Campaign
  - Glow IPP Co., Ltd. – Silver (4<sup>th</sup> consecutive year)
  - Glow SPP 11 Co., Ltd. – Bronze (4<sup>th</sup> consecutive year)
  - Glow Energy Plc. Phase 2 – Bronze (4<sup>th</sup> consecutive year)
  - GHECO-One Co., Ltd. – Bronze (2<sup>nd</sup> consecutive year)
- Best Model Establishment Award for Occupational Safety and Health
  - Glow SPP 11 Co., Ltd. – Diamond (9<sup>th</sup> consecutive year)
  - Glow IPP Co., Ltd. – Platinum (13<sup>th</sup> consecutive year)
- Finalist at the 23<sup>rd</sup> S&P Global Platts: Global Energy Awards  
By: S&P Global Platts

## Good Corporate Governance

- Certificate of Membership of the Thai Private Sector Collective Action Against Corruption  
By: The Thai Private Sector Collective Action Against Corruption Council
- The Corporate Governance Report (CGR) rating of "Excellent" (5 stars)  
By: The Thai Institute of Directors



## Good Corporate Governance



## Value Creation for Stakeholders



### Value Creation for Stakeholders

- Eco Factory – Glow Energy Plc Phase 2 and Glow Solar  
By: Water and Environment Institute for Sustainability, the Federation of Thai Industries
- Green Industry Level 3 – Glow IPP Co., Ltd.  
By: The Ministry of Industry
- Green Industry Level 4 – Central Utility Plants 1, 2, 3 and Sriracha Power Plant  
By: The Ministry of Industry
- Low Emission Support Scheme (LESS) Award
  - Central Utility Plants 1, 2, 3 and Sriracha Power Plant
  - GHECO-One Co., Ltd.
  - Glow IPP Co., Ltd.
  - Glow Energy Plc. Phase 2
  - Glow SPP 2 Co., Ltd.
  - Glow SPP 3 Co., Ltd.
  - Glow SPP 11 Co., Ltd.
 By: Thailand Greenhouse Gas Management Organization (Public Organization)
- Carbon Footprint (CF) Organization Labels
  - Central Utility Plants 1, 2, 3 and Sriracha Power Plant
  - Glow Energy Plc. Phases 1, 2, 4, 5, CFB3, Glow SPP 2/ Glow SPP 3
 By: Thailand Greenhouse Gas Management Organization (Public Organization)
- Carbon Footprint (CF) Product Labels (1 cu.m of demineralized water/1 cu.m of industrial water/1 MWh of electricity/1 GJ of steam) – Central Utility Plants 1, 2, 3  
By: Thailand Greenhouse Gas Management Organization (Public Organization)
- Carbon Footprint Reduction Labels (1 MWh of electricity/ 1 GJ of steam/1 cu.m of demineralized water) – Central Utility Plants 1, 2, 3  
By: Thailand Greenhouse Gas Management Organization (Public Organization)
- Water Footprint Labels (1 cu.m of demineralized water/1 cu.m of industrial water/1 MWh of electricity/1 GJ of steam) – Central Utility Plants 1, 2, 3  
By: Water and Environment Institute for Sustainability, the Federation of Thai Industries
- Thailand Voluntary Emission Reduction Program: T-VER – Central Utility Plants 2, 3, 4  
By: Thailand Greenhouse Gas Management Organization (Public Organization)
- Green for Life Labels (1 MWh of electricity/1 GJ of steam/ 1 cu.m of demineralized water) – Central Utility Plants 2, 3, 4  
By: PTT Public Company Limited
- Asia's Best CSR  
By: Corporate Governance Asia
- Workation Thailand – Gold Certificate  
By: The Ministry of Tourism and Sports

# BUSINESS AND OPERATION RESULTS





# 1. Business and Operation Results

## Structure and Operations of Global Power Synergy Plc (GPSC Group)

GPSC engages primarily in the production and distribution of electricity, steam, industrial water, and public utilities. As of December 31, 2021, its committed equity capacities were 7,122 megawatts (MW) of power generation, 2,946 tons per hour of steam, 7,372 cubic meters per hour of industrial water, and 15,400 refrigerated tons of chilled water, as detailed below:

Product <sup>(1)</sup> As of December 31, 2021	Total Capacity <sup>(2)</sup>	
	Total	Commercial Operation
Electricity (MW)	7,122	5,703
Steam (T/h)	2,946	2,771
Industrial Water (cu.m/h)	7,372	7,372
Chilled Water (RT)	15,400	15,400

Remarks:








<sup>(1)</sup> Units of power in megawatts (MW), steam in tons per hour (T/h), industrial water in cubic meters per hour (cu.m./h), and chilled water in refrigerated tons (RT).

<sup>(2)</sup> Production capacity per shareholding as of December 2021, which included the following approved projects: 1) Energy Recovery Unit Co., Ltd. (ERU), which expected to take transfer of ownership in the third quarter of 2023, 2) Changfang and Xidao offshore wind project in Taiwan, where compliance with enforced terms is expected before share transfer by 2022.



## BUSINESS OVERVIEW



-  **1 Xayaburi, Lao PDR**  
Xayaburi Power Company Limited (XPCL)
-  **2 Vientienne, Lao PDR**  
Nam Lik 1 Power Company Limited (NL1PC)
-  **3 Houay Ho, Lao PDR**  
Houay Ho Power Company Limited (HHPC)
-  **4 Suphan Buri**  
Siam Solar Energy 1 Company Limited (SSE1)  
N.P.S. Stargroup Company Limited (NPS2)
-  **5 Kanchanaburi**  
Siam Solar Energy 1 Company Limited (SSE1)
-  **6 Ayutthaya**  
Bang Pa-In Cogeneration Company Limited (BIC-1, BIC-2)
-  **7 Ratchaburi**  
Ratchaburi Power Company Limited (RPCL)

-  **8 Pathum Thani**  
Nava Nakorn Electricity Generating Company Limited (NNEG)
-  **9 Bangkok**  
Combined Heat and Power Producing Company Limited (CHPP)
-  **10 Sara Buri**  
Glow Energy Solar PV Rooftop (Phase 1)
-  **11 Chanthaburi**  
Combined Heat and Power Producing Company Limited (Solar1)
-  **12 Chon Buri**  
Sriracha Power Plant  
Glow IPP Power Plant  
Chonburi Clean Energy Company Limited  
Electricity Generating Unit ERU (SCOD: 2023)\*
-  **13 Phichit**  
N.P.S. Stargroup Company Limited (NPS1)  
World X Change Asia Company Limited (WXA1, WXA2, WXA3)



#### 14 Lop Buri













N.P.S. Stargroup Company Limited (NPS3)



#### 15 Khon Kaen

P.P. Solar Company Limited (PPS1, PPS2, PPS3)

#### 16 Rayong

-  Rayong Central Utility Plant (CUP-1, 2, 3 & 4)
-  IRPC Clean Power Company Limited (IRPC-CP)
-  Refuse-Derived Fuel Power Plant (RDF)
-  Refuse-Derived Fuel (RDF) Power Plant
-  GHECO-One Power Plant
-  Glow Power Steam and Water Generating Unit Phase 1
-  Glow Energy Phase 2 Power Plant\*\*
-  Glow Energy Phase 4 Power Plant
-  Glow Energy Phase 5 Power Plant
-  Glow SPP2 / Glow SPP3 Power Plant (Phase 3)\*\*
-  Glow Energy CFB3 Power Plant
-  Glow SPP 11 Phase 1 & Phase 3 Power Plant
-  Glow SPP 11 Phase 2 Power Plant
-  Glow Energy Solar Power Plant
-  Glow Energy Solar PV Rooftop (Phase 2)
-  SemiSolid Battery Energy Storage Unit Production Plant



#### 17 USA

24M Technologies, Inc (24M)



#### 18 Japan

Ichinoseki Solar Power 1GK (ISP1)



#### 19 Taiwan

Sheng Yang Energy Company Limited (SYE)  
CFXD (Offshore wind farm)\*  
(Expecting to transfer the shares within 2022)



#### 20 India

Avaada Energy Private limited (AEPL)\*  
(Solar Power Platform: COD 2018-2023)



#### 21 China (ENERGY STORAGE)

Anhui Axxiva New Energy  
Technology Co., Ltd. (AXXIVA)\*  
(Start of Production (SOP): 2023)

\* under construction

\*\* SPP Replacement project



Details of other investment and joint ventures in the power and other businesses of GPSC appear below:

1) GPSC operated natural gas-fired and other energy power plants are already commercially generating and distributing electricity and/or other utilities such as steam, industrial water:

- Natural gas-fired power plants:
  - Sriracha combined-cycle power plant, located in Si Racha district, Chon Buri province
  - Co-generation power plants: Central Utility Plants (CUP-1-4), located in WHA Eastern Industrial Estate (Map Ta Phut), R.I.L. Industrial Estate, and Asia Industrial Estate, Rayong province.
- Other energy forms:
  - Rayong Waste-to-Energy (WTE) plant, located in Rayong province, consisting of two projects:
    1. Refuse-Derived Fuel (RDF), producing 300 tons of RDF per day, construction completed since 2018
    2. Refused-Derived Fuel power plant with a capacity of 9.8 megawatts, fired by RDF; with a Power Purchase Agreement (PPA) with the Provincial Electricity Authority (PEA); commercial operation beginning on May 28, 2021

2) GPSC holds 99.83% shares in Glow Energy Public Company Limited, which engages in power, steam and utilities generation and distribution from other energy forms as detailed below:

- Gas-fired and coal-fired power plants:
  - Glow IPP, located in WHA Chonburi Industrial Estate 1
  - GHECO-One, located in Map Ta Phut Industrial Estate
  - Glow Energy Phase 1 and 2, located in Map Ta Phut Industrial Estate

- Glow Energy Phase 4, located in Map Ta Phut Industrial Estate
- Glow Energy Phase 5, located in Map Ta Phut Industrial Estate
- Glow Energy CFB 3, located in Map Ta Phut Industrial Estate
- Glow SPP2/Glow SPP3, located in Map Ta Phut Industrial Estate
- Glow SPP 11 Phase 1, located in Siam Eastern Industrial Park
- Glow SPP 11 Phase 2, located in Siam Eastern Industrial Park
- Glow SPP 11 Phase 3, located in Siam Eastern Industrial Park
- Renewable energy (renewables) and other energy-based power plants:
  - Glow Energy Solar, located in Asia Industrial Estate
  - Glow Energy Solar, under a private PPA
  - Houay Ho power plant, located in Attapeu province, Lao PDR
  - Chonburi Clean Energy, industrial waste-fired, located in WHA Chonburi Industrial Estate 1

3) GPSC wholly owns Global Renewable Synergy Company Limited (GRSC), which engages in power generation and distribution from renewable energy, consisting of:

- Avaada Energy Private Limited (AEPL), in which GRSC holds 41.6%. AEPL operates a solar power plant to distribute power to industrial customers and India's government agencies. As of December 31, 2021, AEPL had a total committed capacity of 4,608 MW, including commercial operation of 2,205 MW and 2,403 MW under construction, with a target of 11,000 MW in 2025.

4) GPSC holds 50% shares in Global Renewable Power Company Limited (GRP), which engages in renewable power generation and distribution, consisting of:



- N.P.S. Stargroup Company Limited (NPS), wholly owned by GRP, operating a ground-mounted solar farm with a total capacity of 18 MW.
- World X Change Asia Company Limited (WXA), wholly owned by GRP, operating a ground-mounted solar farm with a total capacity of 17.9 MW.
- P.P. Solar Company Limited (PPS), wholly owned by GRP, operating a ground-mounted solar farm with a total capacity of 3.6 MW.
- Global Renewable Power Operating Company Limited (GRPO), wholly owned by GRP, engaging in operation and maintenance of solar farms.
- Global Renewable Power One Company Limited (GRP1), wholly owned by GRP, as an investment arm in renewable energy in Taiwan. Today, GRP1 holds 90% shares in Sheng Yang Energy Company Limited, which engages in a solar power plant with a total capacity of 55.8 MW.
- Renewable energy power plants:
  - Ichinoseki Solar Power 1 GK Company (ISP1), wholly owned by GPSC
  - Thai Solar Renewable Company Limited (TSR), in which GPSC holds 40% shares; TSR wholly owns Siam Solar Energy 1 Company Limited (SSE1)
  - Combined Heat and Power Producing Company Limited (CHPP), wholly owned by GPSC, engaging in a ground-mounted solar farm in collaboration with Chanthaburi's Shrimp Farmers Cooperative Limited under a PPA
- Hydro power plants:
  - Natee Synergy Company Limited (NSC), wholly owned by GPSC; NSC holds 25% shares in Xayaburi Power Company Limited (XPlc)
  - Nam Lik 1 Power Company Limited (NL1PC), in which GPSC holds 40% shares

## Remarks:

GPSC restructured its equity in Global Renewable Power Co., Ltd. (GRP) by selling 50 percent shares to a subsidiary company of PTT Plc. The transaction was completed on January 4, 2021.

5) Domestic and overseas joint-venture power plants engaging in power generation and distribution, based on energy forms, consisting of:

- Gas-fueled power plants:
  - Ratchaburi Power Company Limited, in which GPSC holds 15% shares
  - IRPC Clean Power Company Limited (IRPC-CP), in which GPSC holds 51% shares
  - Nava Nakorn Electricity Generating Company Limited (NNEG), in which GPSC holds 30% shares
  - Bang Pa-In Cogeneration Company Limited (BIC), in which GPSC holds 25% shares
  - Combined Heat and Power Producing Company Limited (CHPP), wholly owned by GPSC

6) Power plants under GPSC's ongoing investment or construction, as detailed below:

- Energy Recovery Unit (ERU), designed to serve as a public utility support unit for processes under Thai Oil Public Company Limited's Clean Fuel Project (CFP), with a capacity of 250 MW. ERU's main fuel is the oily liquid by-product of CFP's distillation. GPSC invested through Energy Recovery Unit Company Limited, a wholly owned subsidiary of GPSC. ERU will be transferred when construction is completed and win a Provisional Acceptance Certificate (PAC), expected in the third quarter of 2023.
- Glow Energy Plc's SPP Replacement Project will replace expiring firm-SPP cogeneration power plants between 2019 and 2025 according to the Energy Regulatory Commission (ERC). The Electricity Generating Authority of Thailand (EGAT) approved six PPAs under Glow's 3 projects. The new production capacities consist of:

- Glow Phase 2, with a capacity of 192 MW and 300 tons/hour of steam under two PPAs with EGAT for 60 MW, COD in 2022
- Glow SPP 2, with a capacity of 192 MW and 300 tons/hour of steam, supplies a total 60 MW of electricity to EGAT under two power purchase agreements (PPAs) is set to commence commercial operations in 2024. Having taken into account shifting economic factors, business circumstances, and industrial landscape, GPSC has decreased the capacity of the project and reduced the number of machines from two to one per power purchase agreement. However, due to cutting-edge technology, Glow SPP 2 will be able to produce power and steam efficiently, contribute to the stability of the power and steam production network, and meet the power demand of EGAT and industrial customers in a suitable and eco-friendly manner.
- Glow SPP3<sup>(1)</sup>, with a capacity of 96-120 MW and 150-300 tons/hour of steam under two PPAs with EGAT for 60 MW, COD in 2024-2025
- GPSC invested in an offshore wind farm project (CFXD) through Global Renewable Synergy Taiwan Company Limited (GRSC TW). GPSC wholly owns Global Renewable Synergy Company Limited (GRSC), established as an investment arm in renewable-energy power plant in Taiwan. GRSC TW invested 25% in the CFXD Project, with a total capacity of 595 MW. Power distribution is expected, amounting to 96 MW in 2022 and 499 MW in 2023. The transfer of shares is expected by 2022 after the pre-requisite terms of the investment are fulfilled.

Remarks: <sup>(1)</sup> under a detailed investment feasibility study

7) Investment in the battery and related business, as detailed below:

- GPSC wholly invested in an Energy Storage Unit (ESU), a battery factory using SemiSolid technology of 24M Technologies, Inc. (24M).

This is the first of its kind in Thailand with an ESU capacity of 30 MWh per year, located on 12 rai in Map Ta Phut Industrial Estate, Rayong province. Construction was completed in the second quarter of 2021.

- GPSC Singapore Private Company Limited (GPSCSG), a wholly owned subsidiary company, preparing for international investment in new energy businesses. GPSCSG invested through 11.1% shareholding in Anhui Axxiva New Energy Technology Company Limited (AXXIVA), manufacturing battery cells with a capacity of 1 GWh per year for electric vehicles (EVs) in China. The factory is under construction and expected to complete by the first quarter of 2023.
- 24M Technologies, Inc. in the USA, in which GPSC holds 14.17% in preferred shares. 24M engages in research and development (R&D) of batteries for energy storage for the industrial sector, especially power generation, transmission, and distribution systems for the enhanced security of power users. R&D of batteries has also been expanded for EVs.

8) Other businesses in Thailand and other countries, totaling five companies:

- GPSC International Holdings Limited in Hong Kong SAR, People's Republic of China, to accommodate overseas investment, wholly owned by GPSC.
- Business Services Alliance Company Limited, a joint-venture company among PTT Group, engaging in service and administration of human resources for PTT Group's outsourcing. GPSC holds 25% of the preferred shares.
- Sarn Palung Social Enterprise Company Limited (SPSE), formed to support PTT's and PTT Group's social enterprises joining in the resolution of problems facing communities, society, and the environment while advocating hiring of local labor for sustainability. GPSC holds 10% shares.

- GPSC Treasury Center (GPSCTC) Company Limited, a wholly owned subsidiary of GPSC, engaging in managing Treasure Center (TC) and International Business Center (IBC) for the Group's financial efficiency and future investment in foreign currencies and liquidity.
- Eastern Fluid Transport Company Limited (EFT), in which Glow holds 15% shares, engaging in pipeline administration and services concerning product transmission through pipeline in Map Ta Phut Industrial Estate for maximum efficiency and safety, which also include future expansion for the demand of growing industries in Map Ta Phut Industrial Estate and its vicinity in Rayong province.
- Deliver to customers reliable power and utilities through operational excellence
- Conduct business with community, social, and environmental responsibility
- Seek innovation in power and utility efficiency management through smart power

### Goal

To become one of the top three power generation companies in Southeast Asia with more than half of MW from green portfolio.

### Business Strategies

GPSC's 2021 strategies (2021-2030) serve the energy transition to clean-energy innovation and consist of four main strategies: S1: Strengthen and Expand the Core; S2: Scale-Up Green Energy; S3: S-Curve & Batteries; and S4: Shift to Customer-Centric Solutions. It focuses on domestic and second-home countries, including India, Vietnam, and Taiwan and enabling Business Partnership, Financial Discipline, Technology and Digitalization, Sustainability, Agile & Resilient Organization, and Operational Excellence, to enhance GPSC's sustainable business growth while respecting the environment and stakeholders to become a leading power company in Southeast Asia. The strategies are detailed below:

#### **1) S1: STRENGTHEN AND EXPAND THE CORE**

Promote robustness, skills, and excellence of operation and business in parallel with GPSC's business growth with emphasis on maximum shareholders' satisfaction and appreciation of their needs while fostering customers' confidence with operational excellence to upgrade safety, reliability, and profitability together with ESG and sustainability at international standards. To this end, GPSC

## **1.1 Policy and Business Overview**

GPSC is the power flagship of PTT Group, committed to establishing energy and public utility security in support of domestic industrial growth, a crucial foundation of national growth and sustainable national development. GPSC also pursues opportunities for investment in power projects in domestic and international markets to grow sustainably while developing energy storage technology, battery business and other New S-Curve businesses.

Moreover, GPSC expands its businesses to new forms of energy through innovation to support customers' demand and in parallel the Carbon Net Zero goal to become a leading global power company in innovation and sustainability with the following vision and mission statements.

### **1.1.1 Vision, Mission, Objective, and Strategy**

#### Vision

A global leading innovative and sustainable power company

#### Mission

- Be a leader of the power business and smart power of PTT Group
- Generate long-term value addition for shareholders together with steady profit growth



relentlessly upgrades its people's development and application of management standards as well as digital technology to drive and upgrade various aspects of operations. Our actions consist of subplans to help us achieve strategic goals.

Enablers are in place to promote the success of strategic implementation, namely HR management structure, operational excellence management system (OEMS), and digitalization. The S1 strategy also embraces customer-centric utility and development of the core business and adjacent businesses worldwide to meet shifting customers' needs amid energy transition. Three key segments are described below:

- (1) Customer relationship management (CRM): CRM focuses on identifying customers' obstacles or pain points through ongoing engagement with them so that GPSC can propose solutions. Digital analytic tools may find application in assessment and analysis of these.
  - (2) Solution-focused: This means GPSC's efforts to create value for products to establish differentiation from its competitors, including analysis and management of energy in its production efficiency and reliability together with product distribution.
  - (3) Departmental design and assignment of responsibility: Suitability for customer relationship management needs to be spelled out for thorough coverage and maximum satisfaction.
- 2) **S2: SCALE-UP GREEN ENERGY** This key strategy raises the proportion of clean energy development (solar, wind, and integrated renewables) with energy storage systems (ESSs) so that GPSC may respond to today's energy transition, valued around the world.

GPSC strives to lower its carbon intensity in parallel with its own growth, with a Net Zero emission target in future years.

GPSC focuses its investment on target countries, namely India, Vietnam, and Taiwan, where ongoing growth is likely under acceptable returns on investment and manageable risks.

- 3) **S3: S-CURVE & BATTERIES** In the course of current and imminent energy transition, battery and ESSs are widely accepted as key drivers of such transition, whether across the manufacturing and power sectors' supply chains or other electricity-fueled industries, including the electric vehicle (EV) and other transportation.

This has consistently represented GPSC's vision and strategy. This year, besides innovation investment to create income from the battery business for grid-scale application, GPSC is developing a market embracing batteries for EVs and has served as service provider of other services related to batteries in Thailand and other regions, including India. Besides the battery business, other potential New S-Curve businesses for GPSC include the digital energy business, hydrogen energy business, and carbon capture, utilization & storage (CCUS). We will be cooperating with PTT Group and leveraging skills and resource capability across our supply chains to create shared value.

- 4) **S4: SHIFT TO CUSTOMER CENTRIC SOLUTIONS** This means driving toward new energy business models through energy innovations to provide energy service to meet customers' various needs, including expense reduction, greater energy reliability, and capital venture service proposals. Customers here are in the commercial and industrial industries. Our solutions consist of the following:

- (1) Distributed generation: This means installation of renewables power systems in customers' locations, including rooftops and microgrids, possibly by incorporating ESSs for greater reliability and efficiency. In addition, GPSC would look after their equipment and inspect energy consumption.
- (2) District cooling systems: Here, GPSC's services range from development, installation, management, to maintenance.
- (3) Energy management service: This means complete energy management combining power generation from renewables, chilled water, ESS, and the application of digital systems to aid customers. Support could be provided remotely or through real-time monitoring to assure customers that they can always use energy most efficiently and problems can be promptly solved. This S4 strategy will be implemented in Thailand first

### 1.1.2 Milestones

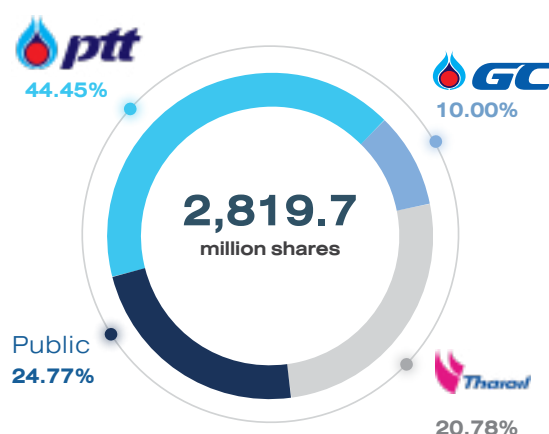
GPSC was registered on SET on May 18, 2015, with a registered capital of THB 14,983,008,000, comprising 1,498,300,800 shares at THB 10 per share.

On October 9, 2019, GPSC completed allocating newly issued ordinary shares and completed the registration of the increase in paid-up capital to THB 28,197,293,670, representing 2,819,729,367 shares at THB 10 per share. The shareholding structure after the increase is PTT Public Company Limited, 22.81%; PTT Global Chemical Public Company Limited, 22.73%; Thaioil Public Company Limited, 8.91%; Thaioil Power Company Limited, 20.78%; and other shareholders, 24.77%.

PTT's Board of Directors approved on August 20, 2020, the acquisition of 8.9% shares in GPSC from Thaioil Public Company Limited and to restructure for PTT's power business agility. The transaction was completed on December 3, 2020, giving PTT 31.7% shares in GPSC. Thaioil Public Company Limited will hold the remaining shares of 20.78%.

On April 22, 2021, PTT's Board approved a scheme by PTT and Siam Management Holding Company Limited (SMH), PTT's subsidiary, to acquire 358,936,756 shares or 12.73% of GPSC's shares from GC. After the transaction was completed on June 8, 2021, PTT and SMH held a total of 44.45% and GC held 10% of the shares as shown below:

### GPSC's shareholding structure



## MILESTONES

Date	Milestones
<b>2019</b>	
April 1, 2019	GPSC purchased the Energy Recovery Unit (ERU), part of Clean Fuel Project (CFP) of Thaioil Public Company Limited through Energy Recovery Unit Company Limited. The rights transfer over ERU will be achieved when the construction is completed and win a Provisional Acceptance Certificate (PAC), expecting in the third quarter of 2023.
August 28, 2019	GPSC held Extraordinary General Meeting of Shareholders No. 1/2019 to request an approval to increase its registered capital of THB 13,214,285,710, made up of new registered capital of THB 28,197,293,710 for common shares of up to 1,321,428,571 shares with a par value of THB 10 per share, totaling THB 13,214,285,710 in rights offering for existing shareholders. Each shareholder can subscribe to the newly issued shares over his/her rights at a ratio of one existing common share to 0.8819 new shares for an offered price of THB 56 per share. Later, GPSC completed its capital increase plan for existing shareholders by THB 74,000 million on October, 9 2019. It allotted 1,321,428,567 common shares at THB 56 per share, resulting in a current total of 2,819,729,367 common shares.
November 8, 2019	GPSC issued six sets of debentures totaling THB 35,000 million to institutional investors and major investors at an average interest rate of 2.80 per annum. The rating given by TRIS Rating Company Limited (TRIS) of the debentures was AA-. The funds received, according to GPSC's financial restructuring plan, will repay short-term loans for the acquisition of Glow.
<b>2020</b>	
January 18, 2020	GPSC, with the cooperation of PTT Global Chemical Public Company Limited (GC), launched a smart energy storage system (ESS) with a capacity of 1.5 MWh. This storage is the largest system in the industrial sector of Thailand. It boosted security and stability of the power network system distributed to GC's Science & Technology Center building in Rayong province.
January 31, 2020	GPSC Treasury Center Company Limited (GPSCTC) was registered with the Ministry of Commerce with an initial paid-up capital of THB 20 million. GPSC wholly owned GPSCTC.
March 11, 2020	GPSC started construction of a prototype battery factory using the SemiSolid technology, the first ever in Thailand, located on 12 rai in Map Ta Phut Industrial Estate, Rayong province. The project value exceeded THB 1.1 billion.
March 26, 2020	GPSC successfully acquired all shares through Global Renewable Power Company Limited (GRP) in four companies: N.P.S. Stargroup Company Limited (N.P.S.), World X Change Asia Company Limited (World X Change Asia), P.P. Solar Company Limited (P.P. Solar), and TerraForm Global Operating (Thailand) Company Limited. Nine solar farm projects were developed by these companies with a total capacity of 39.5 MW.
June 1, 2020	Glow Hemaraj Wind Company Limited, in which GPSC held shares through Eastern Seaboard Clean Energy Company Limited, completed its liquidation.



Date	Milestones
July 14, 2020	Rayong Clean Energy Company Limited, in which GPSC held shares through Eastern Seaboard Clean Energy Company Limited, completed its liquidation.
August 7, 2020	GPSC offered environmental conservation debentures (Green Debentures), which are unsubordinated and unsecured debentures with specified holders, to institutional investors and major shareholders for a total of THB 5 billion. The funds received will be used on renewable-energy projects, including solar and waste-to-energy projects.
September 25, 2020	GPSC signed an MOU with Electric Vehicles (Thailand) Public Company Limited (EVT) to develop and experiment with prototype electric buses using SemiSolid technology battery to examine the efficiency of batteries used in these buses.
September 28, 2020	GPSC, through Combined Heat and Power Producing Company Limited (CHPP), entered an MOU with Suranaree University of Technology to build a solar power plant with a total capacity of about 6 MW at a budget of THB 150 million. The project aimed to create a low-carbon university to lower utilities expenses of the university through a Private PPA. It is also intended to be a smart energy center of the Northeast for the public. Generation and distribution of power is expected from 2022 onward.
November 13, 2020	GPSC established Global Renewable Power One Co., Ltd. (GRP1) to accommodate its investment growth plan in a solar power generation plant in Taiwan.
December 25, 2020	GPSC launched G-Cell batteries using SemiSolid technology, products of Energy Storage Unit, Rayong province. Regular production started in the second quarter of 2021.
<b>2021</b>	
January 4, 2021	GPSC restructured its shareholding in Global Renewable Power Company Limited (GRP) by disposing of its 50% shares in GRP to PTT Global Management Company Limited (PTTGM), a PTT subsidiary. The transaction was completed on January 4, 2021, enabling GPSC to book GRP's performance as its share of profit from its investment in the associate.
January 20, 2021	Board Meeting No. 1/2021 approved the formation of a subsidiary to invest in Anhui Axxiva New Energy Technology Company Limited. (AXXIVA), People's Republic of China, which engaged in the battery production business with the knowhow of 24M Technologies Inc. (24M). With about THB 500 million in investment, GPSC assumed 11.1% equity interest in AXXIVA. The fund mobilization by the company was for its investment in a SemiSolid battery plant construction phase 1 in China with a capacity of 1 GWh/year to supply to its main customer group in the EV industry of that country, including Chery New Energy Automobile. GPSC later formed a wholly owned subsidiary in Singapore (GPSC Singapore Pte. Ltd.) on February 9 to invest in AXXIVA's recapitalization in line with the Board's resolution.

Date	Milestones
February 11, 2021	Through prestigious (S&P Global) assessment, GPSC was named an outstanding business included in the Sustainability Yearbook 2021 with the second highest score of the Electric Utilities category in Thailand as a result of its maiden participation in the Dow Jones Sustainability Indices (DJSI).
February 24, 2021	In conjunction with PTT Oil and Retail Business Plc (OR), GPSC launched the G-Box Project, leveraging the 150-kWh Battery Energy Storage System (BESS) Project, which can scale up the G-Cell product of the SemiSolid technology in the future to improve energy management efficiency together with the EV station. Pilot-tested at PTT Station Nong Khaem, this is an energy innovation with a key role in raising power consumption reliability, as it lowers energy costs and efficiently prevents brownouts or blackouts.
March 26, 2021	With Swap & Go Co., Ltd., GPSC signed a memorandum of understanding on joint investigation and scaling up of SemiSolid lithium-ion batteries (G-Cell). Production will start by the second quarter of 2021 from an ESS plant of GPSC in Map Ta Phut Industrial Estate, Rayong, for application with electric motorcycles through battery swapping (no need to wait for recharging).
April 29, 2021	GPSC signed a memorandum of understanding with nine companies in the EV industry group to develop prototype batteries and a battery swapping system that is a scaled-up version of GPSC's SemiSolid technology for installation in battery EVs (BEVs) of electric motorcycles, electric tuk-tuks, and EVs. In so doing, efficiency will improve in safety, heat exchange, and charging aspects. The technology will ease battery swapping in EV chargers at service stations in the future.
May 18, 2021	GPSC signed a memorandum of understanding on cooperation with Electrify Pte. Ltd. (Electrify) in developing and installation of a peer-to-peer energy trading platform on the Cloud system in Thailand. The platform was installed together with GPSC's energy innovation solution, operated by CHPP (a wholly owned subsidiary) for customers in the energy technology trendsetter group to put to pilot tests in various areas. These represent energy innovation prototypes of decentralized energy, solar power generation, and ESSs that would expand to other potential areas in the future.
May 25, 2021	Through CHPP, GPSC became a partner in the G-Float clean energy innovation development, pioneered in the New Normal model in Thailand. This floating solar PV innovation was ready for commercial implementation for industrial plants, customers in industrial estates, and government as well as private agencies. It was already successfully used in projects like the Smart City Project for VISTEC and installation of solar rooftops and floating solar PVs at Suranaree University of Technology (in progress). To elaborate, this is a combination of smart energy involving BESS, peer-to-peer energy trading, and AI for greater generating efficiency. Also included was cooperation with PTT Group in the installation of a 100-kW system floating solar on sea in a marine section of PTT Tank Terminal Company Limited, in Rayong.

Date	Milestones
May 28, 2021	With a PPA with the Provincial Electricity Authority (PEA), the 9.8-MW RDF Project began commercial distribution as part of GPSC's integrated Rayong Waste to Energy Project.
May 28, 2021	Global Renewable Power One Company Limited (GRP1), an indirect associate where GPSC holds equal 50% shares with PTT Global Management Company Limited (PTTGM), fulfilled all its terms of the share trade agreement worth 90% of all shares in Sheng Yang Energy Company Limited. The value of the deal came to THB 2.56 billion.
June 8, 2021	PTT Global Chemical Plc (GC) sold GPSC's common shares to PTT Plc and Siam Management Holding (SMH) Co., Ltd., totaling 12.73%, thus giving PTT 42.54% and SMH 1.91% equity in GPSC, whereas GC's equity now amounted to 10% of all subscribed shares.
June 15, 2021	GPSC registered subsidiary Global Renewable Synergy Company Limited (GRSC), in Thailand, holding all its shares in support of investment in renewables power plants in other countries.
June 16, 2021	Board Meeting No. 8/2021 approved a move by GPSC TC to sign a loan agreement with PTT Plc or PTT TCC, or both, for a long-term loan from shareholders under a limit of THB 20 billion in support of its investment in overseas renewables power plants. The deal was for up to three years with a market rate of up to 3%/year.
July 13, 2021	Through GRSC, a wholly owned subsidiary, GPSC reached an agreement to invest in Avaada Energy Pte. Ltd. (Avaada), a renewable energy business operator in India, with a total investment of about THB 14.825 billion, or about 41.6% of its capital. Today, Avaada's committed capacity totals 4,608 MW (2,205 MW in commercial operation and 2,403 under construction); it will in stages become commercial in operation by 2022-2023, with a growth target of 11,000 MW by 2025. This investment was part of the plan to grow GPSC's renewables portfolio under a goal of 8,000 MW from renewables by 2030.
July 14, 2021	GRSC, a wholly owned subsidiary, GPSC signed a joint-investment agreement with Copenhagen Infrastructures Partners (CIP) on behalf of the Copenhagen Infrastructure II K/S (CI-II) and Copenhagen Infrastructure III K/S (CI-III) for cooperation under an offshore wind power project entitled Changfang and Xidao in Taiwan with a combined installed capacity of 595 MW. The project is expected to go entirely commercial by the first quarter of 2024, with investment worth USD 5 million to the end of the construction. GPSC subsequently formed Global Renewable Synergy Taiwan Co., Ltd. (GRSC TW) to assume 25% shares in this project. It is expected to implement the enforced terms before transferring the shares by 2022.
July 19, 2021	GPSC inaugurated its SemiSolid G-Cell energy storage system plant, the first in Southeast Asia, with an initial capacity of 30 MWh/year under the USA's 24M Technologies Incorporation's battery production innovation. GPSC had obtained a license for production and distribution of the system. The plant lies in Map Ta Phut Industrial Estate, Rayong. Its capacity can grow to 100 MWh/year and step up to the initial commercial plant at 1 GWh/year. GPSC is currently investigating and reviewing investment plans over the next phase.



Date	Milestones
October 18, 2021	GPSC signed a memorandum of understanding with five others, namely CHPP, EXIM BANK, TGO, and Neoclean Energy Company Limited (NEO), to run a project supporting investment in solar rooftop systems together with carbon credit registration under the Solar Orchestra Project. The project supported Thai entrepreneurs' investment in solar rooftops and formalize them under the T-VER Project (Thailand's voluntary emission reduction) to obtain carbon credit for future trading. The solar rooftop installation goal accounts for 100 MW by December 2022.
October 21, 2021	GPSC proceeded with formal registration of a wholly owned subsidiary in Taiwan through GRSC, named GRSC TW.

**1.1.3 Obligations shown in the prospectus and/or conditions of the office (if any) and/or condition of securities receivable of the Stock Exchange of Thailand (if any).**

-None.-

**1.1.4 Company Information**

<b>COMPANY NAME</b>	: Global Power Synergy Public Company Limited
<b>SECURITY NAME</b>	: GPSC
<b>HEAD OFFICE ADDRESS</b>	: 555/2 Energy Complex Building B, 5 <sup>th</sup> Floor, Vibhavadi Rangsit Road, Chatuchak Sub-District, Chatuchak District, Bangkok 10900
<b>TYPE OF BUSINESS</b>	: GPSC operates as a power, steam, and utilities producer and distributor. In addition, the company invests in other companies that generate and distribute power, steam, and utilities, including related businesses, both domestically and overseas.
<b>BUSINESS REGISTRATION</b>	: 0107557000411
<b>TELEPHONE</b>	: +66 (0) 2140 4600
<b>FAX</b>	: +66 (0) 2140 4601
<b>WEBSITE</b>	: <a href="http://www.gpscgroup.com">www.gpscgroup.com</a>
<b>REGISTERED CAPITAL</b>	: THB 28,197,293,710 as of December 31, 2021, comprising 2,819,729,367 common shares, with a par value of THB 10 per share, paid-up capital at THB 28,197,293,670.

## 1.2 Nature of Business Operations

GPSC business operations are detailed below:

### 1.2.1 Revenue Structure

The Company's major sources of revenue comprised revenue from sales of electricity, steam, industrial water, revenue from financial lease, and dividend income from Ratchaburi Power Co., Ltd.:

Products / Services	Operated by	For the period ending December 31					
		2019		2020		2021	
		Revenue (Million THB)	%	Revenue (Million THB)	%	Revenue (Million THB)	%
Revenue from Sales of Products and Services							
Electricity	IPP Group	14,940	22%	15,092	21%	17,558	22%
	SPP Group	35,627	53%	38,100	54%	39,975	51%
	VSPP Group	348	1%	615	1%	418	1%
	Total	50,915	75%	53,807	76%	57,951	74%
Steam	SPP Group	13,835	21%	13,906	20%	15,032	19%
	Total	13,835	21%	13,906	20%	15,032	19%
Industrial water/ chilled water	IPP Group	56	0.1%	20	0.1%	-	0%
	SPP Group	631	1%	676	1%	725	1%
	VSPP Group	203	0.3%	193	3%	182	0.2%
	Total	890	1%	889	1%	907	1%
Services	VSPP Group	30	0.04%	37	0.05%	89	0.1%
	Total	30	0.04%	37	0.05%	89	0%
RDF waste fuel	RDF	16	0.02%	6	0%	-	0%
	Total	16	0.02%	6	0%	-	0%
Nitrogen	GPSC	103	0.2%	112	0.2%	157	0.2%
	Total	103	0.2%	112	0.2%	157	0.2%
Total revenue from sales of products and services		65,789	97%	68,757	97%	74,136	95%
Revenue from Financial Leases							
Financial leases in power plants	IPP Group	773	1%	821	1%	737	1%
Total revenue from financial leases		773	1%	821	1%	737	1%
Other Revenue							
Dividend	GPSC	185	0.3%	396	1%	256	0.3%
Other revenue	GPSC	733	1.1%	1,009	1%	3,019	4%
Total other revenue		918	1%	1,405	2%	3,275	4%
Total Revenue		67,480	100%	70,983	100%	78,148	100%



### 1.2.2 Product information

#### 1) Characteristics of Products, Services and Innovation Development

##### Characteristics of Core Products

- **Electricity** is a form of energy transformed from primary energy, such as natural gas to generate other types of energy, for instance, heat and mechanical energy for the manufacturing processes of industrial, commercial, and utilities. Electricity is distributed via transmission lines, which serve as conductors in bringing electricity to customers to different locations and different voltage levels, for example, 230 Kv, 115 Kv, and 22 Kv. However, the quality and stability of power production and transmission are crucial for product value, so GPSC designed production units, production administration, and connectivity of transmission systems for the flexibility of production management and transmission to serve all circumstances.
- **Steam** is a kind of heat energy produced by using the residual heat from electricity generation to produce steam. Direct fuel combustion is sometimes used in steam production. In this regard, steam distributed to customers is of various pressure levels and temperatures, depending on customers' requirements. GPSC designed production units, production administration, and connectivity of the distribution system for the flexibility of production management and distribution to assure customers' satisfaction.
- **Chilled water** is the water used as a medium for exchanging cooling energy in air-conditioning systems or production processes. In this regard, GPSC offers to serve customers' needs for technical, temperature and stability levels, for instance, and business solutions.
- **Other utilities:** GPSC offers One-Stop Utility Services and is a Solution Provider to serve customers' various requirements. Other utilities consisted of:
  - **Industrial water** is the processed water of required standards, for instance, clarified water or demineralized water. Both are part of the electricity generation process and are

distributed to customers for manufacturing processes.

- **Nitrogen** is inert gas with the chemical formula 'N<sub>2</sub>', and is in a liquid state at -196 degrees Celsius. In this regard, the Company procures and distributes nitrogen to industrial customers via transmission lines.

##### Innovation Development

Under 4S strategies, GPSC relentlessly developed various innovations through the cooperation with 24M Technology Inc. by investing in the construction of a battery factory with SemiSolid technology, the first of its kind in South east Asia. GPSC also invested in Anhui Axxiva New Energy Technology Co., Ltd. in China and collaborated with PTT Group, for example, PTTINI and VISTEC, as well as the development of the energy business and the future business model, gearing toward New S-Curve businesses to accommodate energy transition, especially for the battery and the energy storage system (ESS). Detailed strategies have been prepared for batteries under three main applications:

- (1) ESS, looking at opportunities in commercial and industrial customers, including grid connections in each location, particularly in Thailand and India. In addition, GPSC plans to increase its capability of the system, software, and the source of battery supply.
- (2) Non-Electric Vehicle (non-EV) Mobility, focusing on the application for E-Buses, E-Tuk Tuks, and battery producer for local customers. Moreover, GPSC will improve its capability for constructing battery factories and packaging, while developing relationships with reliable suppliers.
- (3) EVs, focusing on battery production for EVs. However, GPSC considers investing with experts and reliable partners while leveraging its own technology and knowhow as part of the production process or investing in other EV battery manufacturers, targeting those in Thailand and China. Moreover, GPSC plans to improve its capability for technology, marketing, finance, and risk management.



GPSC's projects related to battery innovation consist of:

- **Energy Storage Business:** ESS installation of 1.5 MWh for PTT Global Chemical Plc (GC) at GC's office in Rayong to facilitate production management and co-utilize electricity with gas engines to enhance effectiveness and reduce electricity expenses.
- **Battery Manufacturing:** The Company invested in the construction of a pilot plant to produce lithium-ion batteries, using the SemiSolid technology. The Company obtained a manufacturing license from 24M Technologies Inc. (24M), with an initial production capacity of 30 MWh/Year, expandable to 100 MWh/Year. The plant is in Map Ta Phut Industrial Estate, Rayong. Construction was completed for battery production in the second quarter of 2021. Since the Company is aware of the importance of R&D in battery technology, it has recruited research personnel and formed collaboration within PTT Group and with external parties to jointly develop research projects to enhance business potential for process improvement and product development. Meanwhile, GPSC has acquired 11.1% of the shares in Anhui Axxiva New Energy Technology Co., Ltd., in China. Under construction is a SemiSolid battery factory, phase 1, using 24M technology, with 1 GWh per year to accommodate EV industries.
- **New Energy:** GPSC's strategy is for CHPP, a wholly owned subsidiary, to be a leader in new-energy businesses through energy innovation by being a Smart Energy Solution Provider from the design, consultation and production administration to power storage to quickly respond to customers' needs. Several projects in the new energy of CHPP are successful, such as a PPA with Suranaree University of Technology, Nakhon Ratchasima, to install solar rooftops, floating solar panels and ESS to distribute electricity on the university's premises as well as installing energy management software to simulate peer-to-peer power purchase scenarios, which are the same technology and usage as the pilot model at Vidyasirimedhi

Institute of Science and Technology (VISTEC), a PTT Group sandbox, to further develop into an electricity business model of the future. CHPP also cooperated with the Export-Import Bank of Thailand (EXIM BANK), Thailand Greenhouse Gas Management Organization (Public Organization) (TGO), and Neo Clean Energy Co., Ltd. (NEO), on a project to support investment in installing solar rooftops and registering carbon credit to encourage Thai entrepreneurs to invest in solar rooftops and register in the greenhouse gas reduction voluntary project according to the Thai standard (T-VER Project) to accommodate the quantity of reduced GHGs or carbon credit, usable for exchanging, buying and selling. The solar rooftop installation target is beyond 100 MW by December 2022.

#### Investment Privileges

The Company and subsidiaries earned investment promotion privileges according to the Investment Promotion Act B.E. 2520 (1977) upon approval of the Board of Investment Office, under certain conditions. These privileges are described below:

- A) A permission to take ownership in the land to operate the promoted business as the Board of Investment deems appropriate.
- B) An exemption on import duty for machinery, raw materials or necessary materials imported to produce goods for domestic distribution as the Board of Investment deems appropriate.
- C) An exemption on corporate income tax on the net profit from the commencement of revenue recognition. If an entity incurs a loss during such period, the amount can be deducted from the net profit incurred for no less than five years after the passing of such time limit.
- C)\* An exemption on corporate income tax for the net profit generated from operating promoted businesses for the proportion of 50% of the investment capital to improve production efficiency, not including land and three-year working capital, from the commencement of revenue generation after obtaining the promotion certificate.

If an entity incurs a loss during such period, the amount can be deducted from the net profit incurred for no less than five years after the passing of such time limit.

- D) An exemption on using the dividend received from the promoted business to calculate income tax during the period that the corporate income tax exemption takes effect.
- E) An exemption on corporate income tax for the net profit of 50% of the normal rate for five years after the passing of the corporate income tax exemption period as stated in (C).

F) A permission to deduct two times of the transportation costs, electricity and water expenses for a period of 10 years, from the commencement of revenue recognition in such business.

- G) A permission to deduct 25% of the investment capital in the installation or construction of facilities, apart from the depreciation expense as usual.
- H) An exemption on import duty for goods imported for re-export, or production for export for a period of one year from the first import.

#### GPSC companies that earned these investment privileges are:

Company	Permit Grant Date	Commencement of Revenue Recognition	Number of Years for Income Tax Exemption	Privilege Eligibility
<b>Global Power Synergy Plc</b>				
Central Utility Plant - 1 Phase 1-2	February 2005	June 2006	8	B) to G)
Central Utility Plant - 1 Phase 3	October 2006	June 2007	8	B) to G)
Central Utility Plant - 1 Phase 4	January 2008	May 2008	8	B) to G)
Central Utility Plant - 1 Phase 5	September 2008	July 2009	8	B) to G)
Central Utility Plant - 1 Phase 6	January 2009	December 2009	8	B) to G)
Central Utility Plant - 2	September 2007	May 2008	8	B) to D)
Central Utility Plant - 3	January 2009	July 2009	8	B) to G)
Central Utility Plant - 4	August 2018	September 2019	4	B) to D)
Refuse Derived fuel (RDF) Production Plant	October 2017	May 2018	8	B) to E)
RDF Power Plant	June 2019	Not yet redeemed	8	B) to E)
Sri Racha Power Plant	December 2010	May 2011	8	B) to D)
Battery Plant	August 2018	Not yet redeemed	8	B) to E), H)
Solar Rooftop Project - GC Glycol	September 2020	Not yet redeemed	8	B) to D)
Solar Rooftop Project - GIPP	January 2020	Not yet redeemed	3	B), C)*, D)
Remarks: Promotion Certificate No. 1525/2542 was terminated and replaced by Promotion Certificate No.63-0111-1-04-1-0.				
EECi Solar Farm	July 2021	Not yet redeemed	8	B) to D)
GC5 Floating Solar Farm	September 2021	Not yet redeemed	8	B) to D)

Company	Permit Grant Date	Commencement of Revenue Recognition	Number of Years for Income Tax Exemption	Privilege Eligibility
<b>Combined Heat &amp; Power Producing Co., Ltd.</b>				
Solar Farm Project	September 2016	December 2016	8	B) to D)
Solar Rooftop Project - Thailoil	December 2019	Not yet redeemed	8	B) to D)
Solar Rooftop Project - VISTEC	December 2019	May 2020	8	B) to D)
Solar Rooftop Project and Floating Solar - VISTEC	May 2020	Not yet redeemed	8	B) to D)
<b>IRPC Clean Power Co., Ltd.</b>	April 2014	June 2015	8	B) to G)
<b>Glow Energy Plc</b>				
Phase 1 Project	July 1994	May 1995	8	A) to G)
Phase 2 Project	June 1995	May 1996	8	A) to G)
Extended Project Phase 1	March 2004	July 2004	8	A) to G)
Extended Project Phase 2	August 2004	September 2005	8	A) to G)
CFB 3	June 2007	November 2010	8	A) to G)
Phase 1 Project	November 2007	-	-	A) to B)
Phase 5 Project	February 2009	March 2011	8	A) to G)
Glow Solar	August 2012	August 2012	8	B) to G)
Glow Solar Rooftop - Michelin	May 2018	November 2018	8	B) to D)
Glow Solar Rooftop - Continental	June 2018	February 2019	8	B) to D)
Glow Solar Rooftop - Holiday Inn	June 2019	Not yet redeemed	8	B) to D)
Glow Solar Rooftop - Indorama	June 2020	Not yet redeemed	8	B) to D)
Glow Solar Rooftop - NSP	June 2020	Not yet redeemed	8	B) to D)
Glow Solar Rooftop - Suez	June 2020	Not yet redeemed	8	B) to D)
Phase 2 Project (SPP replacement)	October 2021	Not yet redeemed	4	
<b>Glow Co., Ltd.</b>	September 2003	-	-	A)
<b>Glow SPP 2 Co., Ltd.</b>	November 1996	August 1997	8	A) to G)
<b>Glow SPP 3 Co., Ltd.</b>	August 1997	August 1999	8	A) to G)
<b>Glow IPP Co., Ltd.</b>	November 1999	January 2003	8	A) to D)
<b>GHECO-One Co., Ltd.</b>	July 2008	November 2011	8	B) to G)
<b>Glow SPP 11 Co., Ltd.</b>				
Phase 1	March 1999	September 2000	8	A) to G)
Phase 2	July 2013	November 2012	8	B) to G)
Phase 3	July 2013	October 2006	8	B) to G)
Phase 3 (Extended)	September 2014	April 2015	8	B) to G)



## 2) Market and Competition

### Distribution and Target Customers

#### Distribution

Electricity and steam are core products which must be distributed immediately to customers, so the product distribution system is critical. The system must be equipped with readiness and high reliability for distribution, and because we realize the significance of this matter, our electricity transmission system has been designed separately for each customer to control the usage and safety system for each customer separately, for electricity distribution from the generators with the same standard voltage level as regulated by EGAT, PEA and MEA with transformers at substations. The electric current will then be transmitted through transmission lines via trading meters to the electric current systems of EGAT, PEA, MEA and industrial customers. Furthermore, the locations of our power plants are critical to the product distribution system since they must be located in the industrial estate areas, where customers' plants are located and where steam, chilled water and industrial water are in demand in processes. We therefore distribute the products via the pipeline system that has been designed with extra insulation to minimize energy loss to the external environment.

Our key customers fall into 2 main groups by product utilization:

#### **1) Distribution to EGAT, PEA and MEA.**

Under Thailand's electricity system structure, EGAT is the accountable party in generating, procuring and distributing electricity to PEA and MEA, to in turn distribute electricity to the industrial sector and the public. The three entities need to ensure sufficient procurement to accommodate the nationwide demand. Electricity generation by EGAT alone is not sufficient, so these entities need to purchase electricity from private power producers via these 3 types of PPAs:

- Independent Power Producer: IPP
- Small Power Producer: SPP
- Very Small Power Producer: VSPP.

The Company and investment companies do sell electricity to EGAT, PEA and MEA via three types of PPAs. Selling power to EGAT has also granted the Company additional electricity via the backup PPA, which strengthens the reliability of the power generation system for power plants.

#### **2) Direct Distribution to Industrial Customers**

Apart from distributing electricity to EGAT, We distribute electricity to industrial customers as their producer of fundamental utilities: electricity, steam, chilled water and industrial water. GPSC values the reliability and continuity of distribution and determines standard pricing that can be benchmarked against other producers in the market. Most of our industrial customers are in the petrochemical sector. Besides, GPSC distributes nitrogen to companies in PTT Group as a fully integrated service provider.

#### Electricity Pricing

The National Energy Policy Council (NEPC) has specified the electricity pricing structure for Thailand to reflect costs at different times of the day, whereby the power purchase rate varies with the electricity rate structure, categorized by type of power producers:

#### **1) Electricity Pricing of Independent Power Producer: IPP**

The PPA of an IPP is generally governed by 2 parts of the pricing structure as follows:

**The first part** is the availability payment (AP), a premium that EGAT pays power plants monthly to maintain the availability level regardless of the actual electricity units purchased by EGAT. The AP is made up of:

- APR1: The compensation that EGAT pays the Company for the construction cost, as well as the debt burden and capacity cost.
- APR2: The compensation that EGAT pays the Company for fixed costs in machine operation and maintenance (Fixed O&M).

**The second part** is the energy payment (EP) that IPPs use to determine the pricing by taking variable production costs into account.

## 2) Electricity Pricing of Small Power Producer: SPP

The electricity pricing for SPPs depends on the types of fuel and agreement, as follows:

2.1) Firm Agreement Pricing: The firm agreement is the PPA that specifies the amount of electricity capacity to supply to EGAT through the entire contract period, which is five years or more. The pricing structure of this agreement is made up of:

- Capacity Payment: CP, which is based on the investment cost for power plants that EGAT can avoid in the future (Long-Run Avoided Capacity Cost) by purchasing the capacity.
- Energy Payment: EP, based on the fuel cost used in electricity generation that EGAT can avoid in the future. (Long-Run Avoided Energy Cost)
- Fuel Saving: This revenue will be granted when fuel consumption falls below the standard amount regulated by EGAT.

2.2) Non-firm Agreement Pricing: The non-firm agreement is the PPA that is valid for less than five years. This type of agreement will not be entitled to a capacity payment (CP) but only the energy payment (EP), which is based on the fuel cost used in electricity generation, operating cost and power plant maintenance cost that EGAT can avoid in the short-term period (Short-Run Avoided Energy Cost), which differs from season to season. Hence, the pricing in a non-firm agreement, specifically the EP, will be multiplied by a K factor as announced by EGAT. Overall, the pricing of a non-firm agreement is generally lower than that of the firm agreement. So in purchasing electricity from a renewable-energy power plant or in case of the FiT power purchase, an adder will be applied, according to the announcement of PEA or MEA.

## 3) Electricity Pricing of Very Small Power Producer: VSPP

Very small power producers (VSPPs) are electricity producers who supply no more than 10 MW of electricity to PEA or MEA as agreed, whereby the power purchase rate is equivalent to the cost of the

wholesale electricity structure at the voltage that VSPPs connect to the electricity system, combined with the electricity cost according to the average wholesale Ft rate. For purchasing electricity from a renewable-energy power plant, or FiT power purchase, an adder will be applied, according to the announcement of the Energy Regulatory Commission (ERC)'s announcement.

### Power Purchase Rate of Industrial Customers

Most industrial customers are industrial plants, whereby the Company has entered a long-term PPA with each, with reference to the selling price based on PEA's rate. The Ft rate is usually adjusted in line with fuel costs, while for some customers it has been agreed that the electricity expense is subject to fuel costs such as natural gas.

### Pricing of Steam and Industrial Water

The selling prices of steam and industrial water to industrial customers are based upon the energy raw materials used in production, as well as other production costs, with the margin added on top (cost-plus), to serve as the pricing formula that uses a cost variable to reflect the actual production cost, including investment, variable cost, operation and maintenance cost. Regarding the investment in the distribution system that has been arranged for each customer dedicatedly, the energy loss in the distribution system will be calculated separately since there are differences in the quantity distributed and customers' locations, which are going to yield different outcomes in the investment capital required for the system. For general pricing conditions, the Company's Board of Directors has identified the criteria and principles for standard products' selling prices to ensure fairness and transparency in distributing products for both inter-related customers and other customers to operate uniformly.

## Competition Landscape

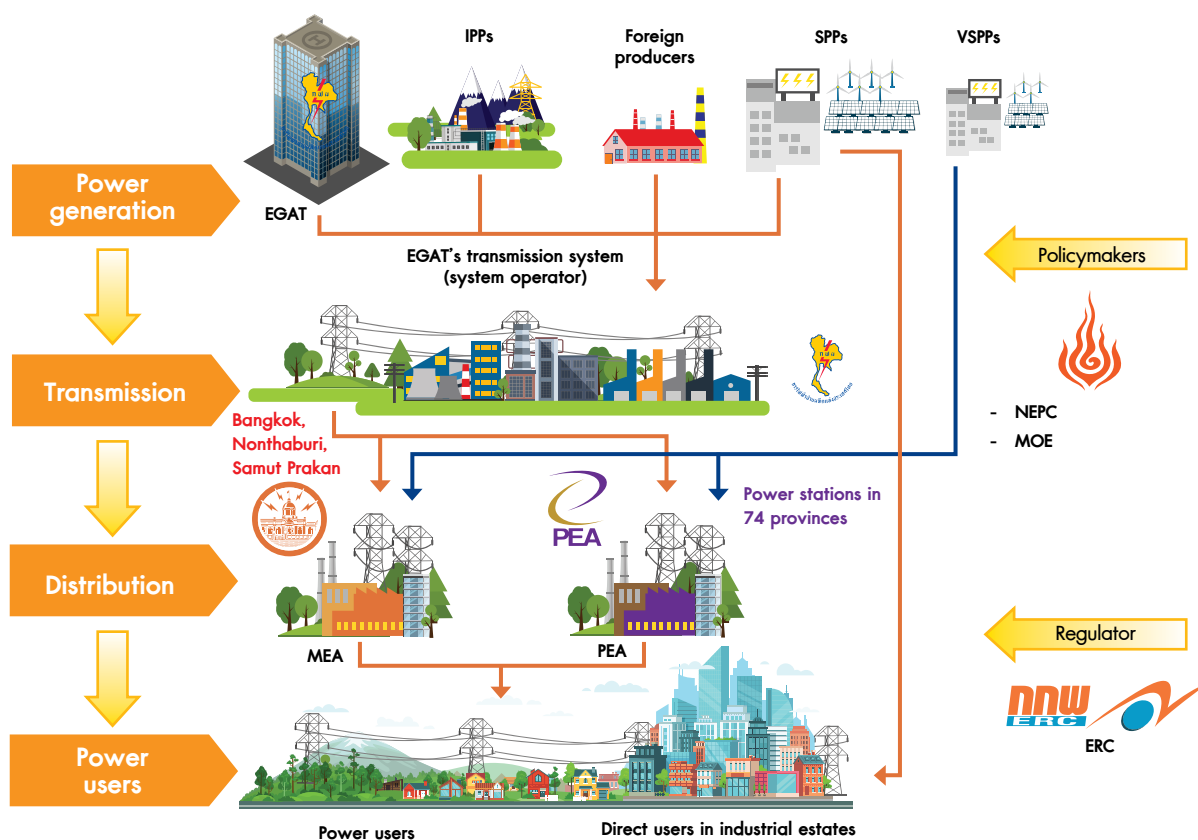
GPSC commands long-standing proficiency and experience in power generation and steam production, enhanced by security of power transmission systems together with extensive grid systems and customer-centric management to deliver public utilities catering to customers' needs, customer stewardship, and guaranteed distribution security through agreement periods in parallel with GPSC's sustainable growth policy with emphasis on innovation development. In short, our strength and competitiveness do remain even during greater market competition with a handful of players and GPSC's long-term agreements with customers.

GPSC is blessed with lower costs than its competitors because of its economies of scale of power generation and steam production, aided by international-standard efficiency and reliability in addition to its ability to operate with multiple fuels. This advantage of ours also applies to the idea of customers in industrial estates producing their own public utilities.

## Electricity Industries in Thailand

### 1. General

Thailand operates on the Enhanced Single-Buyer Model (ESB). To elaborate, EGAT is both the producer and the buyer of electricity supplied to the grid by independent power producers (IPPs, meaning those producing more than 90 MW), small power producers (SPPs, meaning those producing 10-90 MW), and imported electricity. EGAT owns the national transmission system, with the Metropolitan Electricity Authority (MEA) and the Provincial Electricity Authority (PEA) distributing and purchasing electricity from very small power producers (VSPPs, meaning those producing less than 10 MW). Regulators consist of the National Energy Policy Council (NEPC, the policymakers) and the Energy Regulatory Commission (ERC).



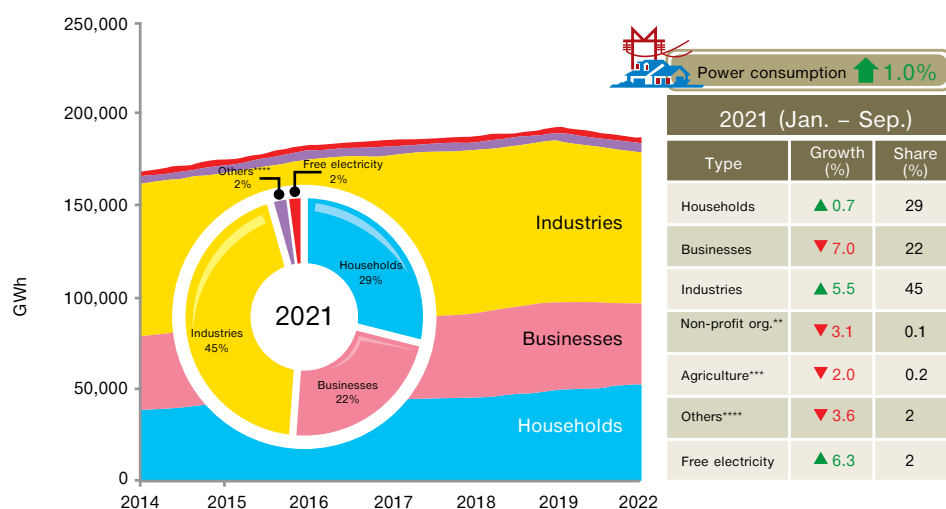
Source: Electricity Generating Authority of Thailand



## 2. Consumption overview 2021

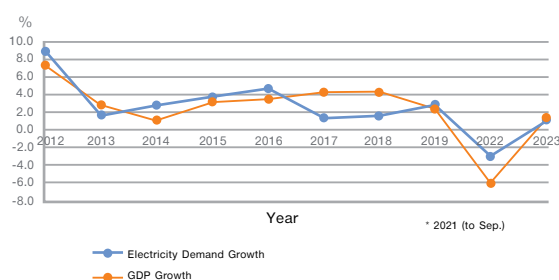
As of September 2021, Thailand commanded a total generating capacity of 50,269 MW (excluding IPSs), with electrical power demand standing at 143,663 GWh, about 1% over the same month of 2020 but still 2% below two years ago. Accounting for this were the impacts of Covid-19 since early 2020, which caused the Thai economy's sharp contraction (6.1%) in 2020, followed by 1.3% growth in 2021. As a result, power demand has not returned to pre-Covid-19 days.

**3. Outlook for the National Energy Plan and amendment to Thailand Power Development Plan (PDP 2022)** Today, EPPO is in the process of developing the National Energy Plan, which will combine five energy subplans, that is, PDP, AEDP, EEP, Gas Plan, and Oil Plan, the enforcement of which should be in 2023. The plan is to be made compatible with the energy transition from fossil fuels to clean energy as well as various innovations to sustain this transition and help Thailand achieve



Source: Energy Policy and Planning Office, Ministry of Energy

## Electricity Demand Growth versus GDP Growth



Source:

Energy Policy and Planning Office (EPPO), Ministry of Energy, Office of the National Economic and Social Development Council (NESDC)

its targeted carbon neutrality by 2050 and finally the Net Zero Emissions by 2065 as pledged by the government at COP 26 in November 2021.

The framework for the National Energy Plan was endorsed on August 4, 2021, with a policy direction defined to drive the energy sector to its goal, namely a low-carbon economy and society, spelled out below:

- (1) Redesign the proportion of energy forms so that renewable energy accounts for at least 50% of the total power generation, with consideration given to the cost of energy storage systems (ESSs) in the long term
- (2) Shift energy consumption in the transport sector to green power with EV technology under the 30@30 Policy to enhance GHG reduction, raise the energy efficiency of the transport sector, and overcome the atmospheric particulate (PM2.5) problem

(3) Raise energy management efficiency by over 30% by applying modern energy management technology and management innovation

(4) Restructure the energy business to accommodate energy transition under the 4D1E approach: decarbonization, digitalization, decentralization, deregulation, and electrification.

NEPC Meeting of October 28, 2021, endorsed the move to raise the proportion of clean energy sooner, as seen in the PDP 2018 Revision 1 for 2021-2030. In the initial phase, the Committee on Energy Policy Administration will include the plan for the first 10 years (2021-2030) in the PDP 2022, which would feature 300 MW of new power plants in the system: 1,000 from renewables and 700 MW reduction in fossil fuels.










Based on past records, power consumption is very much tied to the state of the domestic economy. So if one could control the Covid-19 pandemic, resulting in limited transmission and no curb on travel (which would in turn disrupt the business sector), one would see significant recovery in power demand in line with the domestic economic recovery. It was projected that Thailand's GDP growth in 2022 would range from

3.5% to 4.5% and may return to the pre-pandemic figures in 2023. That is to say, future demand for power could rise with the advent of new economic activities under 4D1E, including a rise in the EV fleet under the public policy.

In addition, the power sector faces challenges in the application of innovation and technology to develop renewables power plants to raise their production efficiency, environmental friendliness, and cost reduction to become competitive with fossil fuels in the long run. It is believed, therefore, that in the future the public policy will allow more private power generation. Private producers would manage private PPAs and promote prosumers (notably solar power generation, whose costs have now been slashed) and promote smart ESSs to grow the capability of renewable energy.

With the anticipated greater role of renewable energy in the proportion of power generation, PDP 2022 is likely to feature LOLE (a planning principle based on the likelihood of blackouts), replacing the reserve margin approach, which cannot analyze the uncertainty of renewable energy. Such replacement would lend greater accuracy to the assessment and planning for the security of Thailand's power system.

### Summary of Power Generation from Clean Energy under PDP 2018 Rev. 1 (2021-2030)

New Power Plant		PDP2018 Rev.1 (A)	New Plan (B)	B-A
Fossil Fuels	 Natural gas-fired	5,550	4,850	-700
	 Coal-fired	600	600	0
	Total 1	6,150	5,450	-700
Clean Energy	 Hydro power purchase from other countries	1,400	2,766	+1,366
	 Solar	5,194	4,455	-739
	 Wind	270	1,500	+1,230
	 Biomass	1,120	485	-635
	 Biogas	783	335	-448
	 Refuse	400	600	+200
	 Small Hydro	26	52	+26
Total 2		9,193	10,193	+1,000
Total 1 + 2		15,343	15,643	+300

Source: Energy Policy and Planning Office (EPPO)

### 3) Procurement of Products and Services

The Company commands production and distribution procedures for products and services, categorized by each subsidiary as follows:

#### Fossil Fuel Power Plants (Conventional Power Plants)

##### 1. Global Power Synergy Plc (The Company)

The Company generates and distributes electricity to EGAT and industrial customers, with a total capacity of 1,983 MW. It also provides utility services, producing and distributing steam and industrial water to industrial customers in nearby areas, with the total steam production capacity of about 1,655 tons per hour, the industrial water production capacity of 2,080 cubic meters per hours and the chilled water capacity of about 12,000 refrigerated tons which can be classified our power plants and central utility plants are as follows:

##### 1) Sri Racha Power Plant

Sri Racha Power Plant is under the power purchase project from a major IPP with a total capacity of 700 MW. It lies in Thung Sukhala sub-district, Si Racha district, Chon Buri. The total amount of electricity generated is sold to EGAT under a 25-year PPA, starting from its commercial operation on August 15, 2000. The agreement will end in 2025, and electricity generation for distribution varies with the conditions and production commands of EGAT.

#### Production Processes

Sri Racha Power Plant is a combined-cycle power plant using natural gas as the main fuel and diesel as secondary fuel, comprising two sets of gas turbine generators (GTGs) of 235 MW and two sets of heat recovery steam generators (HRSGs) and one set of steam turbine (ST) to drive a set of steam turbine generators (STGs) of 240 MW.

#### Raw-Material Sourcing

Sri Racha Power Plant uses natural gas as the main fuel in electricity generation. It entered a 25-year natural gas purchase agreement with PTT Plc, ending in 2025 for an IPP gas price, and a diesel purchase agreement with Thailoil Plc (TOP) to use as a secondary fuel, as well as a 25-year raw water purchase agreement with Eastern Water Resource Development and Management Plc (EW), ending in 2025. Besides, Sri Racha Power Plant entered a PPA with EGAT for 10 MW on an annual basis, and a 25-year backup PPA with Thailoil Power (TP) for 1 MW, ending in 2025, to use as reserve power during maintenance.

#### Distribution

Sri Racha Power Plant generates and distributes the entire amount of electricity to EGAT under the IPP-PPA. With reference to conditions of this PPA, it is EGAT's right to determine the amount of electricity purchased through a long-term power purchase plan on an annual and a monthly basis, and a short-term power purchase plan on a daily basis. The plant must notify the availability in electricity generation to EGAT on a long-term and short-term basis, whereby the availability payment (AP) is the compensation that EGAT pays Sri Racha Power Plant for maintaining electricity generation availability regardless of the amount of electricity distributed to EGAT. The availability payment is made up of:

- APR1: The compensation that EGAT pays the Company for plant construction costs, debt burden and capacity cost.
- APR2: The compensation that EGAT pays the Company for fixed costs in machine operations and maintenance (Fixed O&M).

Sri Racha Power Plant will receive the AP revenue based upon the availability notified by the plant itself and under power purchase conditions. Besides, it is eligible for the energy payment (EP) from the actual electricity generation based on EGAT's dispatch instruction, whereby EGAT has the contractual right to call for a termination of electricity generation or not to produce at full capacity, while EGAT is still required to pay AP to Sri Racha Power Plant based on availability.

## **2) Rayong Central Utility Plant (CUP)**

Rayong Central Utility Plant is a producer of electricity, steam and industrial water for industrial customers within PTT Group and industrial customers in general. It also distributes electricity to EGAT to maintain its balancing load between electricity and steam generation in case of industrial customers' high demand for steam, leading to the ramped-up electricity generation to yield enough steam to accommodate such demand. The excess electricity will then be distributed to EGAT under a non-firm SPP PPA. Therefore, distributing a portion of electricity to EGAT not only serves to enhance effectiveness, but also increases reliability for industrial customers and facilitates their business expansion in the future. Currently, there are four Central Utility Plants in Rayong:

### **2.1 Central Utility Plant 1: CUP-1**

CUP-1 commands a generating capacity of about 226 MW, steam generating capacity of 890 tons per hour and industrial water production capacity of 720 cubic meters per hour. It is in WHA Eastern Industrial Estate (Map Ta Phut) in Rayong. It distributes electricity, steam and industrial water to industrial customers and EGAT, and it has begun commercial operation in 2006.

CUP-1 has entered a Demineralized Water Purchase Agreement with WHA Eastern Industrial Estate (Map Ta Phut) No.1 in 2019 and No.2 in 2020 to enhance the potential and water resource reliability.

### **Production Processes**

CUP-1 is a cogeneration power plant, using natural gas as the fuel, comprising of six GTGs of 37.6 MW and six HRSGs of 70 tons per hour. Each set of the equipment also has a supplementary burner that can produce steam at 70 tons per hour and an auxiliary boiler with a capacity of 50 tons per hour.

### **Raw-Material Sourcing**

CUP-1 uses natural gas as fuel, with a five-year gas purchase agreement with PTT ending in 2026, and the right to use water under a land purchase agreement with WHA Eastern Industrial Estate (Map Ta Phut). Furthermore, CUP-1 entered a one-year backup PPA of 57 MW with EGAT with an automatic renewal if the contract is not terminated otherwise.

### **2.2 Central Utility Plant 2: CUP-2**

CUP-2 is located near Rayong Industrial Land (RIL), Rayong province, with a total capacity of about 113 MW, steam generating capacity of 170 tons per hour and industrial water production capacity of about 510 cubic meters per hour. It distributes electricity, steam and industrial water mainly to industrial customers and distributes excess electricity to EGAT under a non-firm SPP PPA. CUP-2 began commercial operation in 2008.

### **Production Processes**

CUP-2 is a cogeneration power plant using gas as the fuel, comprising two GTGs of 37.6 MW and two HRSGs of 70 tons per hour each. Each set of the equipment also has a supplementary burner that can produce additional steam of 70 tons per hour, which will be distributed to industrial customers. The remaining steam is passed through the steam turbines to drive a steam turbine generator (STG) of 38 MW to reduce the steam pressure to a medium level before distributing it to customers. Also, steam is produced from an auxiliary boiler of 50 tons per hour.



**Raw-Material Sourcing**

CUP-2 uses gas as fuel, with a 15-year natural gas purchase agreement with PTT ending in 2023 and a 15-year raw water purchase agreement with RIL Industrial Estate ending in 2022. Moreover, the Company entered a one-year backup PPA of 37.5 MW with EGAT with an automatic renewal if the contract is not terminated otherwise.

**2.3 Central Utility Plant 3: CUP-3**

CUP-3 is in WHA Eastern Industrial Estate (Map Ta Phut), Rayong province, with a steam generating capacity of 280 tons per hour and industrial water production capacity of about 770 cubic meters per hour. The main equipment is made up of two auxiliary boilers of 70 tons per hour and one auxiliary boiler of 140 tons per hour, together with a demineralized water production system. CUP-3 has commercially operated since 2009 with the installation of an STG of 15 MW in 2019 to maintain steam and electricity generating reliability to allow maximum production optimization.

**Raw-Material Sourcing**

CUP-3 uses natural gas as steam generating fuel, with a 15-year natural gas purchase agreement with PTT ending in 2023 and a 15-year industrial water purchase agreement with WHA Eastern Industrial Estate (Map Ta Phut) ending in 2023.

**2.4 Central Utility Plant 4: CUP-4**

CUP-4 is in Asia Industrial Estate (AIE), Rayong province. This investment endeavor aligns with the Company's strategy in expanding its production capacity to accommodate industrial growth within Asia Industrial Estate and nearby industrial estates now and in the future. The investment also strengthens the potential of the production system and distribution network among the CUPs as a whole.

**Production Processes**

CUP-4 is a cogeneration power plant, comprising of a GTG of 49 MW and a HRSG of 70 tons per hour, with a supplementary burner that can produce additional steam of 70 tons per hour. CUP-4 has a network that connects electricity and steam distribution to customers and with CUP-1.

**Raw-Material Sourcing**

CUP-4 entered a 15-year natural gas purchase agreement with PTT ending in 2034 and a 15-year clarified water purchase agreement with GC Estate ending in 2034.

**Distribution for CUP-1, CUP-3 and CUP-4**

The Company has entered an electricity, steam and industrial water purchase agreement with industrial customers in WHA Eastern Industrial Estate (Map Ta Phut), Asia Industrial Estate (AIE) and nearby industrial estates. Besides, it entered a non-firm SPP PPA with EGAT of 40 MW with a contract period of five years, with an automatic renewal of five years for each renewal from the date when the Company started generating electricity for delivery to EGAT's system.

The electricity and steam distribution systems for CUP-1 and CUP-3, and CUP-1 and CUP-4, have been designed to connect with one another (Power and Steam Distribution Tie-up) to enhance production effectiveness and maintain balance and backup capacity for one another. CUP-4 has undergone commercial operation since the third quarter of 2019, enabling the Company's electricity and steam network to be more reliable, leading to a more effective plant optimization.

## **2. Glow Energy Plc (GLOW)**

GLOW operates as a major IPP and an SPP. Its core business is electricity generation for EGAT as well as production of steam, processed water and chilled water to supply to industrial customers in Map Ta Phut Industrial Estate, nearby industrial estates and Siam Eastern Industrial Park in Pluak Daeng, Rayong, and others. The total attributable electricity generating capacity is about 3,091 MW, steam generating capacity of 1,116 tons per hour, chilled water production capacity of about 3,400 tons of refrigeration and processed water production capacity of about 5,292 cubic meters per hour. Industrial customers usually have utility purchase agreements with a contract period of 10-20 years whereas the PPA with EGAT is usually valid for 21-30 years. GLOW's power plants both in Thailand and overseas consist of:

### **1) Glow IPP Power Plant (GIPP)**

Glow IPP Power Plant is a combined-cycle plant using natural gas as a principal fuel, and diesel as a secondary fuel. It has the same generating procedure as that of Sri Racha Power Plant, and it has conducted commercial operation since January 2003. It operates as a major IPP, generating and distributing the entire production to EGAT, with an electricity generating capacity of 713 MW.

### **2) Glow Energy Power Plant Phase 2**

Glow Energy Power Plant Phase 2 is a combined-cycle natural gas-fired cogeneration power plant. It commenced commercial operation in April 1996, with an electricity generating capacity of 281 MW and steam generating capacity of 300 tons per hour. The electricity capacity of 120 MW is distributed to EGAT while the remaining capacity is distributed to industrial customers in Map Ta Phut Industrial Estate. Steam is also supplied to industrial customers in Map Ta Phut under the agreement. Furthermore, this plant has

a wastewater treatment facility that can produce clarified water of 900 cubic meters per hour and demineralized water of 280 cubic meters per hour to supply to Glow Energy Power Plant Phase 1 and to customers in Map Ta Phut Industrial Estate and nearby industrial estates.

Now, a new power plant is under construction for the SPP replacement project, which is expected to go commercial in October 2022. The SPP replacement power plant has a capacity of 201.7 MW and a steam generating capacity of 460 tons per hour. The electricity of 60 MW is distributed to EGAT, while the remaining capacity is distributed to industrial customers in Map Ta Phut Industrial Estate.

### **3) Glow Energy Power Plant Phase 4**

Glow Energy Power Plant Phase 4 is a gas-fired cogeneration power plant located in Map Ta Phut Industrial Estate. It commenced commercial operation in January 2005 with a generating capacity of 77 MW and a steam generating capacity of 137 tons per hour, a clarified water and demineralized water production capacity of 1,500 and 550 cubic meters per hour. The entire electricity is distributed to EGAT while steam, clarified water and demineralized water are distributed to industrial customers in Map Ta Phut Industrial Estate and nearby industrial estates.

### **4) Glow Energy Power Plant Phase 5**

Glow Energy Power Plant Phase 5 is in the same area as Glow SPP 3 Power Plant in Map Ta Phut Industrial Estate. This plant is equipped with a gas turbine, heat recovery steam generator and a steam turbine, with a maximum electricity generating capacity of 328 MW. The electricity and the steam generated are distributed through GLOW's transmission lines. This plant is considered a large combined-cycle and steam power plant compared with GLOW's other combined-cycle and steam

power plants. Given the scale and effectiveness of Glow Energy Power Plant Phase 5, this plant can operate its base load unit while other smaller combined-cycle and steam power plants operate only to generate electricity to EGAT, subsequently enabling balance in the amount of electricity and steam distributed to industrial customers. This power plant commenced commercial operation in September 2011.

#### 5) GHECO-ONE Power Plant

GHECO-ONE Power Plant is in Map Ta Phut Industrial Estate. It is a coal-fired power plant with a total capacity of 660 MW.

##### Production Processes

GHECO-ONE Power Plant has been designed and operated under an international standard, using bituminous coal, which is a high-quality coal with low sulfur contents as the project's principal fuel. The coal is imported from Indonesia and will be conveyed from a coal pile yard using a closed-system conveyor to temporarily store them before finely pulverizing it and then injecting it to combine with air in the pulverized coal-fired boiler (PC boiler) that generates steam with a temperature of 566 degrees Celsius and a pressure of 242 bars. The coal is then transmitted into the steam turbine generator to generate electricity.

##### Distribution

GHECO-ONE Power Plant operates as an IPP, generating and distributing electricity to EGAT. It commenced commercial operation in July 2012.

#### 6) Glow Energy CFB3 Power Plant

Glow Energy CFB3 Power Plant is a coal-fired power plant that commenced commercial operation in November 2010. It is equipped with a circulating fluidized bed boiler and a steam turbine generator. It is in the same area as Glow SPP3 Power Plant in Map Ta Phut Industrial Estate. This plant has been designed for an electricity

generating capacity of 85 MW, steam generating capacity of 79 tons per hour, or an electricity generating capacity of 115 MW without steam generation. Electricity and steam are distributed to industrial customers in Map Ta Phut Industrial Estate.

#### 7) Glow SPP2 / Glow SPP3 Power Plant (Phase 3)

Glow SPP2 and Glow SPP3 Power Plants are hybrid natural gas and coal-fired combined-cycle cogeneration facilities located in Map Ta Phut Industrial Estate. They commenced commercial operation in March 1999. Glow SPP2 and Glow SPP3 Power Plants are considered the same facility.

##### Production Processes

Glow SPP2 and Glow SPP3 Power Plants are separated into (1) Glow SPP2 Co., Ltd. with two gas turbines and a capacity of about 35 MW and two heat recovery units and (2) Glow SPP3 Co., Ltd., a coal-fired power plant with two units of combined-cycle gas and coal-fired generators (hybrid cycle unit) of 222 MW. Each unit is made up of a steam turbine, two gas turbines with a capacity of about 35 MW, two heat recovery units and a circulating fluidized bed boiler. Glow SPP2 and Glow SPP3 Power Plants have a combined generating capacity of 513 MW, steam generating capacity of 190 tons per hour and demineralized water production capacity of 150 cubic meters per hour.

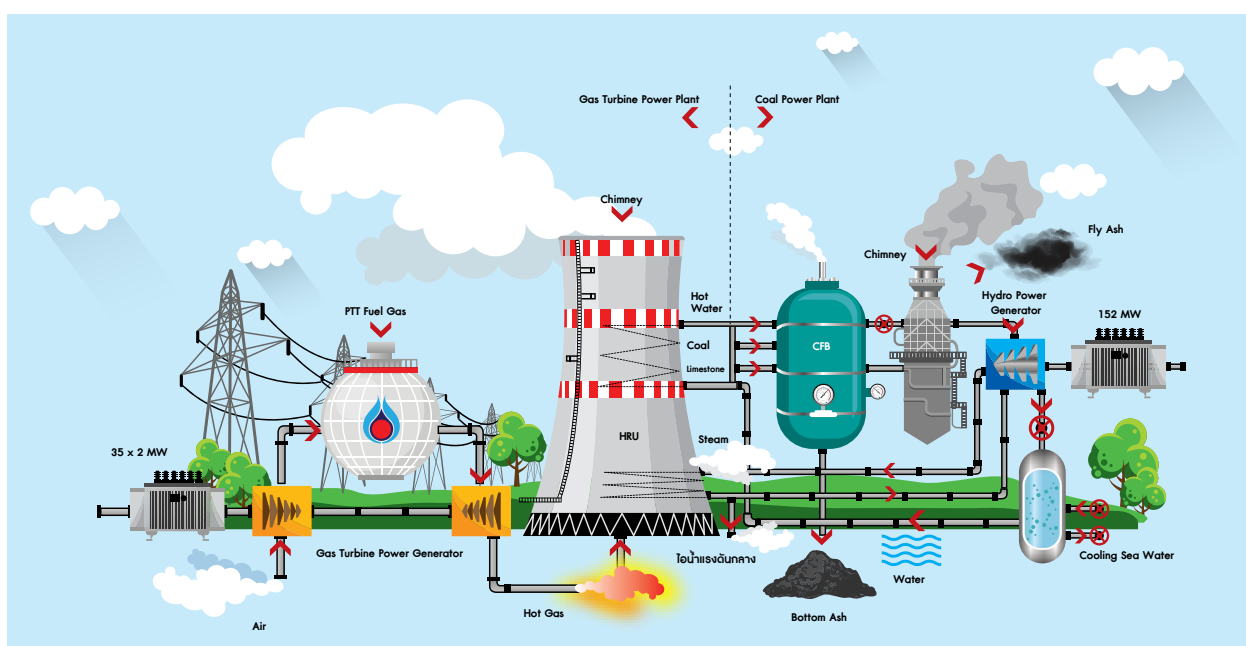
Glow SPP2 and Glow SPP3 Power Plants are combined-cycle gas and coal-fired power plants (hybrid cycle cogeneration). They use gas turbine and steam turbine in generating electricity and use a CFB boiler (Circulating Fluidized Bed Boiler) to generate steam, which is different from the Company's other power plants that mainly use natural gas. Instead, Glow SPP2 / Glow SPP3

Power Plants use both coal and natural gas as fuels. Even though the electricity generating cycle at these plants is different from those at general power plants, the machinery and equipment used are of international standards for leading electricity generating firms. The Company has incorporated hybrid facility technology to increase the use of coal fuel, which is less costly, and to reduce the use of natural gas as the principal fuel in production.

The following diagram illustrates the combined-cycle natural gas and coal-fired electricity generation (Hybrid Electricity Generation Process) of Glow SPP2 / Glow SPP3 Power Plants.

#### Distribution

The electricity generated from Glow SPP2 / Glow SPP3 Power Plants is distributed to EGAT and industrial customers in Map Ta Phut Industrial Estate, while steam and processed water are also distributed to industrial customers in the estate and nearby industrial estates.



#### 8) Glow SPP11 Power Plant Project 1

Glow SPP11 Power Plant Project 1 is a gas-fired cogeneration power plant, located in Siam Eastern Industrial Park. It commenced commercial operation in October 2000.

##### Production Processes

This power plant is equipped with two gas turbines, one steam turbine, one absorption chiller and one backup electric chiller, with an electricity generating capacity of 120 MW and a chilled-water capacity of 2,200 tons of refrigeration.

#### Distribution

The electricity generated from this power plant is distributed to EGAT, while the electricity and chilled water are distributed to industrial customers in Siam Eastern Industrial Park via the Company's transmission lines and chilled-water pipeline network.

#### 9) Glow SPP11 Power Plant Project 2

Glow SPP11 Power Plant Project 2 is a gas-fired cogeneration power plant, located in Siam Eastern Industrial Park. The power plant commenced commercial operation in December 2012.



### Production Processes

This power plant is equipped with two gas turbines, one absorption chiller and one electric chiller to enhance production capacity and increase the effectiveness of the gas turbine. The plant's electricity generating capacity is 110 MW, with a chilled water production capacity of 1,200 tons of refrigeration.

### Distribution

The power plant distributes electricity to EGAT and the remaining capacity (both electricity and chilled water) to industrial customers in Siam Eastern Industrial Park via the power transmission lines and chilled-water pipelines.

#### **10) Glow SPP11 Power Plant Project 3**

Glow SPP11 Power Plant Project 3 is equipped with four natural gas-fired engines. It is located near Glow SPP11, with a total production capacity of 23 MW. The four generators were installed, and the power plant commenced commercial operation in October 2006.

#### **11) Glow SPP11 Power Plant Project 3 (Extension)**

Glow SPP11 Power Plant Project 3 (Extension) is equipped with two natural gas-fired engines using natural gas as production fuel. It is located near Glow SPP11 with a total capacity of 19 MW. The two generators were installed, and the power plant commenced commercial operation in April 2015.

### Glow's Raw-Material Sourcing

Key raw materials for electricity and steam generation for Glow are natural gas and coal, except for Houay Ho Power Plant, a hydro power plant; a solar power plant in Asia Industrial Estate; and Chonburi Clean Energy Power Plant, an industrial waste power plant.

### Natural Gas

Glow has entered nine natural gas purchase agreements with PTT, grouped into:

- Natural gas purchase agreement for an IPP
- Natural gas purchase agreement for an SPP
- Natural gas purchase agreement for a cogeneration power plant
- Natural gas purchase agreement for an industrial customer.

### Coal

Coal is used as fuel for CFB1, CFB2 Power Plants of Glow SPP3 Co., Ltd., CFB3 Power Plant of Glow and GHECO-ONE Power Plant, with a total coal purchase volume (measured by total mass) of 3,181,637 tons, 3,581,168 tons, and 3,187,212 tons (data as of November 2021) in 2019, 2020 and 2021. In 2022, the Company purchases coal through a medium-term and long-term coal purchase agreements with domestic and international coal suppliers.

Coal is priced in US dollars, comprising the coal price (FOB) and freight rate. In this regard, the coal cost for GHECO-ONE Power Plant is passed on to EGAT at an agreed heat rate. However, for cogeneration plants, Glow's product prices may not thoroughly reflect the coal cost, so changes in the coal price affect Glow's profitability, coupled with the fact that Glow cannot push its freight cost burden to other parties under the PPA with EGAT.

### Diesel

Diesel is a secondary fuel for GTGs in generating electricity for an IPP. Glow does not have any issues in procuring diesel because its plants are located near Rayong Refinery and Star Refinery, both located in an industrial estate, as well as near PTT's oil depot in Si Racha district, Chon

Buri. Under a PPA with an IPP, Glow IPP Co., Ltd. is required to allocate sufficient diesel reserve for electricity generation for three days as specified in the agreement. For GHECO-ONE Power Plant, diesel is used only to get the machine up and running, so Glow does not need to arrange for diesel reserve as required of an IPP. Over the past, there has not been any issue of severe natural gas shortage, so there was no need to use diesel to fire the generators, except in special cases for machine testing or commissioning.

#### Raw Water and Other Utilities

GHECO-ONE Power Plant, Glow Energy Power Plant and Glow SPP2/Glow SPP3 Power Plants are in Map Ta Phut Industrial Estate, owned and operated by the Industrial Estate Authority of Thailand (IEAT). IEAT is a state enterprise under the control and supervision of the Ministry of Industry, established under the Industrial Estate Authority of Thailand Act B.E.2522. IEAT as a government enterprise is responsible for acquiring infrastructure and utilities (i.e. raw water and waste treatment system, etc.) for entrepreneurs in Map Ta Phut Industrial Estate. Therefore, it is responsible for procuring water and utilities for Glow's power plants.

Seawater that is used as cooling water is transported via an underground pipeline from the port to the condenser for use in the process before getting transported back to the sea via a drainage canal. Meanwhile, clean and demineralized water used in production are produced by Glow's water treatment plant.

Glow IPP Power Plant is in an industrial estate, owned and operated by WHA, which is responsible for procuring key utilities such as raw water, a waste treatment system, telephone system, and other central utilities for Glow's power plants.

Apart from the utility expenses, Glow pays WHA monthly fees for central utility management and maintenance within the industrial estate, which gets adjusted occasionally.

Glow SPP11 Power Plant Project 2 and Project 3 are in Siam Eastern Industrial Park, which has its own wastewater treatment system and other utilities, with Eastern Water Resources Development and Management Plc as the procurer of raw water.

#### Other Raw Materials

Glow uses a small amount of limestone in coal power plants (sourced domestically) and uses different chemicals in conditioning raw water to become clean and demineralized water. These chemicals include aluminum sulphate, sodium hydroxide, sodium hydrochloride, saline and trisodium phosphate.

### **3. Ratchaburi Power Co., Ltd. (RPCL)**

RPCL is an IPP with a total capacity of 1,400 MW, with two production units of 700 MW capacity each. It lies in Damnoen Saduak district, Ratchaburi. It distributes the entire production to EGAT under a 25-year PPA from the date when the power plant commenced electricity generation for EGAT's system: March 1, 2008 for Unit 1 and June 1, 2008 for Unit 2. The agreement will remain valid until 2033, in which electricity generation complies with EGAT's conditions and operation orders.

#### Production Processes

RPCL is a combined-cycle power plant using natural gas as a principal fuel and diesel as a secondary fuel. It employs the same electricity generation procedures as Sri Racha Power Plant's. RPCL has two sets of GTGs of 245 MW for each production unit, HRSG, and one set of STGs of 275 MW for each production unit.

### **Raw-Material Sourcing**

RPCL uses natural gas as fuel under a 25-year PPA with PTT, ending in 2033 for an IPP gas price, whereby RPCL can pass on the energy payment to EGAT. In case PTT is unable to supply natural gas as agreed, and EGAT orders RPCL to operate with the secondary fuel, EGAT will compensate the increase in fuel cost for RPCL. RPCL has entered a high-speed diesel purchase agreement with SUSCO and PTT (Secondary Fuel Agreement: SFA) to use it as a secondary fuel if natural gas is unavailable. Both agreements are valid for five years, ending in 2021.

### **Distribution**

RPCL generates and distributes the entire production to EGAT under the PPA for an IPP. The agreement empowers EGAT to determine the power purchase volume via a long-term (annual and monthly) power purchase plan and the short-term (daily) power purchase plan, whereby RPCL must notify its availability to EGAT both on the long-term and short-term bases. The AP is the compensation that EGAT pays RPCL for maintaining the generating availability regardless of the amount of electricity distributed to EGAT. In the meantime, RPCL will receive the AP revenue based on its availability notified and under the PPA. Besides, RPCL will receive the EP revenue from the actual amount of electricity generated as commanded by EGAT, though EGAT is contractually entitled to order a termination of electricity generation or withholding of the maximum capacity, while EGAT is still required to pay AP to RPCL based on its availability.

### **4. Combined Heat and Power Producing Co., Ltd. (CHPP)**

CHPP is a VSPP with an installed capacity of about 5 MW and a chilled-water capacity of about 12,000 tons of refrigeration. It is located at the Chaengwattana Government Complex, Bangkok (The Government Complex). It has a non-firm PPA with MEA and distributes cooling energy for the air-conditioning system for the Government Complex buildings.

### **Production Processes**

CHPP is a combined heat and power with district cooling power plant. It commenced commercial operation in 2009. Its chilled-water production processes are described below:

1. Chilled-water production from the heat obtained from power generation, with two units of absorption chillers of 1,500 tons of refrigeration. They have not commenced commercial operation because machinery maintenance is in progress.
2. Chilled-water production with electricity, with three units of electric chillers of 2,000 tons of refrigeration and three units of electric chillers of 1,000 tons of refrigeration.

### **Raw-Material Sourcing**

CHPP uses natural gas as a power generating fuel, with a 10-year natural gas purchase agreement with PTT.

### **Distribution**

CHPP distributes electricity to MEA, and it entered a 5-year non-firm PPA on April 23, 2009. The agreement is renewed automatically every five years until the agreement is terminated. The remaining electricity generates the cooling energy to distribute to the Government Complex for its air-conditioning system. The Company entered a 30-year cooling energy purchase agreement with Dhanarak Asset Development Co., Ltd., ending in 2038.

### **5. Bang Pa-In Cogeneration Co., Ltd. Project 1 (BIC-1)**

BIC-1 is an SPP with a power generating capacity of about 117 MW and steam generating capacity of about 20 tons per hour. It is in Bang Pa-In Industrial Estate, Bang Pa-In district, Phra Nakhon Sri Ayutthaya. It distributes electricity under a firm-SPP PPA mainly to EGAT, amounting to 90 MW, and distributes a portion of electricity and steam to industrial customers in Bang Pa-In Industrial Estate.

### **Production Processes**

BIC-1 is a cogeneration plant using natural gas as fuel. It is equipped with two sets of GTGs to run the generator, whereby the exhaust from the gas turbine will be used to transfer heat to the water to generate steam with two sets of HRSGs. It will then pass through the steam turbines and run the STGs. The remaining steam will then be distributed to industrial customers.

### **Raw-Material Sourcing**

BIC-1 uses natural gas as its production fuel. It has entered a 25-year natural gas purchase agreement with PTT, ending in 2038.

### **Distribution**

BIC-1 distributes electricity to EGAT under a 25-year Firm-SPP PPA for 90 MW, from the commencement of electricity generation into EGAT's system in 2013. The agreement will remain valid until 2038, and the remaining electricity will be distributed to industrial customers in Bang Pa-In Industrial Estate on long-term PPAs, with contractual periods of about 15 years. The Company also entered steam and processed water purchase agreements with industrial customers in Bang Pa-In Industrial Estate.

## **6. Bang Pa-In Cogeneration Co., Ltd. Project 2 (BIC- 2)**

BIC-2 is an SPP with an electricity generating capacity of 117 MW and a steam generating capacity of about 20 tons per hour. It is in Bang Pa-In Industrial Estate, Bang Pa-In, Phra Nakhon Sri Ayutthaya. It distributes electricity under the firm-SPP PPA mainly to EGAT for 90 MW, and a portion of electricity and steam to industrial customers in Bang Pa-In Industrial Estate.

### **Production Processes**

BIC-2 is a cogeneration power plant using natural gas as production fuel. It is equipped with two sets of GTGs to run the generators, whereby the exhaust from the gas turbine transfers heat to the water to generate steam with two sets of HRSGs. It will then pass through the steam turbines and run the STGs. The remaining steam is then distributed to industrial customers.

### **Raw-Material Sourcing**

BIC-2 uses natural gas as its production fuel. It has entered a 25-year natural gas purchase agreement with PTT, ending in 2042.

### **Distribution**

BIC-2 distributes electricity to EGAT under a 25-year firm-SPP PPA for 90 MW from the commencement of electricity generation into EGAT's system in 2017. The agreement will remain valid until 2042, and the remaining electricity is distributed to industrial customers in Bang Pa-In Industrial Estate on long-term PPAs, with a contractual period of about 15 years. The Company also entered a steam and processed water purchase agreement with industrial customers in Bang Pa-In Industrial Estate.

## **7. Nava Nakorn Electricity Generating Co., Ltd. (NNEG)**

NNEG is an SPP with an electricity generating capacity of 185 MW and steam generating capacity of about 40 tons per hour. The investment can be separated into two phases. The first phase has an electricity generating capacity of 125 MW and a steam generating capacity of 30 tons per hour. The second phase has an electricity generating capacity of 60 MW and a steam generating capacity of 10 tons per hour. It is in Nava Nakorn Industrial Promotion Zone, Pathum Thani. It distributes electricity under a firm-SPP PPA to EGAT for 90 MW, and the remaining capacity to industrial customers in Nava Nakorn Industrial Promotion Zone.

### **Production Processes**

NNEG is a cogeneration power plant using natural gas as its production fuel. It is equipped with two sets of 45-MW GTGs and one set of 46-MW GTGs, three sets of HRSGs and one set of 35-MW STGs and 1 set of 14-MW STGs. Furthermore, the inlet air cooling system by using electric chillers has been designed and installed to increase the electricity generation capacity at different time periods.



**Raw-Material Sourcing**

NNEG uses natural gas as its production fuel. It has entered a 25-year natural gas purchase agreement with PTT, ending in 2041.

**Distribution**

NNEG entered a firm-SPP PPA with EGAT for 90 MW as well as PPAs and steam purchase agreements with industrial customers in Nava Nakorn Industrial Promotion Zone.

**8. IRPC Clean Power Co., Ltd. (IRPC-CP)**

IRPC-CP is an SPP with an electricity generating capacity of 120 MW for each of its production unit, totaling 240 MW, and a steam generating capacity of about 180-300 tons per hour 180 tons per hour for on-peak periods and 300 tons per hour for off-peak periods. It is in IRPC Industrial Zone, Rayong. It distributes electricity under two firm-SPP PPAs to EGAT: each for 90 MW, totaling 180 MW. The agreements are valid for 25 years, and the remaining electricity and steam capacity is distributed to IRPC.

**Production Processes**

IRPC-CP is a cogeneration plant using natural gas as its production fuel. It is equipped with two sets of GTGs for each production unit, two sets of HRSGs for each production unit and one set of STGs for each production unit. Furthermore, steam is generated via an auxiliary boiler and the inlet air cooling system by using electric chillers designed and installed to increase the electricity generation capacity at different periods.

**Raw-Material Sourcing**

IRPC-CP uses natural gas as its production fuel. It has entered a 27-year natural gas purchase agreement with PTT from the commencement of commercial operation for Phase 1.

**Distribution**

IRPC-CP entered two firm-SPP PPAs with EGAT for 90 MW each, totaling 180 MW on January 6, 2012. The agreements are valid for 25 years from the date when

the Company started generating electricity for EGAT's system. Besides, IRPC-CP entered a PPA for the remaining capacity of 60 MW and a steam purchase agreement of 180-300 tons per hour, depending on the periods, with IRPC on December 16, 2013, which will end in 2042 or at the same time as that of the PPA with EGAT, whichever takes place later.

**9. Energy Recovery Unit Co., Ltd. (ERU)**

The Energy Recovery Unit (ERU) Project was established under the cooperation between GPSC and Thai Oil Plc (TOP), an energy production scheme under the Clean Fuel Project (CFP) of TOP. It is a co-generation plant with an electricity generating capacity of 250 MW (to be used in the project for 50 MW) and a steam generating capacity of 175 tons per hour for CFP. ERU is on a sub-lease land from TOP in Si Racha district, Chon Buri. The project is under construction, expected to be completed and commence commercial operation in 2023.

**Production Processes**

ERU is a combined heat power plant using petroleum pitch as its production fuel via a pitch solidification system which receives pitch from the residue hydrocracking unit of CFP and then injects it to the circulating fluidized bed boiler. The heat then generates high-pressure steam, which passes through steam turbines to generate electricity.

**Raw-Material Sourcing**

ERU uses petroleum pitch as its main fuel which is a by-product of CFP's distillation, with environment-friendly high technology. ERU will enter a 25-year agreement to purchase petroleum pitch and other fuels with TOP after the rights transfer of the project.

**Distribution**

ERU will commence electricity distribution and deliver other products to TOP for revenue recognition after taking the transfer. The agreement is valid for 25 years, with a capacity of 180-200 MW.

## Renewable-Energy Power Plants in Thailand

### 1. Global Power Synergy Plc (GPSC) Rayong Waste-to-Energy Project

GPSC operates the Waste-to-Energy Project, located in Rayong, which consists of two projects, namely Refuse-Derived Fuel (RDF) Project, producing 300 tons of RDF per day, with construction completed since 2018, and an RDF power plant with a capacity of 9.8 MW, which held a PPA with PEA and started commercial operation on May 28, 2021.

#### Raw-Material Sourcing and Production Processes

GPSC cooperates with Rayong Provincial Administrative Organization (PAO Rayong), which manages community waste for over 67 local government organizations to feed community waste to the RDF plant. GPSC sorts 500 tons per day or 170,000 tons per year of waste from 1,000-1,200

tons per day of community waste, which is enough for electricity generation. Moving grate technology is used to incinerate the waste at 850-1,100 degree Celsius, and RDF waste is conveyed with a closed-system conveyor.

#### Distribution

The electricity is distributed to PEA under the waste-to-energy feed-in-tariff project. The agreement is valid for 18 years.

### 2. Thai Solar Renewable Co., Ltd. (TSR)

TSR holds 100% of shares in Siam Solar Energy 1 Co., Ltd. (SSE1), a VSPP designed to develop solar power plants, which uses a photovoltaic system or ground-mounted solar power plant. Each of 10 projects has a capacity of 8 MW, totaling 80 MW of contractual capacity, which is distributed to PEA.

Project	Location		Proposed Production Capacity (MW)	Commercial Operation
	District	Province		
SSE1-PV01	Bo Phloi	Kanchanaburi	8.0	September 4, 2013
SSE1-PV02	Don Chedi	Suphan Buri	8.0	July 17, 2013
SSE1-PV03	Nong Yasai	Suphan Buri	8.0	October 28, 2013
SSE1-PV04	Doem Bang Nang Buat	Suphan Buri	8.0	November 21, 2013
SSE1-PV05	Doem Bang Nang Buat	Suphan Buri	8.0	November 21, 2013
SSE1-PV06	Dan Makham Tia	Kanchanaburi	8.0	June 6, 2014
SSE1-PV07	Tha Muang	Kanchanaburi	8.0	March 20, 2014
SSE1-PV08	Phanom Thuan	Kanchanaburi	8.0	June 6, 2014
SSE1-PV09	U-Thong	Suphan Buri	8.0	April 4, 2014
SSE1-PV10	Sam Chuk	Suphan Buri	8.0	May 30, 2014

SSE1 entered a 10-year operation and maintenance agreement with Conergy (Thailand) Co., Ltd. and Ensys Co., Ltd., for five projects, starting from COD. A output performance guarantee is stated in the agreement for a period of 10 years by compensating the missing revenue should the generation capacity not be met. The five remaining projects will be operated and maintained by SSE1.

#### **Raw-Material Sourcing**

The key raw material used in solar farms is sunlight, which depends largely on the location, topography and climatic condition. The Company has studied sunlight intensity before deciding on the location for its solar farm.

#### **Distribution**

SSE1 distributes the entire electricity generated to PEA's system, based on 10 PPAs for a VSPP, dated April 11, 2012 for SSE1-PV01 to SSE1-PV05 projects, and July 25, 2012 for SSE1-PV06 to SSE1-PV10 projects. The power purchase capacity for each agreement is 8 MW, which is valid for 5 years. The agreement is automatically renewed for five years in each renewal. In this regard, the adder is applied to these PPAs, whereby the revenue can be categorized into: 1) the revenue according to the capacity payment wholesaled to PEA, which is subject to the changes in fuel cost and the maximum power purchase not exceeding the capacity specified in the PPA, and 2) the adder, whereby SSE1-PV01 to SSE1-PV10 projects are eligible for an adder of THB 6.5 per kWh. They will be supported for 10 years from the commencement of commercial operation.

### **3. Ground-Mounted Solar Farm Project for Chanthaburi Shrimp Farmer Cooperative Limited (Solar 1), sponsored by CHPP**

CHPP has taken part as sponsor of the ground-mounted solar farm project for selected agricultural cooperatives, to generate and distribute electricity under the announcement of the Office of the Energy Regulatory Commission (ERC) on purchasing electricity from ground-mounted solar farms for government institutes and agricultural cooperatives

B.E. 2558, dated September 17, 2015. The project is located on the premises, occupying about 75 rai of members of Chanthaburi Shrimp Farmer Cooperative Limited, Na Yai Am district, Chanthaburi. The capacity of 5 MW has been distributed to PEA since December 30, 2016, under a 25-year agreement.

#### **Raw-Material Sourcing**

The key raw material used in solar farms is sunlight, which depends largely on the location, topography and climatic condition.

#### **Distribution**

Solar 1 distributes electricity of about 5 MW to PEA over a 25-year PPA from the commencement of electricity distribution on December 30, 2016. The feed-in tariff (FiT) rate of 5.66 Baht per kWh is applied through the entire contractual period.

### **4. Engineering, Procurement and Construction (EPC) Business for Solar Power Generation by CHPP**

CHPP has commenced its engineering, procurement and construction (EPC) business for solar farms, specifically solar rooftop project development, for companies in PTT Group, for instance, the solar panels installed on the roofs of oil dispensers within PTT Oil and Retail Plc (OR)'s service stations, solar panels installed on the roofs of GC Logistics Solutions Co., Ltd. (GCL)'s distribution center, located in Map Ta Phut Industrial Estate, Rayong, with an installed capacity of 2 MW. Besides, an ESS of 625 KW has also been installed on the building roof of PTT Tank Terminal Co., Ltd. (PTT Tank), located in Map Ta Phut Industrial Estate, Rayong, with an installed capacity of 0.1 MW.

### **5. Glow Energy Solar Power Plant under Glow Energy Plc (Glow)**

Glow Energy Solar Power Plant (Solar Farm) uses a photovoltaic technology. It is in Asia Industrial Estate and has commenced commercial operation since August 2012. Glow Energy Solar Power Plant has an installed capacity of 1.55 MW, whereby the electricity generated is distributed to PEA.

## 6. Private PPA Solar Power Generation and Distribution Project under GPSC Group

GPSC Group has further developed its renewable-energy (renewables) business operations by seeking investment in solar farm or solar rooftop projects with government bodies and private companies to invest and share benefits from electricity generation using solar power under Private Power Purchase Agreement (PPPA). Currently, the Company's subsidiaries (GPSC, Glow, CHPP and IRPC-CP) have entered PPPAs with companies within and outside PTT Group, with a combined installed capacity of 23.4 MW.

## 7. Solar Farm Projects in Thailand via Global Renewable Power Co., Ltd. (GRP)

GRP has invested 100% in four companies, namely 1) N.P.S. Stargroup Co., Ltd., 2) World Exchange Asia Co., Ltd. and 3) P.P. Solar Co., Ltd., all of which are engaging in the solar farm business, while 4) Global Renewable Power Operating Co., Ltd. is engaging in the operation and maintenance business for these companies, which own nine solar farm projects with a total capacity of 39.5 MW, located in four provinces: Lop Buri, Suphan Buri, Pichit and Khon Kaen. Currently, the electricity generated is distributed into PEA's system over 25-year PPAs (PPAs). The PPAs can be classified into an adder-type, at the rate of THB 8 per unit (for the first 10 years of the agreement) for 3.6 MW and the feed-in tariff (FiT)-type at the rate of THB 5.66 per unit for 35.9 MW. All of the solar farms have commenced commercial operation since 2014-2015.

Project	Location		Proposed Production Capacity (MW)	Commercial Operation
	District	Province		
NPS1	Sak Lek	Pichit	6	December 29, 2015
NPS2	Dan Chang	Suphan Buri	6	December 29, 2015
NPS3	Ban Mee	Lop Buri	6	December 30, 2015
WXA1	Taphan Hin	Pichit	6	December 29, 2015
WXA2	Sak Lek	Pichit	6	December 29, 2015
WXA3	Taphan Hin	Pichit	6	December 29, 2015
PPSolar1	Kranuan	Khon Kaen	1.2	March 26, 2014
PPSolar2	Kranuan	Khon Kaen	1.2	March 21, 2014
PPSolar3	Kranuan	Khon Kaen	1.2	March 13, 2015

## 8. Chonburi Clean Energy Co., Ltd.

CCE is a non-hazardous industrial waste power plant with an installed capacity of 8.63 MW. It is a joint investment among GIPP3, WHA Energy, and Suez (Southeast Asia).



## **Production Processes**

Chonburi Clean Energy Power Plant can accommodate non-hazardous industrial waste of up to 100,000 tons per year. In sourcing industrial waste, the plant has signed an industrial waste procurement agreement with the company that operates waste storage, treatment and disposal to source industrial waste from different industrial estates in Chon Buri and nearby provinces. The power plant transfers the industrial waste to the combustion room to generate electricity, using environment-friendly technology.

## **Distribution**

This power plant distributes 6.9 MW of the electricity generated to PEA's system under a 20-year PPA. It has commenced commercial operation since November 2019.

## **Overseas Power Plants**

### **1. Houay Ho Power Plant (HHPC)**

Houay Ho Power plant is a hydro-power plant that began commercial operation in September 1999. The plant is in Attapeu province, southern part of the Lao PDR. The plant is operated under the IPP program, generating and distributing an installed capacity of 152 MW. Of the total, 126 MW is distributed to EGAT and 2 MW to Electricite du Lao (EDL).

### **2. Nam Lik 1 Power Co., Ltd. (NL1PC)**

NL1PC is a company registered in Lao PDR with the objective of developing the Nam Lik 1 Power Plant Project. It is a run-of-river hydro power plant with a capacity of 65 MW, located about 90 kilometers north of Vientiane. It is a concrete dam 160 meters wide and with 21.5-meter height of the dam head, blocking Nam Lik River, a tributary of Nam Ngum River in Lao PDR. It is equipped with two sets of bulb turbines with a capacity of 32.5 MW. NL1PC signed a concession agreement with the Government of Laos on February 6, 2013 in a Build, Operate and Transfer (BOT) scheme. The property will be transferred to the Government of Laos upon termination of the concession, which is valid for 30 years, from the day when the Government of Laos has entirely complied

with the condition precedent of the concession. The PPA with EDL is also valid until the end of the concession, whereby the concession and the PPA will end in 2044.

## **Raw-Material Sourcing**

The key raw material used for generating electricity for a hydro power plant is running water that flows naturally in the river and water from a dike built for electricity generation instead of building a reservoir. Even though the water is derived from natural sources at no cost, the amount of water at different time periods is uncertain and unpredictable, depending on the climate and season at different time periods. The Company has studied the sufficiency of water and taken such factors into consideration when designing a power plant.

## **Distribution**

NL1PC distributes the entire capacity to EDL under a long-term PPA, which is valid for 25 years. Nam Lik 1 Power Plant has formally commenced commercial operation since July 1, 2019.

### **3. Natee Synergy Co., Ltd. (NSC)**

NSC is an investment entity holding 25% stakes in Xayaburi Power Co., Ltd. (XPCL), a developer of the XPCL hydro power plant, registered in Lao PDR. It develops Xayaburi Hydro Power Plant, a run-of-river plant of 1,285 MW, located on the Mekhong River, about 100 kilometers from Southern Luang Phrabang. The project leverages a Kaplan turbine technology that operates together with seven generators of 175 MW and one generator of 60 MW. It has commenced commercial operation since October 29, 2019. XPCL entered a concession agreement with the Government of Laos on October 29, 2010, whereby the distribution systems are in a Build-Own-Operate and Transfer (BOOT) scheme. The concession will end at the same time as the 29-year PPA. XPCL has received concession renewal for another two years, making the total concession period 31 years from the commencement of commercial operation.

#### **Raw-Material Sourcing**

The key raw material for generating electricity for a hydro power plant is the running water that flows naturally in the river and water from a dike built for electricity generation instead of building a reservoir. Even though the water is derived from natural sources at no cost, the amount of water at different time periods is uncertain and unpredictable, depending on the climatic condition and season at different time periods. XPCL has studied the sufficiency of the water and taken seasonality factors into consideration when designing a power plant.

#### **Distribution**

XPCL distributes 1,220 MW to EGAT under a long-term PPA for a period of 29 years from the commencement of commercial operation, and 60 MW to Electricite Du Laos (EDL), under a long-term PPA for a period of 31 years from the commencement of commercial operation.

#### **4. Ichinoseki Solar Power 1 GK Co., Ltd. (ISP1)**

ISP1 is a solar power plant located in Iwate province in the northern part of Honshu Island, Japan. It distributes electricity to a Japanese utility company, with a capacity of 20.8 MW, using a polycrystalline type of solar photovoltaic module technology.

#### **Raw-Material Sourcing**

The key raw material used in generating electricity here is sunlight, which depends largely upon the location, topography and climatic conditions. The Company has studied sunlight intensity before making a decision on the location of its solar power plants.

#### **Distribution**

ISP1 secured an approval to build a solar farm of 20.8 MW of alternating current and has entered a PPA with Tohoku Electric Power Co., Ltd., a Japanese utility company with the FIT rate of JPY 40 per kWh (after tax). The agreement is valid for 20 years from the commencement of electricity distribution into the system on December 15, 2017.

#### **5. Global Renewable Power One Co., Ltd. (GRP1)**

GRP1 holds 90% shares in Sheng Yang Energy Co., Ltd., which operates a solar farm in Taiwan. It has a total installed capacity of 55.8 MW.

#### **Distribution**

The entire electricity is distributed to Taiwan Power Company, a state enterprise held by the Government of Taiwan. It is a single buyer in Taiwan under a 20-year PPA with feed-in tariff rates through the period.

#### **6. Global Renewable Synergy Co., Ltd. (GRSC)**

GRSC holds 41.62% shares in Avaada Energy Private Limited (AEPL), which operates a renewables business in several states in India with a total generating capacity (committed capacity) of 4,608 MW. A total of 16 solar farms have commenced commercial operation, with a total capacity of about 2,205 MW. In all, 16 projects are fully operational and three projects are partially operated commercially since 2018.

Project	Location		Proposed Capacity (MW)	Commercial Operation
	District/City	State		
Avaada Sustainable Energy Private Limited	Chitradurga	Karnataka	41	March 2018
Avaada Non-Conventional Energy Private Limited	Bellary	Karnataka	41	March 2018
Solarsys Non-Conventional Energy Private Limited	Banavikal and Illikal	Karnataka	122	March 2018
Fermi Solarfarms Private Limited	Jalgaon	Maharashtra	108	April 2018
Avaada Energy Private Limited	Satara	Maharashtra	33	April 2018
Avaada Clean Energy Private Limited	Kanpur	Uttar Pradesh	7	October 2018
Clean Sustainable Energy Private Limited	Jodhpur	Rajasthan	140	October 2018
Avaada Solar Energy Private Limited	Tumkur	Karnataka	210	January 2019
Avaada Sunbeam Energy Private Limited	-	Gujarat and Madhya Pradesh	2	July 2019
Avaada Solarise Energy Private Limited	Tumkur	Karnataka	210	January 2020
Avaada SataraMH Private Limited	Satara	Maharashtra	97	November 2020
Avaada Non-Conventional UP Private Limited	Badaun	Uttar Pradesh	70	April 2021
Avaada Sunrise Energy Private Limited	Surendranagar	Gujarat	420	July 2021
Avaada MHBuldhana Private Limited	Buldhana	Maharashtra	65	September 2021
Avaada GreenHN Private Limited	Sirsa	Haryana	50	November 2021
Avaada MHKhamgaon Private Limited	Khamgaon	Maharashtra	65	December 2021
Avaada Sunce Energy Private Limited	Bikaner	Rajasthan	208.8 (from a capacity of 490 MW)	Full commercial operation is expected in March 2022
Avaada Sustainable RJ Private Limited	Bikaner	Rajasthan	145.9 (from a capacity of 421 MW)	
Avaada RJHN Private Limited	Bikaner	Rajasthan	169.5 (from a capacity of 336 MW)	

### Distribution

The entire generating electricity is distributed to the Government of India under PPAs for 15-25 years.



### Installed Capacity / Maximum Capacity

As of December 31, 2021, the Company and subsidiaries have the following capacities for electricity generation and other utilities, categorized by type of energy used at plants, both in commercial operation and under construction:

Company	Project/Location	Capacity								Power Plant Type	Fuel	PPA	Commercial Operation
		Electricity (MW)		Steam (Ton/Hour)		Chilled Water (Refrigerated Ton)		Industrial Water (Cu.M/Hour)					
		Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity				
Combined-Cycle / Cogeneration / Combined Heat													
GPSC	Sri Racha Power Plant, Si Racha district, Chon Buri	700	700	-	-	-	-	80	80	IPP	Natural gas 25-year agreement, ending 2025	EGAT 25-year agreement, ending 2025	2000
GPSC	CUP-1 WHA Eastern Industrial Estate, Map Ta Phut, Rayong	226	226	890	890	-	-	720	720	SPP (Non-firm)	Natural gas 5-year agreement, ending 2026	EGAT 40 MW 5-year agreement, with 5-year renewal, next renewal ending 2025	2006
											Industrial customers 10-15-year agreement, first round ending 2017-2026, with 5-year renewal		
GPSC	CUP-2 Near R.I.L. Industrial Estate, Rayong	113	113	170	170	-	-	510	510	SPP (Non-firm)	Natural gas 15-year agreement ending 2023	EGAT 60 MW 5-year agreement, with 5-year renewal, next renewal ending 2025	2008
												Industrial customers 15-year agreement, first round ending 2026, with 5-year renewal	



Company	Project/Location	Capacity								Power Plant Type	Fuel	PPA	Commercial Operation
		Electricity (MW)		Steam (Ton/Hour)		Chilled Water (Refrigerated Ton)		Industrial Water (Cu.M/Hour)					
		Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity				
GPSC	CUP-3 WHA Eastern Industrial Estate, Map Ta Phut, Rayong	15	15	280	280	-	-	770	770	Cogeneration	Natural gas 15-year agreement ending 2023	Industrial customers 15-year agreement, first round ending 2024-2027, with 5-year renewal	2009
GPSC	CUP-4 Asia Industrial Estate (AIE), Rayong	49	49	140	140	-	-	-	-	Cogeneration	Natural gas 15-year agreement ending 2034	Industrial customers 10-15-year agreement, with 5-year renewal	Q3/2019
Glow	Glow IPP, WHA Chonburi Industrial Estate 1, Chon Buri	713	677	-	-	-	-	-	-	IPP	Natural gas 25-year agreement ending 2028	EGAT 25-year agreement, ending 2028	2003
Glow	GHECO-ONE, Map Ta Phut Industrial Estate, Rayong	660	429	-	-	-	-	-	-	IPP	Coal Ending 2021	EGAT 25-year agreement, ending 2037	2012
Glow	Glow Energy Phase 2, Map Ta Phut Industrial Estate, Rayong	281	281	300	300	-	-	1,180	1,180	SPP (Firm)	Natural gas 25-year agreement ending 2022	EGAT 21-year agreement, first round ending in 2017 and renewed until 2022	1996 SPP replacement 2022
												Industrial customers 10-20-year agreement	



Company	Project/Location	Capacity								Power Plant Type	Fuel	PPA	Commercial Operation
		Electricity (MW)		Steam (Ton/Hour)		Chilled Water (Refrigerated Ton)		Industrial Water (Cu.M/Hour)					
		Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity				
Glow	Glow SPP11 Phase 2, Siam Eastern Industrial Park, Rayong	110	110	-	-	1,200	1,200	212	212	SPP (Firm)	Natural gas 25-year agreement ending 2037	EGAT 25-year agreement, ending 2037	2012
												Industrial customers 2-10-year agreement	
Glow	Glow SPP11 Phase 3, Siam Eastern Industrial Park, Rayong	23	23	-	-	-	-	-	-	SPP (Firm)	Natural gas agreement ending 2025	Industrial customers 2-10-year agreement	2006
Glow	Glow SPP11 Phase 3 (Extension), Siam Eastern Industrial Park, Rayong	19	19	-	-	-	-	-	-	SPP (Firm)	Natural gas agreement ending 2025	Industrial customers 2-10-year agreement	2015
RPCL	Ratchaburi	1,400	210	-	-	-	-	-	-	IPP	Natural gas 25-year agreement ending 2033	EGAT 1,400 MW 25-year agreement, ending 2033	2008
CHPP	Chaengwattana Government Complex	5	5	-	-	12,000	12,000	-	-	VSPP	Natural gas 10-year agreement	MEA 6.4 MW 5-year agreement, automatic renewal 5 years each until 2025	2009
												30-year agreement for refrigeration, ending 2038	

Company	Project/Location	Capacity										Power Plant Type	Fuel	PPA	Commercial Operation
		Electricity (MW)		Steam (Ton/Hour)		Chilled Water (Refrigerated Ton)		Industrial Water (Cu.M/Hour)							
		Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity						
BIC	Bang Pa-In Industrial Estate Phase 1, Ayutthaya	117	29	20	5	-	-	-	-	-	SPP (Firm)	Natural gas 25-year agreement ending 2038	EGAT 90 MW 25-year agreement, ending 2038	2013	
												Industrial customers 15-year agreement, ending 2025-2029			
BIC	Bang Pa-In Industrial Estate Phase 2, Ayutthaya	117	29	20	5	-	-	-	-	-	SPP (Firm)	Natural gas 25-year agreement ending 2042	EGAT 90 MW 25-year agreement, ending 2042	2017	
												Industrial customers 15-year agreement, ending 2032			
NNEG	Nava Nakorn Industrial Promotion Zone, Pathum Thani	125	38	30	9	-	-	-	-	-	SPP (Firm)	Natural gas 25-year agreement ending 2041	EGAT 90 MW 25-year agreement, ending 2041	2016	
												Industrial customers 10-15-year agreement, ending 2041			
NNEG	Nava Nakorn Industrial Promotion Zone (Extension), Pathum Thani	60	18	10	3	-	-	-	-	-	Cogeneration	Natural gas	Industrial customers	2020	



Company	Project/Location	Capacity								Power Plant Type	Fuel	PPA	Commercial Operation
		Electricity (MW)		Steam (Ton/Hour)		Chilled Water (Refrigerated Ton)		Industrial Water (Cu.M/Hour)					
		Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity				
IRPC-CP	IRPC Industrial Zone, Rayong	240	122	300	153	-	-	-	-	SPP (Firm)	Natural gas 27-year agreement ending 2042	EGAT 180 MW 25-year agreement, ending 2042	Phase 1-2015 Phase 2-2017
Industrial customers, ending 2042													
ERU	Energy Recovery Unit, Chon Buri	250	250	175	175	-	-	-	-	Cogeneration	Oily liquid by-product of CFP's distillation	Thai Oil Plc (TOP) 220 MW 25-year agreement, ending 2048	2023
Total		6,346	4,467	3,151	2,946	15,400	15,400	7,372	7,372				
Solar Power Plant (Solar Farm)													
Glow	Glow Energy Solar, Asia Industrial Estate	1.55	1.55	-	-	-	-	-	-	VSPP	Solar	PEA	2012
TSR/ SSE1	Kanchanaburi/ Suphan Buri	80	32	-	-	-	-	-	-	VSPP	Solar	PEA 80 MW 5-year agreement, automatic renewal every 5 years	2013-2014
ISP1	Japan	20.8	20.8	-	-	-	-	-	-	Solar power plant	Solar	Tohoku Electric Power 20.8 MW, 20-year agreement, ending 2037	2017



Company	Project/Location	Capacity								Power Plant Type	Fuel	PPA	Commercial Operation
		Electricity (MW)		Steam (Ton/Hour)		Chilled Water (Refrigerated Ton)		Industrial Water (Cu.M/Hour)					
		Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity				
CHPP	Solar 1, on the premises of members of Chanthaburi Shrimp Farmer Cooperative Limited, Chanthaburi	5	5	-	-	-	-	-	-	VSPP	Solar	PEA 25-year agreement, ending 2041	2016
GPSC/ Glow/ CHPP/ IRPC-CP	Solar energy project	23.4	23.4	-	-	-	-	-	-	-	Solar	PPPA	2018-2022
GRP	Solar Power Plants: Pichit, Suphan Buri, Lop Buri, and Khon Kaen	39.5	19.75	-	-	-	-	-	-	VSPP	Solar	PEA 25-year agreement	2014-2015
GRP1	Taiwan	55.8	25.11	-	-	-	-	-	-	-	Solar	Taiwan Power Company	2018-2021
GRSC (AEPL)	India	4,608	1,917	-	-	-	-	-	-	-	Solar	Indian State Government	2018-2023
GRSC (CFXD)	Taiwan	595	149	-	-	-	-	-	-	-	Wind	Taiwan Power Company	2022-2024

Company	Project/Location	Capacity								Power Plant Type	Fuel	PPA	Commercial Operation
		Electricity (MW)		Steam (Ton/Hour)		Chilled Water (Refrigerated Ton)		Industrial Water (Cu.M/Hour)					
		Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity	Maximum Installed Capacity	Equity Capacity				
		Hydro Power Plant											
Glow	Houay Ho, Attapeu, Lao PDR	152	102	-	-	-	-	-	-	IPP	Water	EGAT - 126 MW EDL - 2 MW 30-year agreement, ending 2029	1999
XPCL	Lao PDR	1,285	321	-	-	-	-	-	-	-	Water	EGAT - 1,220 MW EDL - 60 MW 25-year agreement, ending 2044	2019
NL1PC	Lao PDR	65	26	-	-	-	-	-	-	-	Water	EDL - 65 MW 25-year agreement, ending 2043	ᦅ 2562
Waste - to - Energy Power Plant													
GCE	WHA Chonburi Industrial Estate 1, Chon Buri	8.6	2.9	-	-	-	-	-	-	VSPP	Industrial waste	MEA 8 MW 20-year agreement, ending 2039	2019
GPSC	RDF Power Plant, Rayong	9.8	9.8	-	-	-	-	-	-	VSPP	Community waste	MEA 8 MW 20-year agreement, ending 2041	2021
Total		6,948	2,654	-	-	-	-	-	-				
Grand Total		13,296	7,122	3,151	2,946	15,400	15,400	7,372	7,372				

#### 4) Business Assets

##### 1. Fixed Assets

GPSC's main businesses are production and distribution of electricity, steam, and utilities and investments through shareholding in other companies engaging in the same and related businesses in both domestic and international markets. The table below shows the fixed assets of GPSC and its subsidiaries

with net book values after deduction of accumulated depreciation and other reserve for impairment as stated in GPSC's consolidated financial statements as of December 31, 2020 and December 31, 2021 of THB 99,978 million and THB 95,581 million.

##### Property, Plant, and Equipment of GPSC and Subsidiaries

No.	Item	Book Value (THB Million)		Obligation
		December 31, 2020	December 31, 2021	
1	Land	1,844	1,844	Some portion of land of GPSC's subsidiaries was pledged as collateral for long-term loans between subsidiaries and financial institutions.
2	Buildings and building improvement	1,782	2,024	Buildings and building improvement of GPSC's subsidiaries were pledged as collateral for long-term loans between subsidiaries and financial institutions.
3	Power plants, water plants, machinery, tools and equipment	90,814	86,863	Some main machinery and equipment and a portion of power and water plants of GPSC's subsidiaries were pledged as collateral for long-term loans between subsidiaries and financial institutions.
4	Furniture, fixtures and office equipment	125	114	Some furniture, fixtures and office equipment of GPSC's subsidiaries were pledged as collateral for long-term loans between subsidiaries and financial institutions.
5	Motor vehicles	13	18	Some motor vehicles of GPSC's subsidiaries were pledged as collateral for long-term loans between subsidiaries and financial institutions.
6	Construction in progress	5,400	4,718	Some machinery and equipment of GPSC's subsidiaries used in the construction were pledged as collateral for long-term loans between subsidiaries and financial institutions.
Total		99,978	95,581	



These fixed assets of GPSC and its subsidiaries are divided by type of assets and the companies as follows:

- **Land**

As of December 31, 2020, and December 31, 2021, the book values of land under the consolidated financial statements of GPSC and its subsidiaries were:

Company	Book Value (THB Million)		Ownership	Obligation Value (THB Million)
	December 31, 2020	December 31, 2021		
GPSC	581	581	GPSC	-
IRPC-CP	614	614	IRPC-CP	614
Glow	649	649	Glow Group	-
<b>Total</b>	<b>1,844</b>	<b>1,844</b>		

- **Buildings and building improvement**

As of December 31, 2020, and December 31, 2021, the book values of buildings and building improvement under the consolidated financial statements of GPSC and its subsidiaries were:

Company	Book Value (THB Million)		Ownership	Obligation Value (THB Million)
	December 31, 2020	December 31, 2021		
GPSC	586	881	Some buildings and building improvement are owned by GPSC, and some of them were constructed on sub-leased land to be used as power plants. Upon the expiration of the sub-lease agreement, these buildings and building improvement will be devolved to the sublessor.	-
CHPP	152	145	CHPP constructed buildings on sub-leased land to be used as power plants. Upon the expiration of each sub-lease agreement, these buildings and building improvement will be devolved to the sublessor.	27
IRPC-CP	826	804	IRPC-CP owned the building to be used as the power plant in Rayong.	641
Glow	218	194	Glow Group owned the buildings to be used as power plants.	11
<b>Total</b>	<b>1,782</b>	<b>2,024</b>		

- **Power plants, water plants, machinery, tools and equipment**

As of December 31, 2020, and December 31, 2021, the book values of power plants, water plants, machinery, tools and equipment under the consolidated financial statements of GPSC and its subsidiaries were:

Company	Book Value (THB Million)		Ownership	Obligation Value (THB Million)
	December 31, 2020	December 31, 2021		
GPSC	13,728	17,628	Owned by GPSC, to be used in the power plant and utilities plant.	-
CHPP	289	267	Owned by CHPP, to be used in the power plant.	123
IRPC-CP	7,829	7,518	Owned by IRPC-CP, to be used in the power plant.	7,518
ISP1	1,713	-	Owned by ISP1, to be used in the power plant.	-
Glow	67,255	61,450	Glow Group owns the buildings to be used as power plants.	29,013
<b>Total</b>	<b>90,814</b>	<b>86,863</b>		

- **Furniture, fixtures and office equipment**

As of December 31, 2020, and December 31, 2021, the book values of furniture, fixtures and office equipment under the consolidated financial statements of GPSC and its subsidiaries were:

Company	Book Value (THB Million)		Ownership	Obligation Value (THB Million)
	December 31, 2020	December 31, 2021		
GPSC	54	46	GPSC	-
CHPP	1	1	CHPP	-
IRPC-CP	16	12	IRPC-CP	11
Glow	54	55	Glow Group	-
<b>Total</b>	<b>125</b>	<b>114</b>		

- **Motor vehicles**

As of December 31, 2020, and December 31, 2021, the book values of motor vehicles under the consolidated financial statements of GPSC and its subsidiaries were:

Company	Book Value (THB Million)		Ownership	Obligation Value (THB Million)
	December 31, 2020	December 31, 2021		
GPSC	6	12	GPSC entered financial lease agreements.	-
Glow	7	6	Glow Group	6
<b>Total</b>	<b>13</b>	<b>18</b>		

- **Construction in progress**

As of December 31, 2020, and December 31, 2021, the book values of the construction in progress under the consolidated financial statements of GPSC and its subsidiaries were:

Company	Book Value (THB Million)		Ownership	Obligation Value (THB Million)
	December 31, 2020	December 31, 2021		
GPSC	2,898	1,486	GPSC	-
CHPP	30	97	CHPP	-
IRPC-CP	42	40	IRPC-CP	40
Glow	2,430	3,095	Glow Group	70
<b>Total</b>	<b>5,400</b>	<b>4,718</b>		

## 2. Intangible Assets

As of December 31, 2020, and December 31, 2021, the book values of the intangible assets and rights to use under the consolidated financial statements of GPSC and its subsidiaries were:

Company	Description	Book Value (THB Million)	
		December 31, 2020	December 31, 2021
Intangible assets			
GPSC	Cost of computer software copyright and system improvement for the Company's power plant	92	189
	Deferred cost of the right-of-use of assets	112	85
CHPP	Cost of computer software copyright and system improvement	9	7
IRPC-CP	Cost of the right to use natural gas distribution system	491	469
	Deferred cost of the right-of-use of assets	918	875
	Cost of computer software copyright and system improvement	10	9
ISP1	Deferred cost of fair value from business purchase	293	-
	Cost of license fees for the connection of power transmission line system and right to operate the power business in Japan	72	-
	Deferred cost of the right-of-use of assets	68	-
Glow	Deferred cost of fair value from business purchase	41,286	39,378
	Cost of computer software copyright and system improvement	55	3
	Deferred cost of the right-of-use of assets	578	510
Total		43,984	41,526

### 3. Non-operating Assets

As of December 31, 2020, GPSC and its subsidiaries had some machinery and equipment which were not operating and under the amortization process. They therefore booked them as non-operating assets. As of December 31, 2020, and December 31, 2021, the book values of non-operating assets under the consolidated financial statements of GPSC and its subsidiaries were:

Company	Book Value (THB Million)		Ownership
	December 31, 2020	December 31, 2021	
CHPP	104	104	Non-operating assets and under amortization process
<b>Total</b>	<b>104</b>	<b>104</b>	

### 4. Business agreement

- Long-term lease agreement

As of December 31, 2021, the Company and its subsidiaries' significant agreements for the business operation of each company was summarized as follows:

Lessee	Lessor/Sub Lessor	Agreement	Purpose	Term of Agreement
GPSC	TOP	Land sublease agreement	To be used as the location for GPSC's IPP power plant in Chon Buri. The right under the sublease agreement was pledged as collateral for long-term loans from financial institutions.	25 years and 9 months
	GCEC	Service area agreement for the installation of underground electric transmission lines	For the installation of underground high-voltage transmission lines under GPSC CUP-4 project (to CUP-1)	15 years
	GCEC	Service area agreement for the installation of a drainage water system	For the installation of drainage water pipes under GPSC CUP-4 project (to AIE)	15 years
	GCEC	Service area agreement for the installation of underground electric transmission lines	For the installation of underground high-voltage transmission lines under GPSC CUP-4 project (to client)	15 years
	GCEC	Service area agreement for the installation of underground electric transmission lines	For the installation of underground high-voltage transmission lines under GPSC CUP-4 project (to PTTMCC)	15 years
	GCEC	Service area agreement for bridge construction to support transmission pipeline	For the construction of the bridge to support GPSC's transmission pipeline under GPSC CUP-4 project	15 years



Lessee	Lessor/Sub Lessor	Agreement	Purpose	Term of Agreement
GPSC	PTT	Land lease agreement	For the development, design, construction, possession and management of ground-mounted solar electricity-generating system or other generating systems for commercial distribution and research and development (R&D).	25 years and 5 months
	Enco	Office space lease agreement	To be used as offices and workplace	3 years
	PTTEP	Office space lease agreement	To be used as offices and workplace	3 years
	WHA Eastern Industrial Estate (WHA)	Service area agreement for the installation of an underground electric transmission line system	For the installation of an underground transmission line system under GPSC CUP-1 Project (to VCX)	15 years
	WHA	Service area agreement for the installation of an underground electric transmission line system	For the installation of an underground transmission line system under GPSC CUP-1 Project (to PTTAC & MTPSC)	15 years
	WHA	Service area agreement for the installation of an underground electric transmission line system	For the installation of an underground transmission line system under GPSC CUP-1 Project to MIGP & Phenol & TOCGC & TOL (CUP-1 to CUP-3)	15 years
	WHA	Service area agreement for the installation of an underground electric transmission line system	For the installation of an underground transmission line system CUP-1 to CUP-4	15 years
	WHA	Service area agreement for the installation of an underground electric transmission line system	For the installation of an underground transmission line system CUP-3	15 years
	Asia Industrial Estate (AIE)	Service area agreement for the installation of drainage water pipelines	For the installation of drainage water pipelines under GPSC CUP-4 project	15 years
	AIE	Service area agreement for the installation of an underground electric transmission line system	For the installation of an underground transmission line system CUP-4	6 years
	Industrial Estate Authority of Thailand (IEAT)	Service area agreement for other useful business operations or related operations	For the construction of a structure for the installation of raw material and product transmission pipelines (Agreement No. Nor Phor 005/2005)	30 years
	IEAT	Land lease agreement for industrial use	For the operation of energy storage unit production and related activities (Flash Project)	30 years

Lessee	Lessor/Sub Lessor	Agreement	Purpose	Term of Agreement
	State Railway of Thailand (SRT)	Land lease agreement for the installation of above-ground or underground pipeline	For the installation of water and steam pipelines over-railway crossing, and that of above-ground or underground electrical conduits under-railway crossing	3 years
	R.I.L. Industrial Estate (RIL)	Agreement to use structure for pipeline installation	For the installation of a utility pipeline (CUP-2)	15 years
	RIL	Land right agreement for the construction of underground electrical conduits	For the construction of underground electrical conduits (CUP-2)	15 years
CHPP	State property by Dhanarak Asset Development Co., Ltd. as Sub-lessor	Sublease agreement of State property	For the operation under a chilled-energy purchase agreement, Government Complex project number: 35/3551	31 years and 4 months
	Private land of natural person	Land lease agreement	For the construction of a building on the lease land for use as a solar power plant. Upon expiration of the agreement, the land, building, and construction will be devolved to the lessor	25 years
IRPC-CP	IRPC	Land lease agreement	To be used as the location for high-voltage power transmission towers to support overhead power lines from the lessee's area to the high-voltage power station (Agreement number: AL. 0221/2017)	3 years
ISP1	Yugen Kaisha Earth Ichinoseki Farm	Land sublease agreement	To be used as the location of a solar power plant	20 years
GLOW	IEAT	Land sublease agreement in Map Ta Phut Industrial Estate (port)	For the construction of a factory building and operation of electricity generation and steam production (Agreement number: 4/1996-Nor Phor.)	28 years
	IEAT	Land lease agreement for industrial use, Map Ta Phut Industrial Estate	For the operation of electricity, steam and water generation/production for industrial use, parcel no. I-17/1.2.1, I-17/1.2.2, Agreement dated July 17, 2020 (Agreement number: 8/2020-Nor Phor.)	20 years
	IEAT	Service area agreement for other business operations which are useful or related to business operations in Map Ta Phut Industrial Estate (underground power transmission lines)	For the operation of product and power transmission pipelines (Agreement number: 2/2007-Nor Phor.)	28 years with 20-year renewable term

Lessee	Lessor/Sub Lessor	Agreement	Purpose	Term of Agreement
GLOW	IEAT	Land lease agreement for industrial use, Map Ta Phut Industrial Estate (parking lot project 2)	To be used as a parking lot (Agreement number: 1/2019-Nor Phor.)	3 years with renewable term
	IEAT	Land allocation agreement in Map Ta Phut Industrial Estate (coal stock piling)	For the operation of electricity, steam and water generation for industrial use, (reserve space for business expansion) (Agreement number: 2/2007 Nor Phor.)	30 years with 20-year renewable term
	IEAT	Service area agreement to operate other businesses that are beneficial or related to business operations in Map Ta Phut Industrial Estate (underground electric transmission lines to RIL)	For the installation of underground electrical conduits, parcel no. PR-02 to PR-09, PR-11 to PR-12 (Agreement number: 3/2008-Nor Or Lor)	Agreement terminated as agreed by the parties
	IEAT	Service area agreement to operate other businesses that are beneficial or related to business operations in Map Ta Phut Industrial Estate (underground electric transmission lines to RIL)	For the installation of underground electrical conduits, parcel no. PR-13 (Agreement number: 4/2008-Nor Or Lor)	Agreement terminated as agreed by the parties
	IEAT	Service area agreement to operate other businesses that are beneficial or related to business operations in Map Ta Phut Industrial Estate (underground electric transmission lines to RIL)	For the installation of underground electrical conduits, parcel no. G-05, PR-14 (Agreement number: 5/2008-Nor Or Lor)	Agreement terminated as agreed by the parties
	IEAT	Service area agreement to operate other businesses that are beneficial or related to business operations in Map Ta Phut Industrial Estate (underground electric transmission lines to RIL)	For the installation of underground electrical conduits, parcel no. P-20/1 (Agreement number: 6/2008-Nor Or Lor)	Agreement terminated as agreed by the parties

Lessee	Lessor/Sub Lessor	Agreement	Purpose	Term of Agreement
GLOW	IEAT	Service area agreement to operate other businesses that are beneficial or related to business operations in Map Ta Phut Industrial Estate (underground electric transmission lines to RIL)	For the installation of underground electrical conduits, parcel no. P-12/1 (Agreement number: 7/2008-Nor Or Lor)	Agreement terminated as agreed by the parties
	AIE	Memorandum of Agreement on land allocation (underground power transmission lines in Asia Industrial Estate)	For the installation of underground power transmission and distribution lines to supply to consumers (Agreement dated August 1, 2005)	15 years
	AIE	Service area agreement for the installation of an underground electric transmission lines system	For the installation of underground electrical conduits and manholes in part of the area in parcel no. 3761 (Agreement dated December 30, 2019)	January 1, 2020– December 31, 2025
	IEAT	Service area agreement for other business operations which are useful or related to business operations in Map Ta Phut Industrial Estate (a bridge to support steam and product transmission pipeline I-6 Project 3)	For the construction of the bridge to support the product and steam transmission pipelines to industrial consumers (Agreement number: Nor Phor 033/2019)	3 years with renewable term
	IEAT	Service area agreement for other business operations which are useful or related to business operations in Map Ta Phut Industrial Estate (a structure to support steam and product transmission pipeline I-2)	For the construction of a structure to support the product, water and steam transmission pipelines and a steam and water gauging station (Agreement number: 12/2014- Nor Phor.)	14 years
	IEAT	Service area agreement to operate other businesses that are beneficial or related to business operations in Map Ta Phut Industrial Estate (underground electric transmission lines)	For the installation of a product transmission pipeline and electrical transmission lines (Agreement number: 3/2011- Nor Phor)	13 years

Lessee	Lessor/Sub Lessor	Agreement	Purpose	Term of Agreement
GLOW	IEAT	Service area agreement for other business operations which are useful or related to business operations in Map Ta Phut Industrial Estate (a bridge to support steam and product transmission pipelines)	For the construction of the bridge to support the product and steam transmission pipelines (Agreement number: 13/2014- Nor Phor.)	14 years
	IEAT	Service area agreement to operate other businesses that are beneficial or related to business operations in Map Ta Phut Industrial Estate (underground electric transmission lines)	For the installation of a product transmission pipeline and electrical transmission lines (Agreement number: 3/2013- Nor Phor)	11 years
	IEAT	Service area agreement to operate other businesses that are beneficial or related to business operations in Map Ta Phut Industrial Estate (raw water pipeline project 2)	For the installation of a raw water intake pipeline, parcel number: G-84 Agreement dated July 18, 2019 (Agreement number: Nor Phor. 032/2019)	3 years with renewable term
	IEAT	Service area agreement to operate other businesses that are beneficial or related to business operations in Map Ta Phut Industrial Estate (underground electric transmission lines)	For the installation of a product transmission pipeline and electrical transmission lines (Agreement number: 6/2014- Nor Phor.)	10 years
	IEAT	Service area agreement to operate other businesses that are beneficial or related to business operations in Map Ta Phut Industrial Estate (a steam transmission pipeline)	For the installation of a medium-pressure steam transmission pipeline (Agreement number: 4/2015- Nor Phor.)	30 years
	IEAT	Service area agreement for industrial use in Map Ta Phut Industrial Port	To maintain seawater-intake point for a cooling system, parcel no. S-3, Agreement dated May 13, 2019 (Agreement number: 006/2019-Sor Thor Ror.) (During to renew the lease at January 1, 2022-December 31, 2024)	3 years with renewable term



Lessee	Lessor/Sub Lessor	Agreement	Purpose	Term of Agreement
GLOW	IEAT	Service area agreement for industrial use in the Map Ta Phut Industrial Port (between Glow Energy Plc and IEAT)	To be used as a temporary location for the installation of a Reverse Osmosis System (RO) from seawater to address the drought crisis, Agreement dated September 23, 2020 (Agreement number: 008/2020 - Sor Thor Ror.)	1 year with a renewable term from September 1, 2020—August 31, 2021
	IEAT	Land lease agreement for industrial use in Map Ta Phut Industrial Estate (between Glow SPP 2 Co., Ltd. and IEAT)	For the operation of electricity, steam and industrial water, parcel no. S-53 and S-54, Agreement dated December 20, 2020 (Agreement number: Nor Phor.043/2019)	30 years December 20, 2019—December 19, 2049
	B.Grimm Power (AIE-MTP) Co., Ltd. (BGRIM)	Land lease agreement between B.Grimm Power (AIE-MTP) Co., Ltd. (lessor) and Glow Energy Plc. (lessee) for the location of a high-voltage power station, underground power transmission lines and a steam boiler control system. Certification dated February 21, 2019	To operate the power distribution system business (MTP3 Substation near the SPP 1 power plant)	30 years
	BGRIM	Rights-of-use agreement between B.Grimm Power (AIE-MTP) Co., Ltd. (lessor) and Glow Energy Plc (lessee)	For the rental of an area to set up Glow's duct bank (in Glow SPP1 Co., Ltd.'s area) under a lease agreement dated February 1, 2017	30 years
	GCEC	Service area agreement for the installation of underground power transmission lines between GC Estate Co., Ltd. (service provider) and Glow SPP 3 Co., Ltd. (user)	For the installation of underground power transmission lines 800 meters long. Agreement dated February 20, 2020 (Agreement number: GCEC-34-3420-001)	January 1, 2020—December 31, 2034

Lessee	Lessor/Sub Lessor	Agreement	Purpose	Term of Agreement
GLOW	WHA	Supplementary Memorandum No. 1 of the service area agreement for the installation of underground power transmission lines in WHA Eastern Industrial Estate (Map Ta Phut), formerly Hemaraj Eastern Industrial Estate (Map Ta Phut), (Agreement No. EIE 001/2017 dated January 1, 2017) between WHA (developer) and Glow SPP 1 Co., Ltd. and Glow Energy Plc (user)	To amend the agreement on the installation of an underground power transmission system in WHA Eastern Industrial Estate (Map Ta Phut) by terminating Glow SPP 1 Co., Ltd. and revising the condition on the property transferred from GSPP1 to Glow Energy Plc (Agreement number: EIE 001/2017, dated January 1, 2017)	19 years January 1, 2017— December 31, 2035
	PTTGC	Service area agreement for the installation of underground power transmission lines, D3 project between PTT Global Chemical Plc (service provider) and Glow SPP 2 Co., Ltd. (user)	For the installation of underground power transmission lines to CUP-3, a total of 2,938.38 sq.m. Agreement dated March 10, 2021 (Agreement number: S115-10-21-113)	20 years March 10, 2021—March 9, 2041
	SRT	Land lease agreement for the installation of above-ground or underground pipeline for D3 Project between SRT (service provider) and Global Power Synergy Plc (user)	For the installation of underground electrical conduits, a total of 1,089.32 sq.m. Agreement dated October 28, 2021 (Agreement number: 901648076)	5 years August 1, 2021—July 31, 2026
	WHA	Supplementary Memorandum No. 1 of the service area agreement for the installation of underground power transmission lines in WHA Eastern Industrial Estate (Map Ta Phut) D3 Project (Agreement No. WHAEIE 002/2021 dated January 31, 2021) between WHA (developer) and Global Power Synergy Plc (user)	To amend the agreement on installation of an underground power transmission system in WHA Eastern Industrial Estate (Map Ta Phut) by requesting 0.1492 rai more in GPSC CUP-3, totaling lease area for transmission line system installation of 5.9102 rai (Agreement number: WHAEIE 002/2021, dated January 31, 2021)	16 years August 1, 2021—January 31 2035

#### 4) Investment Capital in Power Plants under Construction

GPSC's investment capital in power plant projects under construction as of December 31, 2021 is summarized as follows:

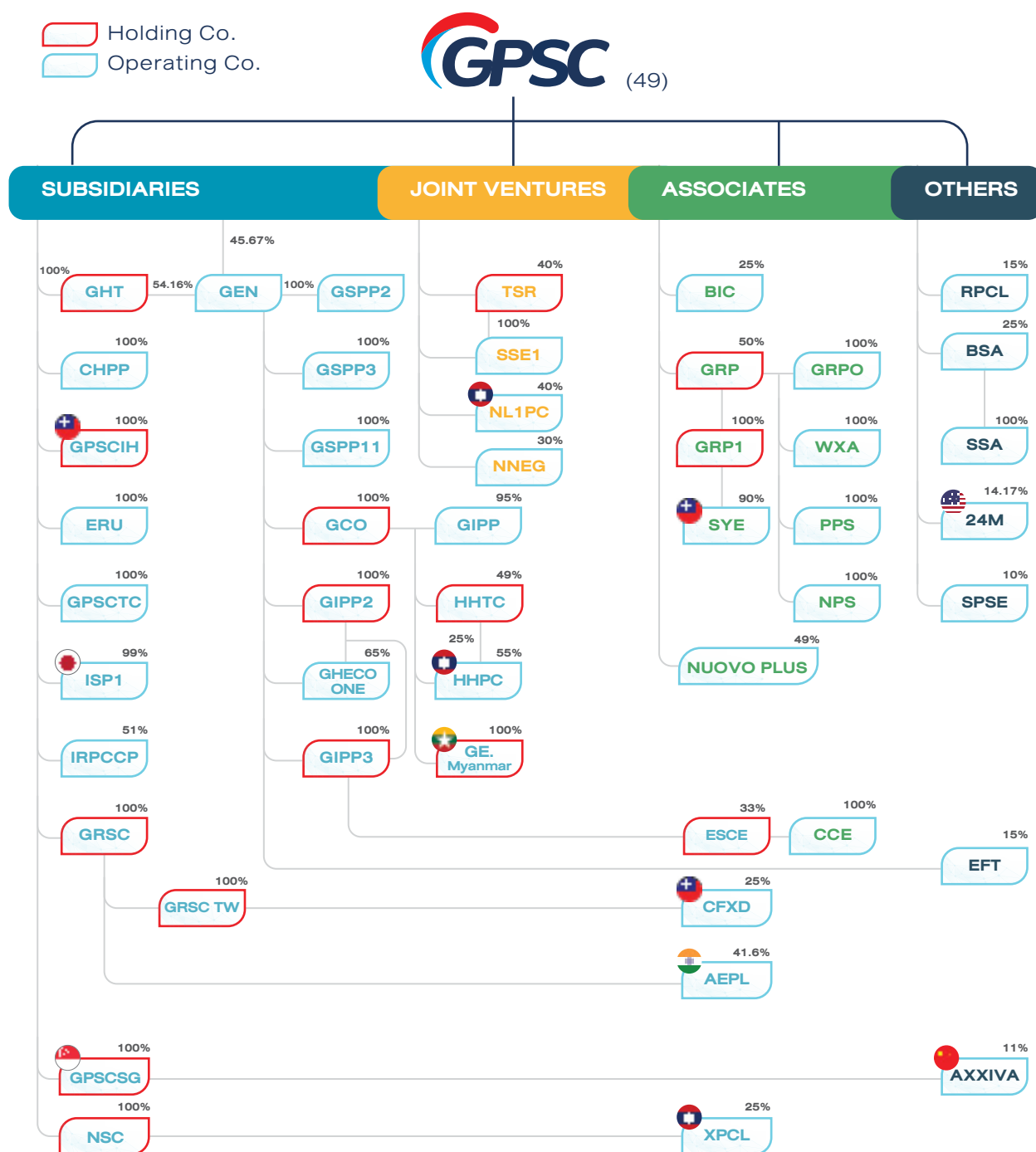
Project	Equity (Percent)	Commencement of Commercial Operation/ Production	Estimated Investment Budget Required until Commercial Operation Date (THB Million)
WTE	100	2021	19
ERU <sup>(1)</sup>	100	2024	23,112
SPP Replacement (Glow Energy Phase 2) <sup>(2)</sup>	100	2022	4,434
Energy Storage Unit	100	2021	121
<b>Total</b>			<b>27,686</b>

Remarks:

<sup>(1)</sup> The ERU project's total investment budget stood at about USD 757 million according to the asset purchase agreement with TOP. The remaining investment budget for 2022-2024 was reported at about USD 688 million, equivalent to about THB 23.112 billion at the exchange rate of THB 33.5929/USD, based on the average selling price of the Bank of Thailand as of December 30, 2021. The actual transaction in the Baht currency on the transaction date or payment date as stated in the contract is subject to increase or decrease, depending on the exchange rate stated in the contract.

<sup>(2)</sup> The investment budget for the SPP Replacement (Glow Energy Phase 2) stood at about USD 194 million, of which USD 62 million had already been invested, with pending investment capital in 2022-2023 amounting to about USD 132 million or about THB 4.434 billion, based on the exchange rate of THB 33.5929/USD, based on the average selling price of the Bank of Thailand as of December 30, 2021.

## 1.3 Shareholding Structure of GPSC Group



Remarks:

<sup>(1)</sup> GPSC Group's shareholding structure and percentage of shareholding as of December 31, 2021.<sup>(2)</sup> On January 11, 2022, GPSC cooperated with Arun Plus Co., Ltd. (ARUN PLUS), a PTT Plc subsidiary, in establishing Nuovo Plus Co., Ltd. (NUOVO PLUS), in which GPSC and ARUN PLUS hold 49% and 51% equity. On January 18, 2022, GPSC made capital increase of USD 25 million in AEPL, thus raising its equity increased to 42.93%.

## General Information on GPSC-Invested Companies

As of December 31, 2021

Company	Type of Business	Registered Capital	Type of Share	Paid-up Capital	Share Value	GPSC's Shareholding
<b>SUBSIDIARIES</b>						
<b>Combined Heat and Power Producing Company Limited (CHPP)</b> 555/2 Energy Complex, Building B, 5 <sup>th</sup> Floor, Vibhavadi Rangsit Rd., Chatuchak, Bangkok 10900 Tel: +66 2143 9644 Fax: +66 2143 9645	A very small power producer firm (VSPP) operating a combined heat & power with district cooling power plant to generate and supply electricity to MEA and chilled water to Bangkok Government Complex	THB 500,000,000	Common share	THB 371,730,000	THB 10/share	100%
<b>Natee Synergy Company Limited (NSC)</b> 555/2 Energy Complex, Building B, 5 <sup>th</sup> Floor, Vibhavadi Rangsit Rd., Chatuchak, Bangkok 10900, Tel: +66 2140 4658	Investment in the power generation business	THB 6,826,500,000	Common share	THB 6,826,500,000	THB 100/share	100%
<b>Indirect Associate</b> <b>Xayaburi Power Company Limited (XPCL)</b> 215 Lanexang Avenue, Ban Siang Yuen, Chantaburi District, Vientiane, Lao PDR Tel: +856 (21) 251718 Fax: +856 (21) 215500	A hydropower firm generating and supplying power to EGAT and Electricite du Laos (EDL)	THB 26,861,000,000	Common share	THB 26,861,000,000	THB 10/share	25% (through NSC)
<b>Ichinoseki Solar Power 1 GK Company (ISP1)</b> 5F, Hanai Building, 1-2-9, Shibakoen Minato-ku, Tokyo 105-0011 Tel: +81 3 5362 7035 Fax: +81 3 5362 7036	A solar power firm generating and supplying electricity to a Japanese utility company	JPY 10,000	Common share	JPY 10,000	-	100%
<b>IRPC Clean Power Company Limited (IRPC-CP)</b> 299 Moo 5, Sukhumvit Rd., Choeng Noen Sub-district, Muang District, Rayong 21000 Tel +66 3861 1333, +66 3861 3571-80 Fax: +66 3861 2812-3	A small power producer (SPP) operating a cogeneration plant to generate and supply electricity to EGAT, and the surplus electricity and steam to industrial customers in IRPC Industrial Zone	THB 3,362,300,000	Common share	THB 3,362,300,000	THB 10/share	51%
<b>GPSC International Holdings Limited (GPSCIH)</b> Level 54, Hopewell Centre, 183 Queen's Road East, Hong Kong Tel: +852 2980 1888 Fax: +852 2956 2192	To support future overseas investment	USD 100,000	Common share	USD 98,000	-	100%



Company	Type of Business	Registered Capital	Type of Share	Paid-up Capital	Share Value	GPSC's Shareholding
<b>GPSC Holding (Thailand) Company Limited (GHT) (formerly ENGIE Holding (Thailand) Co., Ltd.)</b> 555/2 Energy Complex, Building B, 5 <sup>th</sup> Floor, Vibhavadi Rangsit Rd., Chatuchak, Bangkok 10900 Tel: +66 2140 4600	Investment through shareholding in power generation businesses of Glow Energy Public Company Limited	THB 7,804,100,000	Common share	THB 7,804,100,000	THB 10/share	100%
<b>Glow Energy Public Company Limited (Glow)</b> 1 Empire Tower, 38 <sup>th</sup> Floor Park Wing, South Sathon Rd., Yannawa, Sathon, Bangkok 10120 Tel: +66 2670 1500-33 Fax: +66 2670 1548-9	Generating and supplying electricity, steam and industrial water to industrial customers, and distributing electricity to EGAT	THB 14,628,650,350	Common share	THB 14,628,650,350	THB 10/share	45.67% direct shareholding and 54.16% through GHT
<b>GPSC Treasury Center Company Limited (GPSC TC)</b> 555/2 Energy Complex, Building B, 5 <sup>th</sup> Floor, Vibhavadi Rangsit Rd., Chatuchak, Bangkok 10900, Tel: +66 2140 4600	To provide financial management services to Group companies	THB 20,000,000	Common share	THB 20,000,000	THB 10/share	100%
<b>Energy Recovery Unit Company Limited (ERU)</b> 555/2 Energy Complex, Building B, 5 <sup>th</sup> Floor, Vibhavadi Rangsit Rd., Chatuchak, Bangkok 10900 Tel: +66 2140 4600	Power plant generation and supplying electricity and steam as feedstock to TOP's CFP Project	THB 4,658,000,000	Common share	THB 2,350,088,000	THB 10/share	100%
<b>Global Renewable Synergy Company Limited (GRSC)</b> 555/2 Energy Complex, Building B, 5 <sup>th</sup> Floor, Vibhavadi Rangsit Rd., Chatuchak, Bangkok 10900 Tel: +66 2140 4600	Investment in the power generation business from renewable energy	THB 16,500,000,000	Common share	THB 15,097,585,000	THB 100/share	100%
<b>Indirect Subsidiary</b> <b>Global Renewable Synergy Taiwan Company Limited (GRSC TW)</b> 2F., No. 21, Alley 26, Lane 300, Sec. 4, Ren'ai Rd., Da'an District, Taipei City, Taiwan (R.O.C.) Tel: +886-2-77077200	Investment in the power generation business from renewable energy in Taiwan	TWD 10,000,000,000	Common share	TWD 500,000	TWD 100/share	100% (through GRSC)
<b>Indirect Associate</b> <b>Avaada Energy Private Company Limited (AEPL)</b> Unit No. 406, 4 <sup>th</sup> Floor, Hubtown Solaris, NS Phadke Road, Near Gokhle Flyover, Andheri East, Mumbai, Mumbai City, Maharashtra, India 400069 Tel: +91-22-6140-8000	Solar power producer generating and distributing electricity to industrial customers and India's government agencies, for instance SECI in India	INR 12,212,279,500	Common share	INR 508,217,550	INR 10/share	41.62% (through GRSC)

Company	Type of Business	Registered Capital	Type of Share	Paid-up Capital	Share Value	GPSC's Shareholding
<b>GPSC Singapore Private Company Limited (GPSCSG)</b> 38 Beach Road #29-11, South Beach Tower, Singapore (189767)	To support future overseas investment	USD 16,020,100	Common share	USD 15,720,100	USD 1/share	100%
<b>Long-term Indirect Investment</b>						
<b>Anhui Axxiva New Energy Technology Company Limited (AXXIVA)</b> Wanchun Intelligent Electronic Industrial Park, Wuhu Economic and Technology Development Zone, Wuhu City, Anhui Province, China	Production of batteries for electric vehicles in China	RMB 82,826,118	Equity interest	RMB 81,175,045	-	11.1% (through GPSCSG)
<b>INDIRECT SUBSIDIARIES</b>						
<b>Glow Company Limited (GCO)</b> 1 Empire Tower, 38 <sup>th</sup> Floor Park Wing, South Sathon Rd., Yannawa, Sathon, Bangkok 10120 Tel: +66 2670 1500-33 Fax: +66 2670 1548-9	Provision of administration, consultancy, and advisory services for the management of related business	THB 4,964,924,770	Common share	THB 4,401,668,111	THB 10/share	100%
<b>Glow IPP Company Limited (GIPP)</b> 1 Empire Tower, 38 <sup>th</sup> Floor Park Wing, South Sathon Rd., Yannawa, Sathon, Bangkok 10120 Tel: +66 2670 1500-33 Fax: +66 2670 1548-9  Plant 42 Moo 8 CIE-8 WHA Chonburi 1 Industrial Estate, Bowin, Si Racha district, Chon Buri 20230 Tel: +66 3834 5900-5 Fax: +66 3834 5906	Generating and distributing electricity to EGAT	THB 2,850,000,000	Common share	THB 2,850,000,000	THB 10/share	95% (through GCO)
<b>Glow SPP2 Company Limited (GSPP2)</b> 1 Empire Tower, 38 <sup>th</sup> Floor Park Wing, South Sathon Rd., Yannawa, Sathon, Bangkok 10120 Tel: +66 2670 1500-33 Fax: +66 2670 1548-9  Plant: 11 I-5 Road, Map Ta Phut Industrial Estate, Muang District, Rayong 21150 Tel: +66 3869 8400-10 Fax: +66 3868 4789	Generating and distributing electricity and steam	THB 4,941,534,880	Common share	THB 4,941,534,880	THB 10/share	100%

Company	Type of Business	Registered Capital	Type of Share	Paid-up Capital	Share Value	GPSC's Shareholding
<b>Glow SPP3 Company Limited (GSPP3)</b> 1 Empire Tower, 38 <sup>th</sup> Floor Park Wing, South Sathon Rd., Yannawa, Sathon, Bangkok 10120 Tel: +66 2670 1500-33 Fax: +66 2670 1548-9  Plant: 11 I-5 Road, Map Ta Phut Industrial Estate, Muang District, Rayong 21150 Tel: +66 3869 8400-10 Fax: +66 3868 4789	Generating and distributing electricity, steam, and industrial water	THB 7,373,389,550	Common share	THB 7,373,389,550	THB 10/share	100%
<b>Glow IPP2 Holding Company Limited (GIPP2)</b> 1 Empire Tower, 38 <sup>th</sup> Floor Park Wing, South Sathon Rd., Yannawa, Sathon, Bangkok 10120 Tel: +66 2670 1500-33 Fax: +66 2670 1548-9	Investment in other companies	THB 7,565,000,000	Common share	THB 7,565,000,000	THB 10/share	100%
<b>Gheco-One Company Limited (GHECO ONE)</b> 11 I-5 Road, Map Ta Phut Industrial Estate, Muang District, Rayong 21150 Tel: +66 3869 8400-10 Fax: +66 3868 4789	Generating and distributing electricity to EGAT	THB 11,624,000,000	Common share	HB 11,624,000,000	THB 10/share	65% (through GIPP2)
<b>Glow IPP3 Company Limited (GIPP3)</b> 1 Empire Tower, 38 <sup>th</sup> Floor Park Wing, South Sathon Rd., Yannawa, Sathon, Bangkok 10120 Tel: +66 2670 1500-33 Fax: +66 2670 1548-9	Development of power generation projects	THB 380,000,000	Common share	THB 245,000,000	THB 10/share	100% (through GIPP2)
<b>Glow SPP 11 Company Limited (GSPP11)</b> 60/19 Moo 3, Siam Eastern Industrial Park, Map Yang Porn, Pluak Daeng, Rayong 21140 Tel: +66 3889 1324-8 Fax: +66 3889 1330	Generating and supplying electricity and industrial water, and supplying electricity to EGAT	THB 1,520,000,000	Common share	THB 1,520,000,000	THB 10/share	100%
<b>Houay Ho Thai Company Limited (HHTC)</b> 1 Empire Tower, 38 <sup>th</sup> Floor Park Wing, South Sathon Rd., Yannawa, Sathon, Bangkok 10120 Tel: +66 2670 1500-33 Fax: +66 2670 1548-9	Investment (shareholding) in other companies	THB 422,152,000	Common share	THB 422,152,000	THB 8/share	49% (through GCO)

Company	Type of Business	Registered Capital	Type of Share	Paid-up Capital	Share Value	GPSC's Shareholding
<b>Houay Ho Power (Established in Laos)</b> Vieng Vang Tower, (Unit 15), 5 <sup>th</sup> Floor, No. 502A, Boulichan Rd., Dongpalan Thong Village, Sittasarak District, Vientiane Capital, Lao PDR  Plant: P.O. Box 661 Pakse, Lao PDR Tel: +856 3621 1720-1 Fax: +856 3621 1719	Hydro power production and distribution to EGAT and Lao PDR's state enterprise EDL	USD 40,000,000	Common share	USD 40,000,000	USD 80/share	67.25% (through GCO and HHPC)
<b>Glow Energy Myanmar Company Limited (GE Myanmar)</b> (Established in Myanmar) No. 337, 1 <sup>st</sup> Floor, Motle Lat Saung Gone (South) Quarter, Sanchaung Township, Yangon, Myanmar	Provision of technical and consultancy services for the power sector	USD 650,000	Common share	USD 650,000	USD 1/share	100% (through GCO)
<b>JOINT VENTURES</b>						
<b>Thai Solar Renewable Company Limited (TSR)</b> 725 Metropolis Building, 19 <sup>th</sup> Floor, Sukhumvit Rd., Klongton Nua, Wattana, Bangkok 10110 Tel: +66 2258 4530 Fax: +66 2258 4534	Investment (shareholding) in the power generation businesses	THB 583,333,400	Common share	THB 583,333,400	THB 10/share	40%
<b>Indirect Joint Ventures</b>						
<b>Siam Solar Energy 1 Company Limited (SSE1)</b> 725 Metropolis Building, 19 <sup>th</sup> Floor, Sukhumvit Rd., Klongton Nua, Wattana, Bangkok 10110 Tel: +66 2258 4530 Fax: +66 2258 4534	A very small power producer (VSPP) generating electricity from solar energy	THB 1,800,000,000	Common share	THB 1,800,000,000	THB 100/share	40% (through TSR)
<b>Nam Lik 1 Power Company Limited (NL1PC)</b> 402B of 4 <sup>th</sup> Floor, ViengVang Tower, Unit 15, Boulichan Road, Dongpalan Thong Village, Sisattanak District, P.O Box 3684, Vientiane Capital, Lao PDR	Hydro power (run-of-river) generation and supplying electricity to Lao PDR's state enterprise EDL	USD 37,200,000	Common share	USD 37,200,000	USD 10/share	40%
<b>Nava Nakorn Electricity Generating Company Limited (NNEG)</b> 111 Moo 20 Phahonyothin Rd., Khlong 1, Khlong Luang District, Pathum Thani 12120 Tel: +66 2978 5283, +66 2978 5291	A small power producer (SPP) operating a cogeneration power plant to generate and supply electricity to EGAT, and surplus and steam to industrial users in Nava Nakorn Industrial Promotion Zone	THB 2,000,000,000	Common share	THB 2,000,000,000	THB 10/share	30%



Company	Type of Business	Registered Capital	Type of Share	Paid-up Capital	Share Value	GPSC's Shareholding
<b>ASSOCIATE</b>						
<b>Global Renewable Power Company Limited (GRP)</b> 555/2 Energy Complex, Building B, 5 <sup>th</sup> Floor, Vibhavadi Rangsit Rd., Chatuchak, Bangkok 10900 Tel: +66 2140 4600	To support investment in renewables businesses by the Company	THB 2,001,500,000	Common share	THB 1,895,432,538.50	THB 100/share	50%
<b>Bangpa-In Cogeneration Company Limited (BIC)</b> 587 Viriyathavorn Building, Sutthisan Rd., Din Daeng, Bangkok 10400 Tel: +66 2691 9720 Fax: +66 2691 9723	A small power producer (SPP) operating a cogeneration power plant to generate and supply electricity to EGAT, and surplus and steam to industrial users in Bangpa-In Industrial Estate	THB 2,705,000,000	Common share	THB 2,705,000,000	THB 10/share	25%
<b>Eastern Seaboard Clean Energy Company Limited (ESCE)</b> 1 Empire Tower, 38 <sup>th</sup> Floor Park Wing, South Sathon Rd., Yannawa, Sathon, Bangkok 10120 Tel: +66 2670 1500-33 Fax: +66 2670 1548-9	Investment (shareholding) in other companies	THB 1,039,000,020	Common share	THB 1,017,810,005	THB 10/share	33.33% (through GIPP3)
<b>Chonburi Clean Energy Company Limited (CCE)</b> 40/5 Moo 8 WHA Chonburi Industrial Estate 1, Bowin, Sriracha, Chonburi 20230 Tel: +66 6571 7779-6 Fax: +66 2670 1548-9	A very small power producer (VSPP) generating electricity from industrial waste	THB 989,000,000	Common share	THB 989,000,000	THB 10/share	33.33% (through ESCE)
<b>INDIRECT ASSOCIATE</b>						
<b>Global Renewable Power Operating Company Limited (GRPO)</b> 555/2 Energy Complex, Building B, 5 <sup>th</sup> Floor, Vibhavadi Rangsit Rd., Chatuchak, Bangkok 10900 Tel: +66 2140 4600	Provision of management, maintenance and operation services to solar power plants	THB 3,000,000	Common share	THB 3,000,000	THB 100/share	50% (through GRP)
<b>N.P.S. Stargroup Company Limited (NPS)</b> 555/2 Energy Complex, Building B, 5 <sup>th</sup> Floor, Vibhavadi Rangsit Rd., Chatuchak, Bangkok 10900 Tel: +66 2140 4600	A very small power producer (VSPP) generating electricity from solar energy	THB 293,700,000	1,174,800 common shares and 1,762,200 preferred shares	THB 293,700,000	THB 100/share	50% (through GRP)

Company	Type of Business	Registered Capital	Type of Share	Paid-up Capital	Share Value	GPSC's Shareholding
<b>World Exchange Asia Company Limited (WXA)</b> 555/2 Energy Complex, Building B, 5 <sup>th</sup> Floor, Vibhavadi Rangsit Rd., Chatuchak, Bangkok 10900 Tel: +66 2140 4600	A very small power producer (VSPP) generating electricity from solar energy	THB 293,700,000	1,174,800 common shares and 1,762,200 preferred shares	THB 293,700,000	THB 100/share	50% (through GRP)
<b>P.P. Solar Company Limited (PPS)</b> 555/2 Energy Complex, Building B, 5 <sup>th</sup> Floor, Vibhavadi Rangsit Rd., Chatuchak, Bangkok 10900 Tel: +66 2140 4600	A very small power producer (VSPP) generating electricity from solar energy	THB 82,000,000	Common share	THB 82,000,000	THB 100/share	50% (through GRP)
<b>Global Renewable Power One Company Limited (GRP1)</b> 555/2 Energy Complex, Building B, 5 <sup>th</sup> Floor, Vibhavadi Rangsit Rd., Chatuchak, Bangkok 10900 Tel : +66 2140 4600	To accommodate future renewable energy investment in Taiwan	THB 570,000,000	Common share	THB 570,000,000	THB 100/share	50% (through GRP)
<b>Sheng Yang Energy Company Limited (SYE)</b> 1F, No. 160, Sec. 1, Fuxing S. Rd., Da'An District, Taipei City Tel: +886 2 259 5252	A solar power producer supplying to Tai Power in Taiwan	TWD 2,000,000,000	Common share	TWD 1,188,760,000	TWD 10/share	45% (through GRP)
<b>LONG-TERM INVESTMENT</b>						
<b>Business Services Alliance Company Limited (BSA)</b> 555 PTT Office, Phra Khanong Oil Depot, Art - Narong Road, Khlong Toei, Bangkok 10260 Tel: +66 2239 7328 Fax: +66 2239 7326	Provision of human resource management to PTT Group	THB 2,000,000	Preferred share	THB 2,000,000	THB 10/share	25%
<b>Long-term Indirect Investment</b> <b>Sport Services Alliance Company Limited (SSA)</b> 199/7 Moo 1, Tambon Choeng Noen, Muang District, Rayong 21000 Tel: +66 3894 8138 Fax: +66 3894 8139	Management of a football club for PTT Group	THB 5,000,000	Common share	THB 5,000,000	THB 10/share	25% (through BSA)
<b>24M Technologies, Inc. (24M)</b> 130 Brookline St., Cambridge, MA 02139, U.S.A. Tel: +161 7553 1012	Research and development of lithium-ion batteries for energy storage in the industrial sector and for the Chancement of power distribution and power network security	USD 152,731,158	Preferred share	USD 113,480,250	USD 0.001 /share	14.17%



Company	Type of Business	Registered Capital	Type of Share	Paid-up Capital	Share Value	GPSC's Shareholding
<b>Ratchaburi Power Company Limited (RPCL)</b> 1828 Sukhumvit Road, Bangchak Subdistrict, Phra Khanong District, Bangkok 10260 Tel: +66 2311 5111-9 Fax: +66 2332 3882	Independent Power Producer (IPP) operating a combined-cycle power plant to generate and supply electricity to EGAT	THB 7,325,000,000	Common share	THB 7,325,000,000	THB 100/share	15%
<b>Sarn Palung Social Enterprise Company Limited (SPSE)</b> 555/1 Energy Complex, Building A, 10 <sup>th</sup> Floor, Vibhavadi Rangsit Rd., Chatuchak, Bangkok 10900	Production and sale of goods and/or services for the benefit of society, communities, and the environment	THB 10,000,000	Common share	THB 10,000,000	THB 10/share	10%
<b>Eastern Fluid Transport Company Limited (EFT)</b> 2, 6 Rd., Map Ta Phut Muang Mai, Huai Pong Subdistrict, Muang District, Rayong 21150 Tel : +66 3868-7513-4 Fax : +66 3868-7512	Provision of maintenance for pipeline structure installation and management of the system for pipeline installation	THB 10,000,000	Common share	THB 10,000,000	THB 10/share	15% (through Glow)

### 1.3.2 Relationship with major shareholders' business group

PTT Group is GPSC's major shareholder of its paid-up capital, namely (1) PTT Plc, 44.45% shares (including 1.91% by Siam Management Holding Co., Ltd., a wholly owned subsidiary of PTT Plc), (2) Thai Oil Plc, 20.78% shares, (3) PTT Global Chemical Plc, 10.00% shares. GPSC's business relationship and transactions with these are considered normal business practices, such as the sale of electricity and steam to PTT Group and GPSC's purchase of natural gas from PTT. Moreover, GPSC cooperated with PTT in establishing companies for the development of renewable energy businesses overseas in line with GPSC's business strategies to grow and expand businesses together with PTT Group.

Remarks: On January 11, 2022, GPSC cooperated with Arun Plus Co., Ltd. (ARUN PLUS), PTT Plc's wholly owned subsidiary, in establishing Nuovo Plus Co., Ltd. (NUOVO PLUS), in which GPSC and ARUN PLUS held 49% and 51% shares for the feasibility study and investment in the battery value chain to accommodate electric vehicles (EVs), following the national policy for the EV industry and energy storage system (ESS).

### 1.3.3 Shareholders

GPSC's top ten shareholders as of the roster-closing date (XO) on December 30, 2021 are:

No.	Name	Number of Shares	%
1	PTT Public Company Limited	1,199,351,484	42.53
2	Thai Oil Public Company Limited	586,071,567	20.78
3	PTT Global Chemical Public Company Limited	281,972,937	10.00
4	Thai NVDR Company Limited	92,439,836	3.28
5	Siam Management Holding Company Limited	53,936,756	1.91
6	Social Security Office	53,460,495	1.90
7	South East Asia UK (Type C) Nominees Limited	22,239,843	0.79
8	SCB Dividend Stock 70/30 Long-Term Equity Fund	11,078,968	0.39
9	State Street Europe Limited	10,985,865	0.39
10	Krungsri Dividend Stock LTF	9,793,700	0.35

Remarks: <sup>1</sup> The data above were recorded on the roster-closing date (XO) on December 30, 2021, and were the latest available when this report was compiled.

## Limitation of Share Transfers

There is no limitation except for share transfers to foreign investors that give them more than 49% of the total shares in GPSC.

## 1.4 Issuance of Other Securities

GPSC's bonds are unsubordinated and unsecured. As of December 31, 2021, its bonds not yet mature for redemption were:

Bond number	Amount (THB Million)	Annual Interest Rate	Age/Maturity	Credit Rating
GPSC219A	3,500	2.21% Interest paid every 6 months	4 years September 29, 2021	A+ (tha) by Fitch (TH)
GPSC249A	1,500	2.82% Interest paid every 6 months	7 years September 29, 2024	A+ (tha) by Fitch (TH)
GPSC22NA	2,000	1.97% Interest paid every 6 months	3 years November 8, 2022	AA- By TRIS
GPSC24NA	5,000	2.24% Interest paid every 6 months	5 years November 8, 2024	AA- By TRIS
GPSC26NA	6,000	2.52% Interest paid every 6 months	7 years November 8, 2026	AA- By TRIS
GPSC29NA	8,000	2.86% Interest paid every 6 months	10 years November 8, 2029	AA- By TRIS
GPSC31NA	7,500	3.15% Interest paid every 6 months	12 years November 8, 2031	AA- By TRIS
GPSC34NA	6,500	3.25% Interest paid every 6 months	15 years November 8, 2034	AA- By TRIS
 GPSC258A	1,500	2.11% Interest paid every 6 months	5 years August 7, 2025	AA- By TRIS
 GPSC308A	1,000	2.94% Interest paid every 6 months	10 years August 7, 2030	AA- By TRIS
 GPSC358A	2,500	3.24% Interest paid every 6 months	15 years August 7, 2035	AA- By TRIS

Remarks:  Green Debenture

## 1.5 Dividend Policy

### 1.5.1 GPSC

GPSC pays out as dividends no less than 30% of its net income under financial statements after deducting all provisional reserves required by laws and obligations under the terms of loan contracts. Dividend payment is subject to future investment plans, necessities, and other suitability. Once the Board has decided on annual dividend payment, it must seek approval from the shareholders' meeting. An exception is for interim dividend payment, which the Board can approve and report to the next shareholders' meeting.

#### GPSC's dividend payment (THB/share) since SET listing

Year	Dividend Paid (THB/Share)			Dividend : Net Profit (%)
	First Half	Second Half	Full Year	
2015	0.35	0.60	0.95	75
2016	0.45	0.70	1.15	64
2017	0.45	0.80	1.25	59
2018	0.45	0.80	1.25	56
2019	0.50	0.80	1.30	74
2020	0.50	1.00	1.50	56
2021	0.50	1.00	1.50*	58

Remarks: \* Board Meeting No. 2/2022 of February 11, 2022 endorsed a dividend payment proposal for approval by the 2022 AGM for the performance of GPSC and subsidiaries in 2021 at THB 1.50 per share, or about 58% of the net profit under the 2021 consolidated financial statements. This broke down into interim payment for the first half of the year (January to June) at THB 0.50 per share, which was paid on September 22, 2021. As a result, dividend payment for the second half of the year (July to December) equaled THB 1.00 per share. The rights to receive these dividends were subject to approval by the 2022 AGM.

### 1.5.2 Subsidiaries

With the endorsement of the board of each subsidiary, this matter may be raised for the shareholders' meeting to approve for each given year. Dividend payment must take into account essential investment plans and other suitability, including the subsidiary's cash flow after legal provisions.

## 2. Risk Management

### 2.1 Risk Management Policy and Plan

GPSC is convinced that efficient and systematic risk management underlined by international practices contributes to business by successfully addressing strategies and prevailing circumstances. Risk management is our way to control, assess, monitor, and track all internal and external changes which might impact our businesses, stakeholders, local communities, society, the environment, and our shareholders. We also deploy risk management tools in pursuing opportunities under shifting business contexts. Our risk management system scope has been adapted from principles laid down by the Committee of Sponsoring Organizations of the Treadway Commission – Enterprise Risk Management 2017 (COSO ERM 2017) and has been fully accepted at all levels. It covers all aspects of risk management including management structure as well as policy formulation and implementation to ensure that all business activities under our strategy are conducted with the highest efficiency, generating optimum value for all stakeholders.

Under our risk management approach, we value risk management structuring and clear policy in a systematic way, with regular updating. This year our structure falls into two levels.'

- At the corporate level: The Risk Management Committee (RMC) appointed by the Board of Directors defines risk management policy and risk management framework, supervising and issuing guidelines for management to execute programs and activities aligned with changing environments.
- At the management level: The Risk Management and Internal Control Committee (RMCC) drives policy implementation and monitors as well as managing all risk management activities, including prompt responses to emerging risks.

In addition, we value the management of specific risk exposures through designated subcommittees including

- The Operation Management Committee (OMC) in charge of scrutinizing and managing operational risk in all activities, and
- The Strategic Investment Committee (SIMC) in charge of scrutinizing, monitoring, and reviewing all investment project risk exposure.

GPSC also values the Audit Committee's governance of risk management adequacy and the Board of Directors's annual review of efficiency to ensure that the company has applied risk management tools in support of concrete business efficiency.

### 2.2 Risk Management Culture

We strictly adhere to the philosophy that all business problems and obstacles can be managed and eased to manageable levels by effective risk management, with management focusing on value creation for all stakeholders.

We value the nurturing of a corporate culture with a strong foundation for systematic risk management to successfully manage the company both short-term and long-term. The system calls for clearly defined risk management policy, risk appetites, risk management roles and responsibility for all employee, procedures and guidelines for enterprise risk governance training and development programs using e-learning, workshops and, using risk management as one of the key performance index to be further evaluated to measure the performance of senior executives. These indicators are also used to motivate continuous improvement to level up corporate performance.

## 2.3 Risk Factors Affecting GPSC's Businesses

Below is an overview of key risks facing GPSC.

### 2.3.1 Risks Affecting GPSC's and GPSC Group's Businesses

#### Strategic Risks

##### (1) Organizational Capability

Under our growth strategy, apart from maintaining current strengths, we are determined to grow overseas and in S-Curve businesses. Therefore we value the integration of quality personnel together with the development and recruitment of capable personnel under an appropriate and ready organization structure in addressing the company's short-term and long-term strategies.

Successful organizational capability management this year has enabled us to foster business growth as planned. Today we are among the top three power producers of Southeast Asia with a total capacity of 7,122 MW. Thanks to increased business strength and assets in areas of efficiency, availability, and reliability of power and steam transmission, we have created added value from synergy of more than 1,633 billion Baht this year under the ACT SPIRIT cultural values of all employees.

##### (2) Investment and Business Expansion

GPSC strives to be the power industry leader with goals under the 4S strategy to maintain and extend current competitiveness and grow further in the renewable energy, S-Curve and battery, and energy solution provider businesses. The currently strategy is to leverage benefit from cooperating with PTT Group to either merge during each project development phase or develop additional joint ventures with business partners who possess outstanding skills and expertise in targeted businesses

along with developing a highly skilled workforce to cope with new business models under the moving platforms of digital technology affecting consumers' behavioral shift.

This year, under efficient management and robust management's oversight of investment, GPSC successfully grew its renewables business in India and Taiwan under the Second Home strategy. GPSC has now raised its renewables power generation portion to 37% from 12%, which also aided are core revenue risk in other way.

##### (3) Changed Rules and Regulations

A critical risk facing GPSC's formulation of strategies and business plans, concerning risk and business opportunities, is public-sector regulations and policies—whether currently enforced, about to be promulgated, or likely to be promulgated—affecting investment, generation, and distribution of power. These include a policy on increased power generation capacities for renewables under the Power Development Plan revision 1 (PDP 2018), a policy on greenhouse gas reduction, and a policy on EV promotion.

Thus we closely monitor changes in these policies, rules, and regulations to effectively manage risk while seeking business opportunities from them, including studies of possible impacts. An instance is the pursuit of investment opportunities under the policy on growing power generation capacities from renewables. A dedicated business division was established and is tasked with developing and updating a database of rules and regulations to track changes affecting our operations. This group is charged with collecting relevant updated data, providing analyses particularly on impacts on the company, and ensuring full regulatory compliance by consistently reviewing our corporate practices. Employees are also responsible for promoting and nurturing the culture and corporate values of

compliance, good governance, and a code of conduct as we strive to become a good corporate citizen with responsibility to the community, society, the environment, and all stakeholders.

#### **(4) Climate Change**

GPSC plans concrete actions to deal with climate change, as this issue is recognized internationally and nationally. Thailand has committed itself to taking action to ease this problem, leading to national guidelines for setting goals for reducing greenhouse gases (GHGs), both current ones and future legislations.

This year our strategies and business plans determined GPSC make business moves, including development and expansion of the renewables business, energy efficiency improvement (which cuts expenses and reduces GHG emissions), pursuit of long-term business opportunities, including extensively study on GHG reduction technology and the technology for capturing and storing carbon dioxide to accommodate future business opportunities. GPSC and PTT Group have involved in this study to integrate the capability of each company throughout the business chain so as to lessen risks and pressure resulting from GHG reduction. Finally, we want to be a part of the efforts to ease climate change.

### **Operational Risks**

#### **(1) Power Plant Reliability**

GPSC's core business is power and steam generation under the goal of delivering products of high quality and stability to customers to prevent our customers from damage to their operations and support national economic growth and energy security. As a result, risk management concerning power plant reliability is our top priority. Our key current risk management action is to enhance our personnel's specialized skills and forge confidence to customers in our capability of operation and maintenance. This is done through training at the Power Academy and on-the-job training in parallel with steam network integration among GPSC Group to ensure synergy. Not only has this added significant value for GPSC,

but it has also represented our synergistic efforts to enhance steam delivery efficiency.

Maintaining and continuously upgrading the operation of power plants to meet international standards is essential to effectively manage operational risks. Standards awarded to us include ISO 9001:2015 on quality management, ISO 14001:2015 on environmental management, and ISO 45001:2018 on safety and occupational health management under the Integrated Management System (IMS R-100, Rev. 4, certified by the Management System Certification Institute (Thailand). We've also adopted the PTT OEMS (PTT Operational Excellence Management System) to consistently improve our overall operations. Moreover, to cope with operational risks in case of crisis we've initiated the ISO 22301:2012 management system, ensuring business continuity.

#### **(2) Quality, Security, Safety, Health, and Environment**

GPSC recognizes the value of loss from risk concerning security, safety, occupational health, and the environment to prevent losses of life, injuries, and illnesses to employees and contractors as well as business loss from disruption and discontinuity of operations as well as impacts on communities, society, and the environment. We therefore earnestly require all at GPSC to comply with the scope of the Quality, Security, Safety, Health, and Environmental Policy. Beyond this commitment we've instilled a "WE SAFE" organizational culture for all with attitudes of "Work safely, Care for all, Think before acting, and Stop if it's not safe". We promote a safe operations organizational culture to employees and contractors in these ways:

- Establish and announce a Quality, Security, Safety, Health, and Environmental Policy
- Establish a Safety, Health, and Environmental Committee at all operating areas
- Implement contractor safety management
- Implement health risk assessment, industrial hygiene, and Fit-to-Work programs
- Prepare safety manuals for all employees and contractors
- Consistently promote a "WE SAFE" corporate culture



- Set strategic short-term and long-term operational targets for safety and health
- Develop suggestion programs and mandate routine reporting on substandard acts and conditions, incident and investigation programs
- Implement operational ISO 45001:2018 on health and safety management and a business continuity management plan under the ISO 22301:2012 standard.
- Enforce environmental management at all operating areas.

As a result of the ongoing Covid-19 pandemic, GPSC has complied with public-sector measures and appointed a GPSC Group center to monitor the spread of the virus, which consists of teams from various units, assigned to monitor the situation, properly adjust plans and countermeasures, and procure and support essential items for implementing measures to prevent virus spread at all sites. With full cooperation among all employees and proactive measures, we've achieved both of our key objectives: (1) employees have received timely, accurate information with proper guidance on personal Covid-19 protection, and (2) the entire operation and projects has been uninterrupted and met all our targets.

### **(3) Management of Projects under Construction**

To prevent negative impacts on the reliable delivery of power and steam to customers and achieve financial performance aligned with our budget plan for projects under construction, we carefully monitor and supervise all project stages through completion to meet deadlines and stay within the budget while maintaining efficiency.

Typical risks on projects under construction involve construction work, instruments, and equipment off specifications; overbudgeted expenditures; engineering complications; and environmental

constraints that could harm communities and stakeholders, in addition to contract management. Our emphasis begins with design and the approval project investment which suits business context. We select credible contractors with specific skills, use careful turnkey contracts for construction work, and pursue direct and indirect communication and engagement with adjacent community stakeholders for good understanding and perception of the project. Additional third-party technical work and project management consultants are recruited to supervise and inspect work in progress and project specifications. Finally, in place is a process to regularly report work progress.

Nevertheless, the Covid-19 pandemic has created unforeseeable obstacles for all projects under construction, mainly due to imported equipment and machinery delays as well as a travel ban on foreign experts and extra time needed for foreign specialists to perform their work. These have caused delays and additional costs for ongoing projects, but we continuously engage with stakeholders to properly mitigate these risks and optimize stakeholder value.

Two projects are currently under construction:

- (1) Construction and installation of an energy recovery unit (ERU), a subproject of Thai Oil Plc's Clean Fuel Project (CFP), located within their refinery compound in Chon Buri. The project initiative is to recover oil residue from the oil distillation unit in the refinery and turn it into power generation and steam as energy to run various distillation units.
- (2) Construction of Glow Energy Phase 2, a project featuring a new power plant replacing an old one, under the Firm VSPP cogeneration (the SPP Replacement Program).

#### **(4) Imbalanced Fuel Supply Portfolio**

Natural gas and coal are primary energy sources for power and steam generation in Thailand, thus managing fuel supply risks is critical to maintain production stability. Over-reliance on any fuel supply often creates fuel supply portfolio imbalances. GPSC manages these risks by securing long-term natural gas supply contracts with PTT PLC. Owing to the proximity of our facilities to PTT's fuel storage terminals and main gas pipeline, the risk to fuel supplies has diminished.

To manage fuel continuity, we also mitigate coal supply risks with various short-term and long-term contracts and supply sources, depending on market conditions. Contingent supplies of spot-market coal can be arranged in an emergency situation.

### **Financial Risks**

#### **(1) Over-reliance on Industrial Customer Income**

Thanks to GPSC's success in growing business to renewable energy and foreign lands, our power generation structure features a 37% proportion in renewables, with a rising profit proportion from these energy forms. As a result, we've successfully managed the risk of imbalanced revenue and revenue structure.

As for the management of core revenue derived from power generation and public utilities, most of which are located in Rayong industrial estates, we've solved our income imbalance problem through a diverse group of customers, including petrochemical plants, chemical facilities, the automotive industry, and steel complexes. Amid the sluggish economy of 2021, we closely monitored the situation and performed periodic stress tests to analyze the impacts on our financial status and prepare for cash flow liquidity as well as creating incremental profits from integrated capacities and transmission grid assets among GPSC Group and driving the pursuit of additional value from cost reduction and improvement of management efficiency, leading to optimal performance.

In addition, GPSC remains committed to innovation development in the S-Curve businesses, including an energy storage unit, energy storage and system integration, and the energy solution provider business as a means to adapt itself to accommodate future power business transition and to diversify investment to preserve income security over the long term.

#### **(2) Referenced Price to Power Generation & Distribution Volatility**

For power plants under the IPP and SPP schemes, GPSC can transfer fuel supply costs from gas and coal to the Electricity Generating Authority of Thailand (EGAT) under power purchasing agreements (PPAs). The same cost transfer isn't possible for power and steam generation and distribution for our industrial users, creating some fuel supply price volatility. Gas and coal prices fluctuate all the time with a monthly referenced price. A certain portion of gas costs is transferred to customers under price formulas stipulated in agreements. However, the retail power rate is strictly controlled by the Energy Regulatory Commission (ERC) and priced partially under an automatic adjustment mechanism or Ft. This retail power rate doesn't reflect fuel supply costs at all times, but periodically. This has created some risk to our income occasionally—especially when the price of gas spikes rapidly.

Nevertheless, fuel prices during 2021 rose while Ft remained constant under government policy. The power tariffs partially echoed the price changes for gas and coal. Add to the GPSC's decision to deploy coal price risk management tools, which partly exposed GPSC to fuel price volatility. The remaining risk was successfully mitigated and managed through effective cost control and process efficiency improvement.

### (3) Funding Management for Business Expansion

Domestic and international power & related business expansion demands continuous growth with subsequent demands for capital investment. Various financial options are scrutinized, depending on the economic outlook, financial market conditions, project investors' financial structures, and financial ratios appropriate for their credit ratings and financial ratios at the time.

To this end, we've formed a new entity, GPSC Treasury Center Co., Ltd., as a treasury center for the group to facilitate fund-raising activities and for optimal benefit of financial management by GPSC Group.

### (4) Interest Rate Volatility

Loans from financial institutions are the most common financial option for investment due to the nature of low volatility. Loans generally come in fixed and float rates. GPSC effectively manages proportions of fixed and float interest rates properly to the nature of its businesses.

### (5) Exchange Rate Volatility

We plan our overseas project financing carefully—especially when investments are in foreign currencies. Fluctuating exchange rates are closely monitored so that we can mitigate exchange rate volatility risks, including hedging instrument choices, under a policy scope approved by the Risk Management Committee and administered by the risk committee on feedstock and product prices and finance. This enables prompt action in the best interests of GPSC.

## 2.3.2 Shareholder Investment Risks

### (1) Credit Risks

Generally, debenture holders willingly take some risk to their principal and dividends when the debenture issuers' performance doesn't meet expectations and the collateral is less than overall debt. Investors are

thus advised to consider the issuer's financial status and ability to redeem or refund debt stipulated in the debenture according to the prospectus, in conjunction with the issuer's credit risk assessment, and the credit rating reported by the credit rating agency before making investment decisions. The credit rating helps indicate the risk level of the respective debenture and issuer. The return on investment reflects the credit risk: the higher the risk, the higher the return. Investors can learn about debenture issuers and their credit ratings from SEC's website, credit rating agencies, and the Thai Bond Market Association.

### (2) Price Risks

The net asset value of debentures can be volatile, depending on money market movements and interest rate changes, the interest rate policy fixed by the Bank of Thailand, general economic conditions, inflation rates, remaining tenor, excessive demand, or debenture supply shortages in the market. Debenture holders may thus be affected by net asset value volatility when disposing of them before the due date.

### (3) Liquidity Risks

Generally, debenture holders may not be able to dispose of debentures before maturity when there is no liquidity in the secondary or over-the-counter markets. But if the issuer didn't book their debentures for trade in the bond electronic exchange (BEX) facility, private debenture holders can exchange them at commercial banks, securities companies, and other entities holding securities and debenture trading licenses.

Another obstacle for debenture holders is SEC regulatory controls including:

- SEC announcement Kor Jor 5/2552 dated March 13, 2009, and subsequent relevant announcements on definitions of terms used in the issuance and public offering of all debentures (debentures, bonds, mortgage-backed securities, debt securities, fixed income securities, etc.), and

- SEC announcement Kor Jor 4/2560 dated February 8, 2017, and subsequent related announcements on definitions of institutional investors, special big investors, and other big investors with the exception of inheritance transfers.

Under these announcements, debenture holders can't sell or transfer their subscribed debentures to anyone publicly, except to institutional investors and big investors. Because of the condition stipulated in the issuance public offer that the issuer registered with the SEC before the public offering strictly controlling the disposal and transfer be made among institutional and big investors, the subscribers who later become debenture holders endorsed and agreed to adhere to before the actual subscription.

#### **(4) Default Risks**

GPSC has no records of default on either principal or interest for debentures, mortgages, or loans from commercial banks, finance and securities firms, credit fonciers, and specialized financial institutions (SFIs). It has no records of default during 2017-2021.

### **2.3.3 Foreign Securities Investment Risks**

GPSC has no investment in foreign securities.

### **2.3.4 Emerging Risks**

#### **(1) Covid-19 Pandemic**

Although the Covid-19 pandemic has been around for a while, its impacts have been continually felt by the global society and economy, including GPSC, its suppliers, and customers. Further constraints on power generation and the overall business outlook have become unavoidable, causing more hiccups than business as usual. We've launched several measures, including close monitoring of the situation, a business continuity plan (BCP), safe houses for employees in charge of power plant & utilities supply operation, screening of employees and contractors operating on site, and work support of those working from homes. We've conducted stress tests on our financial system as well as current cash flow provisions to ensure proper liquidity in case of emergencies affecting business operations.

#### **(2) IT Threats and Cybersecurity**

Digital technologies that improve efficiency and create value have become much more common—particularly in the power generation business. Every facet of operations at plant facilities and our offices relies heavily on digital technologies and the internet. Add to this the need to adapt and work from homes amid the Covid-19 epidemic, which requires connection with the external internet. Thus IT threats using internet connections have become unwelcome risks.

To become better prepared for IT threats and comply with the Cybersecurity Act and standards for international cybersecurity practices, GPSC has implemented these reactive and proactive measures:

- Appointing a Digital and Cybersecurity Steering Committee (DCSC) to oversee and drive change management as well as assessing digital risks and cybersecurity. It also screens various projects to ensure alignment with GPSC's strategies and businesses.
- Defining a cybersecurity policy for GPSC Group and forming dedicated taskforces in charge of short-term and long-term management, thus winning information security management system certification (ISMS, ISO 27001:2013)
- Educating the workforce on various IT threat patterns and related procedures for protecting against and handling each threat to minimize escalating damage to the company
- Periodically testing the system with self-instructed decoys and organizing lessons learned to nurture awareness for all employees on the use of information technology
- Regularly organizing workforce drills to respond to IT threats for office support functions
- Regularly performing information system tests and system recovery drills in case of emergency threats to the power generation operating areas.



### (3) Innovation and Technology Transformation

Disruptive technology has been rapidly driving energy technology changes, leading to changing consumer behavior for industrial and public users. This includes energy transition, heavily influenced by the stride into sustainability. These uncertainties amid change in today's businesses and innovation business development are unavoidable, and so GPSC has developed guidelines to cope with them:

- Aggressively continue with the new S-Curve business model beyond the existing power-generating business model to support future growth. This new model includes storage battery manufacturing; power storage system
- development and related businesses; and research and development (R&D) investment in new energy technologies to maintain our competitive advantages and drive our vision to become the leading innovative energy company.
- Actively develop a system integrator, integrating energy production and consumption patterns to better respond to the needs of both, such as Micro-Grid and Smart-Grid.
- Develop a new energy trade platform to cope with new behaviors of users, simultaneously reducing impacts on our power generation and distribution business currently and in the future.



## 3. Driving Business for Sustainability

### 3.1 Policy and Goals of Sustainability Management

#### Policy and Goals of Sustainability Management

Committed to its role as the Power Flagship of PTT Group, GPSC defines its policy and goals of sustainability management following the guidelines of sustainable development. It strives to foster confidence among stakeholders, abide by work excellence, demonstrate business transparency, constantly develop assorted innovations, and look after community, society, and the environment in a responsible way. To this end, GPSC commands practices underlined by PTT Group's approach to sustainability management, national strategies, and internationally accepted sustainability practices together with the United Nations Sustainable Development Goals (SDGs). This policy applies to all units across GPSC's supply chain. All executives and employees must support, drive, and comply with the defined policy and sustainability management scope.

For details of the policy and goals of sustainability management, please log on to [https://www.gpscgroup.com/Uploads/elFinder/sustainability/gpsc\\_sustainability/sustainability\\_management\\_policy\\_th.pdf](https://www.gpscgroup.com/Uploads/elFinder/sustainability/gpsc_sustainability/sustainability_management_policy_th.pdf)

#### Goal-setting and Business Operations that Support UN SDGs

GPSC is committed to developing and growing in a sustainable way to be part of the drive toward the UN SDGs. The Group's activities address SDGs appropriately and agree with the vision, mission, nature of business, strategic plans, and critical issues concerning sustainability and stakeholders' expectations. As a result, GPSC has selected seven out of 17 SDGs: SDG 7 (access by all to clean energy), SDG 8 (productive employment and economic growth), SDG 9 (industry, innovation, infrastructure), SDG 11

(cities and sustainable human settlements), SDG 12 (sustainable consumption and production patterns), SDG 13 (action to combat climate change), and SDG 16 (peaceful societies, justice for all, and inclusive societies). These SDGs shape GPSC's sustainable development management approach for the benefit of all stakeholders.

For more details of the company's action plans and long-term goals, please log on to <https://www.gpscgroup.com/th/sustainability/gpsc>

Today's businesses around the world focus and value the environment, society, and governance (ESG). As a result, GPSC faces the challenges of adapting and preparing itself to cope with all dimensions in full response to all stakeholders. Our clear strategy focuses on all three dimensions of ESG to ensure management's consistency with evolving events and adjustment in a timely manner, especially compliance with the future energy business. Technology is applied in conjunction with the adaptation to changing consumer behavior. GPSC has invested in the energy storage technology business applicable to a sustainable business model, enhancing future competitiveness of its power business.

Our operation pertaining to the sustainability concept to reach the goal of "creating sustainable long-term value, innovation and energy", under the four perspectives of the sustainability management framework, covers the three dimensions of ESG in its entirety, and is in accordance with the UN SDGs. The aim is to reduce the greenhouse gas emissions (GHG Emissions) in line with the international goal and the target of becoming a member of the Dow Jones Sustainability Indices (DJSI).



The sustainability management framework consists of four perspectives:

- 1) Power Accessibility: Accessing energy by enhancing the stability of energy sources through investment in distributed alternative energy technologies and infrastructure (Solar Rooftop & Solar Farm, Off-Grid Power Supply, Light for a Better Project).
- 2) Quality of Life: Promoting better well-being by providing decent employment and promoting economic growth through more employment programs, implementing energy optimization projects, investing in energy production technology, and supporting public utility projects to support the Eastern Economic Corridor (Employment Increase Program, Implementing Energy Efficiency, Support Public Utility Project in the EEC and EECi).
- 3) Eco-System: An ecosystem for driving clean energy, cultivating a circular economy concept, and reducing environmental impact (Circular Economy, GHG Reduction, Waste to Energy project).
- 4) Sustainable Innovation: Sustainable innovation of the company to drive innovation through Artificial Intelligence (AI) and Block Chain, Innovation Culture, and Youth Social Innovation (Young Social Innovator, Solution Provider & ESS, Smart Farming).

In moving toward becoming a low-carbon organization to achieve the goal of net emission of greenhouse gas (Net-Zero), the framework is laid out in four areas as follows:

- 1) Reduce Fossil Portfolio: Focus on operational excellence and power plant optimization.
- 2) Grow Renewables: Execute GPSC's growth strategy. The goal is to increase the share of renewable energy to over 50% of our power production capacity.
- 3) Enhance Infrastructure: Develop the S-Curve businesses to expand energy storage systems to enable more efficient use of renewable energy and conduct business restructuring and operation based on digital technology to support the future energy business, including the study of technology of Carbon Capture, Utilization, and Storage (CCUS) for future use, among others.
- 4) Trading / Offset Activity: Study carbon trading and offsetting as part of the approach to becoming a low-carbon organization and support the creation of sustainable development.

We take very seriously the management of sustainable development issues both within and outside GPSC. The assessment and prioritization processes are based on the Global Reporting Initiative (GRI) framework. Sustainability issues are compiled and assessed through an analysis consistent with the expectations of all stakeholders. The emphasis is placed on sustainability and global changing trends by considering the implementation of our strategies and risk factors, both present and future, that may affect or present an opportunity for business in assessing the significance of sustainable development. Our sustainability issues in 2021 regarding the three main issues of the Value Creation are taken into consideration as part of our strategic plan formulation as follows:

- **Evolving the Business Model**

The S-Curve & Batteries strategy focuses on investment in innovation to support changes in the energy business and the power business in the future. GPSC aims to become a leader in the production of Energy Storage System (ESS) batteries for electric vehicles (EVs), as well as becoming a provider of services related to batteries in Thailand and other regions such as India. In addition to batteries, other New S-Curve businesses that we may focus on in the future include the digital energy business, hydrogen energy business, and Carbon Capture, Utilization and Storage : CCUS.

- **A Clean Energy Future and Climate Resilience**

The Scaled-up Green Energy is one of the strategies focusing on the increased share of clean energy project development from solar power, wind power, and the integration of renewable energy with Energy Storage System (ESS) by adhering to the reduction of carbon intensity in view of our growth in tandem with the reduction of carbon dioxide emission.

- **Workforce Development and Well-Being**

We value the development of employees' potential and well-being, considered a vital foundation to ensure our efficient strategy implementation and preparation for future business growth. In terms of the employees' potential development and leadership development of personnel and executives, the focus is on creating values, a corporate culture, and organization engagement, as well as promoting GPSC's image to outsiders.

## 3.2 Issue Management in the Business Value Chain

### 3.2.1 Value Chain Primary Activities

#### 1. Inbound Logistics

Various types of fuel are used as raw materials for power generation by GPSC Group. The fossil fuel power plants include natural gas-fired and coal-fired power plants. As for renewable energy power plants, they include solar plants, Refuse Derived Fuel (RDF) plant, and hydro power plants, located across many provinces in Thailand and

overseas. To achieve efficient fuel procurement, we have entered an agreement with PTT Plc on long-term natural gas supply and delivery in quantity, quality, and price. Medium-term and long-term contracts were also made for coal supply with numerous domestic and foreign business partners. Furthermore, we have engaged in Power Purchase Agreements (PPAs) to supply power reserves to government agencies and raw water supply agreements with the industrial estates in which our power plants are located for consumption in power generation process. As for the RDF, it comes from taking community waste from the Rayong Solid Waste Integrated Disposal Center, received from various local administrative organizations, to separate, improve, and produce RDF with appropriate property as well as consistent physical and chemical composition. The RDF is fed to the RDF power plant project.

#### 2. Operations

The principle of the plant that uses natural gas as a cogeneration fuel (Cogeneration Power Plant) is to convert thermal energy from gas into mechanical energy to drive the power generator with the support of other key equipment such as compressor, gas turbine, and generator. As for the combined-cycle power plants, the production process is like the cogeneration power plant, except that the generators are driven by steam produced by steam turbines. Coal-fired power plants run on two types of steam boiler: one is the Circulating Fluidized Bed Boiler (CFB) and the other is the Supercritical Pressure Boiler. The steam produced from the boilers drives electricity generators. For the photovoltaic system or solar cell, solar power is turned into electricity. As for the Run-of-River power plant, the water by the volume of natural water flow and the different water levels over and below the dam is channeled toward the turbines connected to the axle shaft of power generators. As for the power generation using RDF, such fuel is used as an energy source for heating to produce steam. The steam produced then drives the Steam Turbine Generation (STG) to generate electricity.

### 3. Outbound Logistics

GPSC currently produces electricity, steam, industrial water, and chilled water, which require well-prepared and stable distribution systems. A distribution method equipped with a safe protection system has therefore been exclusively designed for each customer. Furthermore, it is necessary that our power plant be situated in the industrial site where the product is needed to ensure efficient delivery. GPSC sells electricity to industrial customers and the government sector, namely Electricity Generating Authority of Thailand (EGAT), Provincial Electricity Authority (PEA), and Metropolitan Electricity Authority (MEA). As much as 230 kilo-volts, 115 kilo-volts, and 22 kilo-volts of electricity are delivered to these customers through transmission lines. As for the steam supply, GPSC provides steam of different pressures and temperatures as demanded by the customers. Steam, industrial water, and chilled water are delivered to the customers through product pipelines.

### 4. Marketing and Sales

GPSC produces electricity for sale to government agencies, i.e. EGAT, PEA, and MEA, through PPAs which can be classified into 3 types of power producers, namely Independent Power Producer (IPP), Small Power Producer (SPP) and Very Small Power Producer (VSPP). Moreover, the company also produces electricity, steam, industrial water, and chilled water for sale to industrial customers. For electricity, long-term PPAs are made using the price of electricity sold to the PEA as the reference, of which the Ft rate varies with the fuel cost. Regarding steam, industrial water, and chilled water, their prices are dictated by the energy cost and other production costs. GPSC also invests in renewable energy to produce electricity, which is sold under private PPAs.

### 5. Customer Services

GPSC values good relations with the customers to achieve satisfaction and long-term bonds. Customer relations management (CRM) has been strengthened through various processes, including complaint and

communication channels via website, e-mail, phone calls, and letters. Customer relations activities are also continuously organized. Energy Lens Application was launched to keep records of customers and products through an online system. Customer services also include annual customer satisfaction surveys, from which data are analyzed to assist in issue management, providing knowledge about the electricity business, and helping customers in their sustainability management.

### 6. Support Activities

In addition to the four core businesses that GPSC operates in power generation and utilities, GPSC has expanded its investment into innovation, not just to increase revenue but to gain competitive edge from new business models. The power storage and battery business has been expanded from the existing power production and sales business, following research and development (R&D) of lithium-ion battery production using the SemiSolid or “G-Cell” manufacturing technology. G-Cell, G-Pack, and G-Box have been developed to provide three levels of battery and storage products to strengthen the power transmission and connection systems in addition to applicability as a standby power storage system for the industrial sector according to various applications, notably applications in the small and large electric vehicle industry (Mobility Application - Light Duty and Heavy Duty) such as electric buses, electric boats, electric tuk-tuks, small four-wheeled electric vehicles, electric motorbikes, and the energy storage system manufacturing industry (Stationary Application). It is also a leading Energy Management Solution Provider by providing installation services for small, distributed generation systems, developing and designing installation of district cooling systems, consulting and conducting energy consumption analysis, and integrating energy storage systems to enhance stability within the power management system. For more details of the Business Value Chain under the topic “Creating Shared Business Value in the 2021 Sustainability Report,” please log on to <https://www.gpscgroup.com/th/downloads/sd-report>

### 3.2.2 Stakeholder Analysis in the Business Value Chain


Recognizing stakeholders' participation and engagement, GPSC believes that good relationship built on trust, along with suggestions and recommendations from stakeholders, is an asset which drives us toward goal attainment and sustainable growth. Equally important is management of stakeholders which enables GPSC to respond efficiently to their needs, as well as minimize risk that may harm the business image and cause business disruption, and to create maximum benefit for stakeholders. GPSC keeps regular contact with stakeholders to ensure correct understanding of all issues of interest. Stakeholders' opinions are integrated into the company's decision-making process and business plans.

In 2021, a review of stakeholders' participation and engagement was conducted which identified and prioritized key stakeholder groups relevant to GPSC's

operation across the business chain on an annual basis, as well as finding ways and means to respond effectively and appropriately to expectations and issues that stakeholders are concerned about. The findings will be useful in planning and formulating ways to improve stakeholders' participation and engagement. GPSC divides its stakeholders into eight main groups:

- 1) Shareholders
- 2) Investors
- 3) Government agencies and related organizations
- 4) Employees
- 5) Suppliers and contractors
- 6) Partners
- 7) Customers
- 8) Communities and society.


Methods of communication and engagement vary according to each group of stakeholders, as detailed below:

Shareholder group	Engagement channel	Issue of interest	Response
<b>1. Shareholders (major and minor shareholders)</b> 	<ul style="list-style-type: none"> <li>• Annual general meeting</li> <li>• Various communication channels, e.g., website, e-mail, phone calls, letters, social media, and others.</li> <li>• Annual GPSC site visit</li> <li>• Visits to businesses related to GPSC, both within and outside Thailand</li> <li>• Perspective survey of shareholder representatives to gauge their expectations as part of the preparation or improvement of the company's action plan, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Good performance with share price and dividends at appropriate level</li> <li>• Constant business growth</li> <li>• Transparency and corporate governance</li> <li>• Risk management</li> <li>• Joint venture and innovation development to raise operation efficiency</li> <li>• Investment in renewable energy</li> <li>• Equal opportunities and rights for all shareholders to join Annual General Meeting</li> <li>• Equal access to information</li> </ul>	<ul style="list-style-type: none"> <li>• Risk management</li> <li>• Business ethics</li> <li>• Development and investment in renewable energy and battery projects</li> <li>• Innovation management</li> <li>• Operational stability and availability</li> </ul>

Shareholder group	Engagement channel	Issue of interest	Response
	<ul style="list-style-type: none"> <li>Shareholder relations activities</li> <li>Opportunities for all shareholders to propose meeting agenda and candidates for directorship in Annual General Meeting</li> <li>Roadshows and various investor relations activities</li> <li>Annual report (56-1 One Report)</li> <li>Opportunities for all shareholders to propose meeting agenda and candidates for directorship in Annual General Meeting</li> </ul>	<ul style="list-style-type: none"> <li>Study of power business operation model based on real-time pricing and energy trading</li> <li>Promoting knowledge on renewable energy to students</li> <li>Reviewing and formulating a business continuity management plan in the event of the spread of Covid-19</li> </ul>	
Shareholder group	Engagement channel	Issue of interest	Response
<b>2. Investors</b> <b>(Banks, financial institutions/ debentures (bond) holders/ credit rating agencies/ analysts)</b>	<ul style="list-style-type: none"> <li>Providing financial support and services such as corporate loan/ project finance/ trade finance/ FX/ derivative/ debentures/ common shares/ investment banking/ occasional financial advice</li> <li>Organizing a credit review event at least once a year</li> <li>Annual General Meeting</li> <li>Quarterly analyst meetings</li> <li>Organizing occasional Deal Roadshow / Non-Deal Roadshow activities</li> <li>Occasional reception of feedback by mail and during various IR events</li> <li>Disclosure of investment information (via Opportunity Day, Roadshows, and various IR activities)</li> <li>Occasional meetings with executives to update projects and situations</li> </ul>	<ul style="list-style-type: none"> <li>Good performance with share price and dividends at appropriate level</li> <li>Constant business growth</li> <li>Transparency and corporate governance</li> <li>Business operation with environmental, social, and governance (ESG) management</li> <li>Joint investment and innovation development that will raise operation efficiency</li> <li>Disclosure of the company's operating results, covering financial as well as environmental, social, and governance (ESG) aspects</li> <li>Disclosure of complete information, adequate for business result forecast</li> <li>Accuracy of IR Materials used for reporting quarterly business results</li> </ul>	<ul style="list-style-type: none"> <li>Risk management</li> <li>Business ethics</li> <li>Ongoing development and investment in various projects</li> <li>Innovation management</li> <li>Operational stability and availability</li> </ul>




Shareholder group	Engagement channel	Issue of interest	Response
	<ul style="list-style-type: none"> <li>Roadshows, both domestically and internationally, and related activities as planned</li> <li>Annual GPSC site visit</li> <li>Other communication channels such as website, e-mail, phone calls, letters, social media, and others.</li> <li>Perspective survey of expectations of investor representatives as part of the preparation or improvement of the company's action plan</li> <li>Answering ESG assessment form</li> <li>Disclosure of the company's operations through Annual Report (Form 56-1 One Report) / Sustainability Report /Financial Statements</li> </ul>	<ul style="list-style-type: none"> <li>Financial stability of income and cash flow including financial ratios, debt levels, and solvency</li> <li>Joint investment and innovation development that will raise operation efficiency</li> <li>Debt covenant level at 2.5x financial ratios, liquidity, and solvency</li> <li>Size and growth of entity (assets)</li> <li>Establishing a Crisis Management Team under the Center for Covid-19 Surveillance and Situation Administration to monitor internal and external situations in conjunction with PTT Group</li> </ul>	


Shareholder group	Engagement channel	Issue of interest	Response
<b>3. Government agencies and related organizations (Government agencies/ state enterprises/ local administrative organizations/ agencies with licensing authority)</b> 	<ul style="list-style-type: none"> <li>Operating results submitted to related government agencies at required intervals</li> <li>Constant participation in government projects and activities</li> <li>Engaging with committees dealing with issues with which the government requests cooperation</li> <li>PTT Group's government affairs seminars</li> <li>Perspective survey on expectations of representatives of government agencies and related organizations as part of the preparation or improvement of the company's action plans</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with rules, regulations, laws, and good governance policies, including disclosure, submission, and reporting of accurate information</li> <li>Alignment of investment ratio with the country's energy development policies and plans, including renewable energy</li> <li>Social and environmental responsibility</li> <li>Sustainable co-existence with communities</li> <li>Good safety and environmental management</li> <li>Collaboration with government agencies on various projects/activities</li> </ul>	<ul style="list-style-type: none"> <li>Risk management</li> <li>Business ethics</li> <li>Business opportunities</li> <li>Environmental management, including gas emission control, water and wastewater management, and biodiversity management</li> <li>Clean energy for the future and climate change response</li> <li>Sustainable co-existence with communities and social responsibility</li> <li>Strict compliance with rules and laws, including fee payment requirements</li> </ul>



Shareholder group	Engagement channel	Issue of interest	Response
	<ul style="list-style-type: none"> <li>• Being a learning site in operations for the government agencies and related organizations</li> <li>• Following up on policies, rules, regulations, and requirements of regulatory / licensing agencies</li> <li>• Making complete operating reports as required by law</li> <li>• Support for the government's policies and activities</li> <li>• Communication channels between the company and government agencies such as website, phone calls, e-mail, letters, social media, and others.</li> <li>• Membership inFTI to raise concerns to government agencies</li> <li>• Membership in trade organizations and the likes involved in power generation business as a channel to raise concerns to government agencies</li> </ul>	<ul style="list-style-type: none"> <li>• Formulation of strategies, plans, goals, and actions to mitigate climate change problems</li> <li>• Being a learning site in both operation and management aspects</li> </ul>	

Shareholder group	Engagement channel	Issue of interest	Response
<b>4. Employees (Executives / employees)</b> 	<ul style="list-style-type: none"> <li>• Annual Employee Engagement Survey</li> <li>• Records of complaints via different channels</li> <li>• Staff engagement through CEO Town Hall Meetings</li> <li>• Internal communication through various channels</li> <li>• Perspective survey on expectations of employee representatives as part of the preparation or improvement of the company's action plan</li> <li>• Welfare committee in the workplace</li> <li>• Communication channels between the company and employees such as website, phone calls, letters, e-mail, social media, and others.</li> </ul>	<ul style="list-style-type: none"> <li>• Employees' competency development in line with the company's business strategies and directions</li> <li>• Employee well-being, occupational health, and safety at work</li> <li>• Good remuneration and welfare as well as career opportunities and advancement</li> <li>• Fair performance assessment</li> <li>• Income stability</li> <li>• Equal treatment</li> <li>• Leadership development</li> <li>• Talent retention</li> <li>• Determine urgent measures and guidelines for the prevention of Covid-19 infection to ensure the safety of all employees</li> </ul>	<ul style="list-style-type: none"> <li>• HR development through training, diversity enhancement, equality, and staff well-being, both physically and mentally</li> <li>• Human rights</li> <li>• Occupational health and safety at work</li> </ul>

Shareholder group	Engagement channel	Issue of interest	Response
<b>5. Suppliers and contractors (contractors/delivery agents)</b> 	<ul style="list-style-type: none"> <li>• Annual Supplier Day</li> <li>• Perspective survey on expectations of representatives of suppliers and contractors as part of the preparation or improvement of the company's action plan</li> <li>• Annual supplier assessment with feedback provided to suppliers</li> <li>• Survey of suppliers' and contractors' satisfaction</li> <li>• Complaint and communication channels between the company and suppliers and contractors, via website, phone calls, letters, e-mail, social media, and others.</li> <li>• Supplier relations activities to encourage participation, such as CSR activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Fair and non-discriminatory competition</li> <li>• Relationships and cooperation to grow together</li> <li>• Efficient, transparent, and accountable policies and procurement system</li> <li>• Compliance with the conditions set forth without taking advantage of suppliers and contractors</li> <li>• Straightforward procurement rules and regulations</li> <li>• Emphasis on occupational health and safety of employees</li> <li>• Joint business development using innovative, environment-friendly technologies and clean energy in the future for sustainable growth</li> <li>• Supplier development (including contractors/delivery agents) to mutually achieve best practices and sustainable growth</li> </ul>	<ul style="list-style-type: none"> <li>• Risk management</li> <li>• Corporate governance</li> <li>• Supply chain management</li> <li>• Transparent and auditable procurement system</li> </ul>

Shareholder group	Engagement channel	Issue of interest	Response
<b>6. Partners</b> 	<ul style="list-style-type: none"> <li>• Memorandum of Understanding of joint business operations</li> <li>• Invitations to company activities involving each partner</li> <li>• Activities co-organized with partners</li> <li>• Perspective survey on expectations of partner representatives as part of the preparation or improvement of the company's action plan</li> <li>• Communication channels through various media such as meetings, business negotiations, website, e-mail, phone calls, social media, and others.</li> </ul>	<ul style="list-style-type: none"> <li>• Values jointly created along the value chain</li> <li>• Building trust, good relationships, and cooperation to achieve higher potential and efficiency that benefit long-term business deals</li> <li>• Higher competitive edge with higher and sustainable business value</li> <li>• Business deals based on fairness</li> <li>• Joint innovation and creation of businesses that create values for new business opportunities, as well as joint human resource development for the power generation business</li> </ul>	<ul style="list-style-type: none"> <li>• Business opportunities</li> <li>• Innovation management</li> <li>• Co-creation of business value</li> </ul>

Shareholder group	Engagement channel	Issue of interest	Response
<b>7. Customers (long-term and short-term customers)</b> 	<ul style="list-style-type: none"> <li>• Annual Customer Satisfaction &amp; Engagement Survey</li> <li>• Monthly, quarterly, and annual customer relations activities, such as annual golf competition, sports, seminars.</li> <li>• Monthly or quarterly meetings to follow up and report demand plans, readiness plans, and maintenance plans, as well as monitoring problem solving progress</li> <li>• Energy Lens Application to facilitate real-time monitoring of energy and steam consumption with record tracking, as well as other functions, including monthly expense reports and communication manual</li> <li>• Perspective survey on expectations of the customer representatives as part of the preparation or improvement of the company's action plan</li> <li>• Complaint and communication channels with the customers via website, e-mail, phone calls, letters, social media, and others.</li> </ul>	<ul style="list-style-type: none"> <li>• Compliance with the terms of the PPA, such as power supply according to the terms in the PPA, delivery of documents according to the schedule, delivery of quality products and services in accordance with the PPA, power plant control according to the terms of the contract and requirements.</li> <li>• Delivery of quality products and services meeting agreed conditions at fair prices in compliance with the regulations of ERC</li> <li>• Reliable power production and distribution system</li> <li>• Contractual availability of power distribution</li> <li>• Prompt responses to customer needs, supported by capable problem-solving team</li> <li>• Customer communication channels that are convenient and fast with easy access</li> <li>• Technology development for environmental impact reduction</li> <li>• Joint search for new business opportunities</li> <li>• Technical support team that is knowledgeable and capable of solving problems in a timely manner.</li> <li>• Customers' personal data protection equipped with cyber defense system</li> <li>• Equal treatment for all customers under applicable laws</li> </ul>	<ul style="list-style-type: none"> <li>• Customer relations management (CRM)</li> <li>• Maintaining stability and production availability</li> </ul>

Shareholder group	Engagement channel	Issue of interest	Response
<b>8. Communities and society (communities surrounding new project sites/ communities surrounding power plants/ local administrative organizations / NGOs / local associations / media (both central and local))</b>	<ul style="list-style-type: none"> <li>Organizing a tripartite committee meeting (government agencies, private companies, local communities)</li> <li>Attending monthly meetings with relevant provinces and local authorities to publicize the company's news and information, including listening to opinions from various agencies about the company</li> <li>Supporting activities of provincial/local administrative organizations</li> <li>Organizing meetings to clarify the operation of the power plants, seminars, and visits to the power plants, as well as publicizing the projects through online communication system</li> <li>Community satisfaction survey by an external agency twice a year</li> <li>Regular community relations activities/visits to communities and people with possible direct and indirect impacts, as well as promoting and supporting various community activities</li> <li>Power plant visits by local community members (Open House)</li> <li>Public hearings to solicit people's opinions on Environmental Impact Assessment (EIA) reports and the Code of Practice (CoP)</li> </ul>	<ul style="list-style-type: none"> <li>Attentive social, environmental, and safety impact reduction management arising from the company's operations</li> <li>Business operation with concern for safety and the environment</li> <li>Create local people's understanding of the company's business operations and participation from the community with a clear plan</li> <li>Job creation, income generation, and expense reduction for community people</li> <li>Support for activities with community participation on a regular basis</li> <li>Application of the company's knowledge, skills, and expertise to develop the communities around the power plant</li> <li>Optimum use of resources</li> <li>Concern for people's water consumption</li> <li>Promoting and developing the quality of life of the community for sustainable self-reliance.</li> <li>Provision of opportunities and promoting growth of the local economy in the area of operation through employment and use of local raw materials</li> <li>Helping the communities and society in the wake of the Covid-19 situation</li> </ul>	<ul style="list-style-type: none"> <li>Risk management</li> <li>Business ethics</li> <li>Water and wastewater management</li> <li>Sustainable co-existence with communities and social responsibility</li> </ul>





Shareholder group	Engagement channel	Issue of interest	Response
	<ul style="list-style-type: none"> <li>• Perspective survey on expectations of representatives of communities and the society as part of the preparation or improvement of the company's action plan</li> <li>• Various channels for communication and complaints via website, e-mail, phone calls, letters, social media, local media, and others.</li> <li>• Organizing media relations activities</li> <li>• Invitation to the media to participate in the company's activities</li> </ul>		

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### 3.3 Managing the Environmental Aspect of Sustainability

#### 3.3.1 Environmental Policy and Guidelines

Natural resources and the environment are crucial elements in power generation processes. Absence of appropriate control may cause pollution that affects the environment and society. GPSC therefore focuses on monitoring and controlling pollution at sources along with efficient resource consumption based on the Circular Economy Principle to co-create values for business, society, and the environment to meet its mission in conducting business with socio-environmental responsibility. The established policies and guidelines for environmental responsibility are as follows:

##### **Quality, Security, Safety, Occupational Health, and Environment Policy**

GPSC recognizes that production of power and steam may affect the hygiene of the employees unless appropriate control measures are in place. We have therefore formalized the Quality, Security, Safety, Occupational Health, and Environment Policy. Furthermore, we are committed to effective, continuous improvement for excellence so that GPSC may be recognized by stakeholders and consequently bring sustainability to the power and utility business. In 2021, we reviewed the policy and applied it to all departments throughout the supply chain, from the pre-acquisition of the merger assets and various other mergers & acquisitions, including planning, design, and execution until the end of the operations. The President & CEO has reviewed and approved the policy for all employees' acknowledgment, understanding, and compliance.

For more details of the Quality, Security, Safety, Occupational Health, and Environment Policy, please log on to <https://www.gpscgroup.com/th/downloads/policy/gpsc-group-quality-security-safety-health-and-environment-policy>

##### **Climate Change Policy**

GPSC established a Climate Change Policy for all units throughout its supply chain to apply to their operations from planning, design, execution, to the end of operations.

For details of the Climate Change Policy, please log on to <https://www.gpscgroup.com/th/sustainability/environmental/clean-energy-future-and-climate-resilience>

##### **Commitment to Biodiversity Management**

GPSC stipulated management to reduce impact on biodiversity in its Quality, Security, Safety, Occupational Health, and Environment Policy. It reflects commitment to biodiversity protection and management. Moreover, in 2021, GPSC made declaration of the intent of biodiversity management as a principle of basic operation in the same direction for the entire Group. GPSC aims to conduct environmental impact assessment of biodiversity in all new projects and expansion projects to ensure No-Net-Loss of biodiversity.

For additional information on the commitment to biodiversity management, please refer to <https://www.gpscgroup.com/storage/download/sustainability/environmental/biodiversity/biodiversity-commitment-statement-th.pdf>

##### **Guidelines for Greenhouse Gas Management**

GPSC strives to become a low-carbon organization to reduce the intensity of greenhouse gas emissions of not less than 35% from the base year by 2030. The Group complies with eco-efficiency in the use of efficient and sustainable resources to reduce energy consumption and greenhouse gas emissions from all activities through efficiency improvement of production processes with efficient innovation and technology, as well as through projects on continuous reduction of greenhouse gas emissions. GPSC plans to distribute more investment in renewable energy by setting a goal to increase the share of renewable

energy 50% by 2030. The company plans to be ready for Internal Carbon Pricing (ICP) in the consideration and decision for the investment in renewable energy and low-carbon innovation projects. It also plans to extend the third scope of information collection on the amount of greenhouse gas from the value chain to cover operation activities. GPSC seeks new business opportunities and innovation to support low-carbon operation. The company supports R&D of batteries and energy storage systems to facilitate the changing mode of future energy consumption. Moreover, GPSC encourages awareness and participation of its employees in the reduction of greenhouse gas emissions such as training provided for employees on carbon price mechanisms, participation in assessment of risks and opportunities in climate change, and campaign for reduced consumption of energy and resources within the organization to ensure good culture.

For additional information on Greenhouse Gas Management, please consult <https://www.gpscgroup.com/th/sustainability/environmental/clean-energy-future-and-climate-resilience>

## Environmental Management Guidelines

### Air Pollution

GPSC values investment in technology to improve the efficiency of production processes. It develops an action plan to continuously reduce air pollutants, such as oxides of nitrogen (NOx), sulfur oxides (SOx), and total suspended particles (TSPs). It focuses on strict control, surveillance, and monitoring of the quantity of air pollutants from sources in line with the control measure recommendations described in the Environmental Impact Assessment (EIA) Report and Environmental and Health Impact Assessment (EHIA) Report with strict actions as follows:

- Used low-nitrogen oxide burners to reduce nitrogen oxide emission from both combustion chambers of gas turbines and pulverized coal-fired boilers

- At GPSC's coal-fired power plants, quality bituminous coal is used with less than 1% sulfur. In addition, the limestone spraying technology is used in the Circulating Fluidized Bed (CFB), and a Seawater Flue Gas Desulfurization System (FGD) is installed with Pulverized Coal-Fired Boilers
- Installed TSPs with bag filter and impurity elimination systems such as mercury and a Refuse Derived Fuel (RDF) power plant
- Installed Continuous Emission Monitoring Systems (CEMs) at chimneys to continuously monitor air emissions. Real-time air quality data are displayed in front of power plants.
- Conducted air quality monitoring every six months by a central agency registered with relevant government agencies
- Created a tree buffer line (protection strip) around the sites to confine the dispersion of air pollutants to the external environment.

### Waste and Surplus Materials

GPSC is committed to minimizing waste generated from processes because it denotes production efficiency, mitigation of environmental impacts, and reduced waste treatment costs. For these reasons, GPSC adheres to the principle of 3Rs (Reduce, Reuse, and Recycle) by minimizing waste at the sources. When waste is generated, GPSC will first reuse or recycle it. This results in so much continuous waste reduction to landfill that GPSC had achieved the goal of zero-waste disposal to landfill since 2019. At present, waste generated from production, maintenance, and other activities is managed effectively in compliance with international standards to prevent potential impacts on the environment and surrounding communities.

In addition, GPSC regularly enforces, monitors, and audits waste management by all power plants, starting from collection, storage, and transport of waste including solar cells from its operation, treatment, to disposal to ensure compliance with

procedures and industrial waste management regulations to prevent environmental impacts. GPSC has also raised environmental awareness among contractors, partners, and customers by implementing the “Industrial Waste Management Process” at all power plants. Contractors must hold valid licenses from applicable authorities before the transport of all types of waste and surplus materials from the power plants. GPSC implements procedures to evaluate and approve the disposal facilities for both toxic and non-toxic waste before it leaves the power plants every time as well as complying with the Factory Act and the Hazardous Substance Act under the Ministry of Industry. In addition, through regular hazardous waste manifest audit of the waste disposal contractors, GPSC ensures that all waste, including unused materials, solar cells, and hazardous waste from production processes, is accounted for without unauthorized treatment and disposal, as well as the preparation of the Form Sor Kor 3, which is the annual report summarizing the amount of waste that GPSC ships and disposes of every year to confirm compliance with relevant regulations.

## **Water Management**

- **Water management outside GPSC**

GPSC manages external water by actively participating in the PTT Group Water Management Task Force, which holds monthly meetings. Each meeting addresses the water situation report from the survey and analysis of the water situation model, consequently formulating a water management plan, guidelines for monitoring water management targets, risk reduction, assessing impacts of water use in all operating areas, and finally communicating to responsible business units for efficient implementation of plans.

The PTT Group Water Management Task Force also participates in the Water Management Working Group of the Eastern Region of Rayong. The working group, made up of governmental agencies, East Water Plc, and representatives from the private sector, monitors,



assesses, analyzes the water situation, and maps out measures to reduce risks and impacts promptly.

GPSC also uses the Aqueduct Water Risk Atlas under the World Resources Institute (WRI) to identify water stress areas and determine guidelines for the management of water sources outside all areas.

- **Water management within GPSC**

GPSC clearly expresses its intention in internal water management to maximize the benefit of water usage with the community. By following the 3Rs (Reduce, Reuse, Recycle), GPSC manages internal water usage efficiently by reducing usage in power generation, recycling water from the cooling system for further use with wastewater from boilers, and reuse of condensed water in steam production processes.

In addition, GPSC continues to regularly monitor the quality of water discharged into the environment to ensure that the water that leaves the operation of GPSC is safe for the communities and complies with legal standards.



Since GPSC does not draw water directly from natural sources, there is no impact from the operation. However, it continues monitoring waters in all surrounding areas. GPSC also continues monitoring the water quality before discharging it into the industrial estate's central water treatment system and natural waterways to ensure that the quality of effluents from the processes meets the standards required by law and local authorities. Based on the data, it was concluded that the quality of effluents was better than applicable standards in every facility. As for each solar power plant, water is used to clean dust from solar panels. The used and non-contaminated water is discharged on the ground.

For further details on Environmental Management, please log on to <https://www.gpscgroup.com/th/sustainability/environmental/environmental-management>

### **Biodiversity Management**

The guidelines of GPSC for biodiversity management include the following:

- Committed to protecting and managing biodiversity by prohibiting operations in the areas of IUCN Category I-IV
- Committed to No-Net-Loss of biodiversity under a manageable scope
- Conducted a study and an analysis of environmental impacts from the projects, both domestic and international
- Conducted a study on biodiversity for international projects with caution by formulating the action plan, management plan, and environment monitoring
- Measures issued to prevent and reduce environmental impacts and to monitor and inspect environmental impacts
- Provided a manual on GPSC's Biodiversity and Ecosystem Services Management Procedure in accordance with the "Mitigation Hierarchy" principle (Avoid, Minimize, Restore, and Offset) to avoid serious impact on biodiversity.

For further details on Biodiversity, please log on to <https://www.gpscgroup.com/th/sustainability/environmental/biodiversity>

### **3.3.2 Environmental Performance**

#### **Energy Management**

In 2021, GPSC implemented an efficient energy management system, resulting in power consumption reduction by 1.23 million megawatts-hour (MW-hour). GPSC also planned to install a solar rooftop at Glow IPP with a capacity of 0.637 KW for internal use with the total solar energy consumption of 551.25 kilowatts-hour (KW-hour).

#### **Air Quality**

GPSC continues improving process efficiency to reduce air emissions resulting from the use of natural gas for power generation. In 2021, the emission of oxides of nitrogen (NO<sub>x</sub>) was 12,826.85 tons.

#### **Water Management**

In 2021, GPSC used 1,592.70 million cubic meters in the production processes, a drop of 18.46% from 2020. However, no water was drawn directly from public water sources, hence no sources of water were affected by the operations. In addition, process water was recycled and reused, totaling 175,169.06 cubic meters, under efficient wastewater management.

#### **Waste Management**

In 2021, GPSC achieved its goal of reducing hazardous waste landfill to zero.

#### **Greenhouse Gas Management**

Climate change is a current global problem requiring immediate action. One cause is the activities using electricity, which constitutes a major source of greenhouse gas emissions. GPSC is aware and committed to reducing the impact through the formulation of strategies to reduce greenhouse gas emissions and the goal to reduce the intensity of greenhouse gas emissions by not less than 35% from

the base year of 2020 by 2031, as well as seeking opportunities to develop innovation to support the production of clean energy and move toward a low-carbon society to cope with and adjust for climate change.

GPSC focuses on efficient resource utilization and sustainability under the Eco-Efficiency Economy through improving the efficiency of power and steam production. In 2021, the company implemented projects recommended by Thailand Greenhouse Gas Management Organization (Public Organization) (TGO) to reduce emissions of greenhouse gases, such as the Low

Emission Support Scheme (LESS). GPSC's carbon footprint has been assessed and certified under the Carbon Footprint Organization (CFO) category by SGS (Thailand) Co., Ltd. In 2021, GPSC managed to reduce greenhouse gas emissions by 18,015.44 tons of carbon dioxide equivalent through various projects, notably the energy reduction project and the waste separation for recycling project.

For more information regarding Climate Change Management, please log on to <https://www.gpscgroup.com/th/sustainability/environmental/clean-energy-future-and-climate-resilience>



GPSC participated in the Carbon Disclosure Project (CDP) assessment, the most recognized global institution for the assessment of environmental impact management, natural resources, and climate change. By disclosing information on climate change for the fifth consecutive year, the company received a B grade for 2021, the highest score among the power industry in Thailand.



In 2021, GPSC was registered by TGO for Carbon Footprint Organization from CUP 1-4, Sriracha (SRC), Glow Energy CFB 3, Glow Energy Phase 1,2, 4, and 5, Glow SPP 2, and Glow SPP 3 power plants with a total of 8,472,833 tons of carbon dioxide equivalent.



In 2021, GPSC received a certificate of honor from TGO under the Low Emission Support Scheme (LESS) category, for CUP 1-4, Sriracha (SRC), Glow Energy Phase 2, Glow SPP 2 Phase 4, Glow SPP 3, GHECO-One, and Glow IPP power plants. This resulted in a total greenhouse gas emission reduction of 18,015.44 tons of carbon dioxide equivalent.



### 3.4 Managing the Social Aspect of Sustainability

#### 3.4.1 Policies and Social Guidelines

##### Human Rights Policy and Guideline

GPSC is committed to the management of human rights by formalizing its Human Rights Policy in accordance with the principles of the UN Guiding Principles on Business and Human Rights (UNGPR) to avoid, prevent, and mitigate human rights risks and violations across the value chain. GPSC relentlessly implements Human Rights Due Diligence Processes, which include identification of human rights risks, identification of affected groups, and implementation of preventive and corrective plans to include measures to mitigate damage and follow up to ensure that its business operations are founded on strict protection of human rights. GPSC has developed, formalized, and announced throughout the organization the Human Rights Policy under the provisions of Thai and international laws, including various criteria of the United Nations Global Compact (UNGC) and the Declaration on Fundamental Principles and Rights at Work of the International Labour Organization (ILO) for managerial staff and employees to strictly follow.

In 2021, GPSC reviewed its Human Rights Policy covering the value chain and new business partners such as mergers, acquisitions, and joint investment.

For more details on Human Rights Policy, please log on to <https://www.gpscgroup.com/th/downloads/policy/human-rights-policy>

##### Human Resource Management Policy

GPSC values employees as an essential mechanism driving business growth toward goals. It is therefore committed to managing human resources in line with the strategic directions of the Group. It stipulates a human resource policy to set out a direction for efficient and fair human resource management in line with the strategy and goals of GPSC under

the ever-changing global economy, completely covering the three dimensions of ESG, along with creating motivation and corporate engagement with employees. The policy will bring about mutual success and sustainable progress between employees and the organization. To this end, the 2021 target for the succession plan has been established at 100%.

##### Strategy for Success

1. A Succession Plan for the executive level has been developed to ensure business continuity
2. The SPARK Accelerator will prepare high-potential employees to support business growth
3. Engagement and unity of GPSC Group will be achieved through ACT SPIRIT activities
4. Employer Branding is to foster corporate image among external parties.

For more details, please log on to <https://www.gpscgroup.com/th/sustainability/social/our-employees>

##### Corporate Social Responsibility (CSR) Policy and Strategy

GPSC strives to be the leader of PTT Group's power business innovation with a clear intention to conduct its business with social responsibility for internal and external stakeholders. This includes responsibility for community and environmental sustainability by conducting its business in peaceful harmony with communities and society as well as fostering appropriate participation processes with stakeholders. GPSC has established a policy of social and environmental responsibility to be observed as follows:

- Conduct its business with transparency, fairness, and auditability. Focus on the growth of GPSC Group along with the improvement of the quality of life of employees, communities, society, and the environment. Meet stakeholders' interests in accordance with the vision and mission set out by GPSC

- Maximize the benefit of resource utilization with minimal impacts on stakeholders, society, community, and the environment
- Committed to continuous social and environmental responsibility with all stakeholders to create mutual social and environmental sustainability
- Encourage and enable stakeholders to participate in projects or activities for society and the environment by leveraging the capability and resources of GPSC to achieve goals and objectives efficiently
- Communicate and publicize projects or activities for society and the environment to communities, society, and stakeholders.

GPSC has implemented assorted social and community development programs under the sustainability framework in line with the strategy and direction of the business of the group. The sustainability framework comprises Power Accessibility, Quality of Life, Eco System, and Sustainable Innovation. GPSC's strategy of social responsibility is founded on three important principles as follows:

- 1) It is an activity that links the mission of the organization to business operations
- 2) It harnesses GPSC's expertise, core skills, and competencies to transfer knowledge and extend it to develop into communities
- 3) It considers the needs and expectations of stakeholders, especially those living around the areas of the company's business operations.

### **3.4.2 Social Performance**

#### **Human Rights Management**

GPSC values human rights. It therefore organizes human rights training and knowledge-sharing sessions for employees. In addition, it has completed human rights risk assessment for all business units to identify, prevent, and mitigate the impacts of human rights risks in GPSC's operations throughout the value chain. This assessment encompasses activities at the national level, industrial level, and operational level in areas where GPSC Group operates. The scope includes identification of relevant human right

issues, and impact assessment in groups with risks or vulnerable groups such as children, indigenous groups, foreign workers, as well as assessing potential impacts at the national, operational, and individual levels. The human rights risk assessment is based on two factors, potential and consequential, covering six human rights areas: Labor Rights, Community Rights, Supply Chains, Security and Safety, Environment, and Consumer Rights. In 2021, there was no complaint or malpractice filed regarding human rights laws and violations in any area.

For more detail on Human Rights, please log on to <https://www.gpscgroup.com/th/sustainability/social/human-rights>

#### **Human Resource Management**

##### **1. Workforce Planning**

In 2021, GPSC managed a strategy manpower planning and improved the organizational structure and processes arising from mergers and acquisitions to support its rapid growth. It improved the personnel selection process to ensure alignment with business plans. GPSC completed 100% succession planning of key positions.

##### **2. Employee Development**

GPSC develops an employee development program in line with job positions at each level so that employees can support domestic and international business growth, including new business development plans to pursue the vision to become a leading power generation company in innovation and sustainability at the international level.

##### **3. Embed Corporate Culture and Increase Employee Engagement**

GPSC focuses on strengthening employee engagement through sharing and organizing activities to promote employee awareness of Group values, leading to a culture and behavior of efficient collaboration. In 2021, the engagement level was 71% (which exceeded the industry average).

#### 4. Diversity and Equal Opportunity

GPSC is a diverse organization in race, gender, and age. Diversity allows it to meet the different needs of stakeholders and constructively respond to business changes. It establishes qualifications for recruiting staff and human resource development to prepare employees for equal career growth. In 2021, GPSC Group had 29.18% female executives.

#### 5. Employee Well-being

GPSC's welfare board is the venue for nominated employee representatives to express their views equally. Currently, there are 25 employee representatives on this board.

For more details regarding the achievement of Human Resource Management, please log on to <https://www.gpscgroup.com/th/sustainability/social/workforce-development-and-well-being>

#### Safety, Occupational Health, and Work Environment

GPSC continuously develops and improves the efficiency of safety operations to reduce the risk of illness, injury, or fatality and to take proper care of the quality of life of employees and contractors by the following key action items:

- Compliance with applicable occupational health and safety laws
- Occupational health and safety supervision
- Process safety
- Occupational health risk assessment and preventive process
- Personal safety
- Occupational health and safety training.
- GPSC web-accident reporting program
- Occupational health and good health of employees
- Promoting and cultivating a safety culture.

In 2021, one lost workday accident-related case was found (Lost Time Injury Frequency Rate or LTIFR) in March. GPSC conducted an investigation and analysis of the cause. The executives were also aware of the importance and held a workshop with all related units to seek common guidelines to avoid accident recurrence and communicated to all other areas. Therefore, since April 2021, no lost workday accident-related case was found.

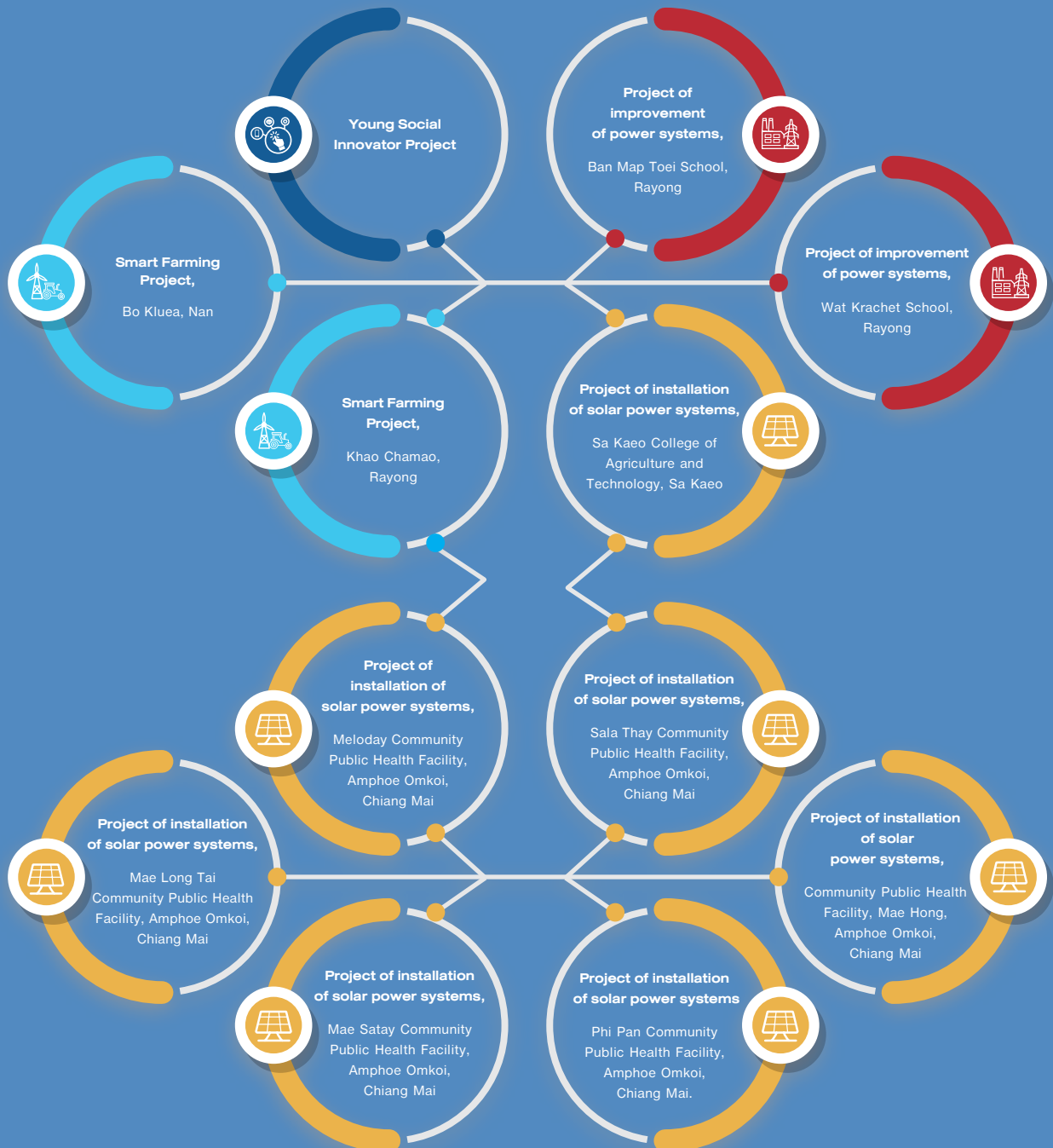
For more details regarding Safety, Occupational Health, and Work Environment, please read <https://www.gpscgroup.com/th/sustainability/social/occupational-health-and-safety>

#### Corporate Social Responsibility (CSR)

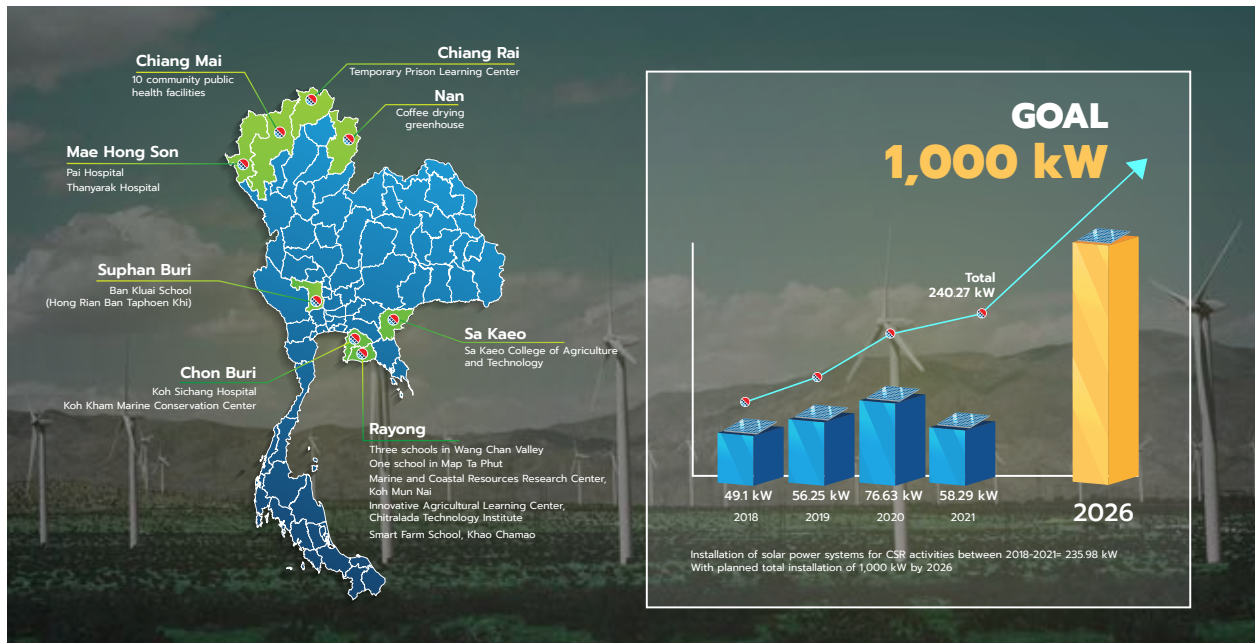
GPSC has established a long-term CSR goal (2022-2026) for sustainable co-existence with the community as follows:

- Evaluation of social return on investment (SROI) covering ten activities a year with the SROI  $\geq 1.05$
- An increase of 1% on community satisfaction survey results conducted every two years.
- Reduction of no less than 1,000 kilograms of carbon dioxide equivalent a year (new indicator)
- Community's access to 1,000 kilowatts of renewable energy by 2026 (new indicator).

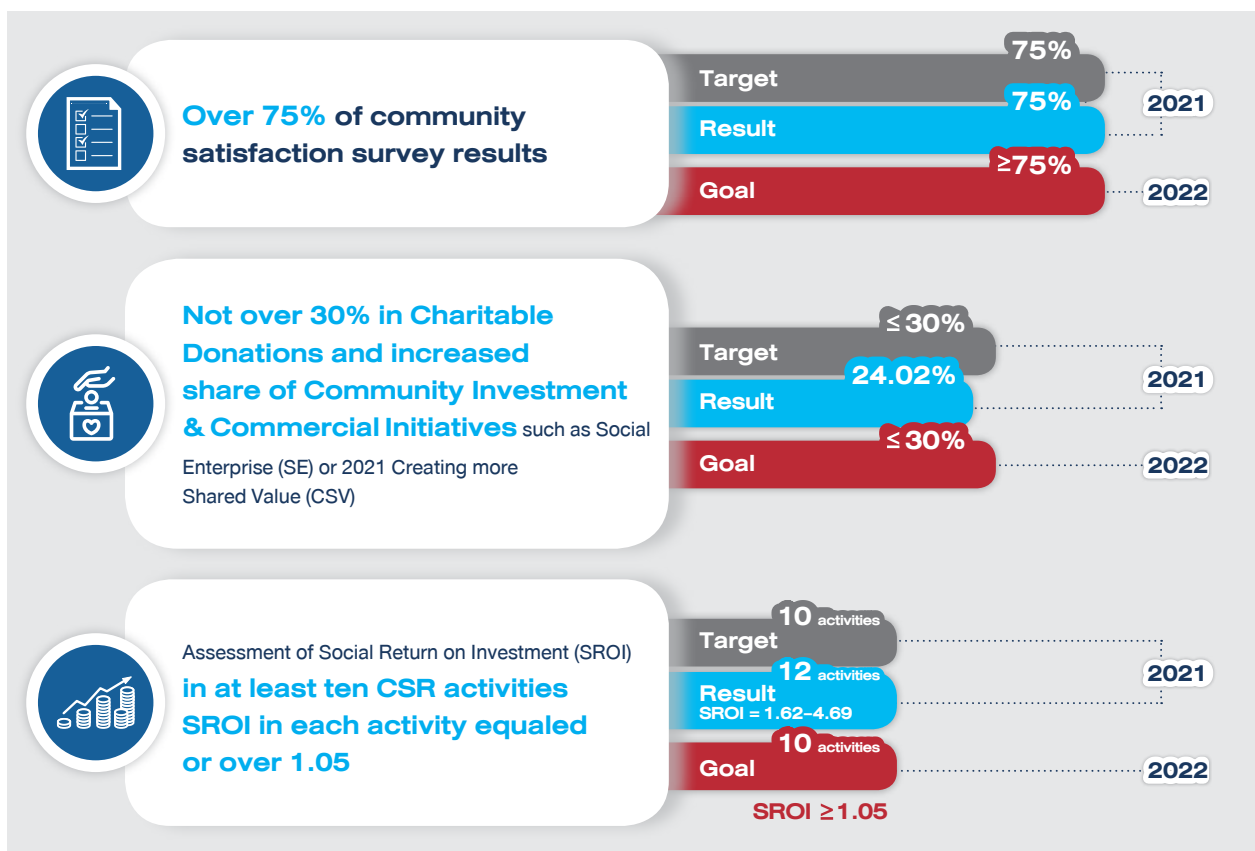
The indicators continued from 2021, and some new indicators were added. Apart from the evaluation of SROI and community satisfaction survey results, GPSC intensified the SROI evaluation by increasing from six to ten activities. In 2021, the evaluation of SROI of the company's 12 activities ranged from 1.62 to 4.69 detailed as follows:



Another additional indicator was the continuous installation and delivery of generation of renewable energy and/or additional energy storage to communities eligible for the company's criteria. Not only is the goal in line with the UNSDGs but also with the company's business and goals in terms of increased share of renewable energy in its portfolio of investments.



### Targets and achievement of CSR and sustainable co-existence with communities in 2021



The overall performance showed more progress against the goal. GPSC is still committed to achieving the goal by 2026 to support its vision of a regional and global leading innovative and sustainable power company.



### 3.4.3 Projects and Activities in 2021

The implementation of CSR activities is divided into Community Relations and Corporate CSR. In 2021, GPSC implemented both areas simultaneously. The work can be summarized as follows.

#### 1. Community Relations

With regard to the implementation of community relations, GPSC mostly joined forces with PTT Rayong Group and the Friends of Community Association. However, there were activities that GPSC carried out on its own. Its community relations activities are divided into education, quality of life promotion, environment, and public participation.

##### Education

A finding from the biennial 2020-2021 Community Satisfaction Survey indicated that one well-known and highly appreciated CSR activity was the scholarship program. This undergraduate scholarship program has been offered for 14 consecutive years. There are three scholarships offered annually to eligible Mathayom 6 (Grade 12) students who live in Rayong and Chon Buri. The scholarship of Baht 400,000 per student, three recipients a year, is for public university tuition fees and other education-related expenses, including monthly allowance covering all four years of education.

Furthermore, GPSC offers a community scholarship program for 38 communities in Map Ta Phut Municipality and 10 fishing groups around the plants, granted for 13 consecutive years since 2007 to provide educational opportunities for exemplary youths with insufficient financial support. This program eases the burdens of parents and inspires and fosters pride of youths themselves. In 2021, GPSC added the first GPSC RDF Brand Ambassador Scholarships to vocational students around the RDF power plant.

##### Quality of Life Promotion

GPSC has implemented projects to promote career advancement and hiring opportunities for community members and to support community products and community enterprises in the area. In 2021, the major activities for promoting quality of life included:

- Support local community products for CSR activities, as well as hiring small retail stores to make survival bags for delivery to the needy and those affected by Covid-19, as well as income distribution and generation of local employment
- Support medical equipment and devices to assist public health agencies and communities affected by Covid-19 such as masks, PPE, rubbish bags and rubbish bins for infectious waste.
- Create an occupation of organic agriculture in collaboration with the local administrative organization
- Support an occupation of earthworm breeding
- Improve lighting systems in communities
- Support the production process of products from local community waste.

##### Environment

- Reforestation, Check Dam (Weirs) and Aquatic Species Release Project

GPSC values its business along with mitigating challenges from climate change by increasing green space and preserving the environment and ecosystems to increase biodiversity. It has implemented a reforestation project from 2013 to 2021 with a total of 20,450 planted trees. Apart from reforestation, GPSC signed a memorandum of understanding with government agencies and communities to continue taking care of it for five years before handing it over to the community.

Apart from ongoing reforestation activities, GPSC has implemented a project to build check dams (weirs) to maintain moisture in the forest, thus reducing soil erosion as well as being a habitat for aquatic and small wildlife. From 2015 to 2021, a total of 142 dams were built. GPSC remains committed to building them to restore a complete ecosystem.

In addition, GPSC has been working with network partners on a project on releasing aquatic animals for 19 consecutive years, striving to preserve the marine environment to multiply the number of aquatic lives, balancing marine and coastal ecosystems and increasing revenue for fishermen. Apart from the three continuous main projects, our environmental activities in 2021 included:



- Green area maintenance project with 34 rai in communities
- Fishing gear project for small fishing boats
- Floating baskets of aquatic animals project for small fishing boats
- Separation of PET bottles project for recycling into washable PPE for medical personnel
- Zip lock bag project for used masks to protect waste collectors from danger and preserve environment by support through government agencies around the RDF power plant, among others.

### Public Participation

Over time, GPSC has invited the public and government agencies to participate in monitoring GPSC's operations through various venues and committees, for example, a tripartite committee responsible for protection, mitigation, and monitoring of environmental impacts, a working group for the monitoring of implemented environmental measures, a working group to visit and audit industrial plants in Map Ta Phut Industrial Estate (white flag - green star), an EIA monitoring committee in Map Ta Phut Industrial Estate, evaluation of Eco factories, as well as an open forum of public hearing based on transparency and auditability for suggestions to improve operations. In 2021, we held a meeting to elaborate on business development/expansion projects such as construction of a new power plant to replace the old one and the expansion phase project of a power generation unit with steam turbines of Glow Energy Plc to provide information to community and stakeholders.

Moreover, GPSC regularly visits and engages in dialogues with surrounding communities to maintain good relations with them under the "Khang Ba Khang Lai (Side by Side)" project, as well as providing a summary of CSR work to the communities no less than five times a year.

## 2. Corporate CSR

The implementation of corporate CSR primarily aims to enhance the overall corporate image. The activities included joint projects with PTT Group or partners and GPSC projects in both local areas and others. The focus is mainly focused on projects aligning with the corporate vision, core missions, or expertise.

The company's focus on four main CSR activities includes the following:

1. Power accessibility
2. Quality of life
3. Eco system
4. Sustainable innovation.

### Power Accessibility

- Light for a Better Life (LBL) Project (Electricity for community's and society's good quality of life)

Light for a Better Life is a community support project that deployed the expertise and specialized skills of GPSC and its employees to take care of the community's electricity system. The effort reflected PTT Group's leadership in power innovation. In this project, the employees leveraged their expertise to take care of people in community, society, and country (People of the Planet) in four main areas: safety, saving, energy security, and socio-economic.

1. Safety: The project upgraded and repaired electrical systems for local schools, temples, and healthcare facilities to minimize risks to life and properties resulting from fire and electric shocks, as well as repair and restoration of electrical systems to local government agencies in the event of disaster.
2. Saving: The project replaced energy-intensive electrical devices and appliances with energy-efficient ones or installed rooftop solar system to reduce costs and use the savings for development or other useful activities in the organization.

3. Security: The project installed alternative power systems in remote areas to improve the quality of life of people in communities, reduce life obstacles, and strengthen energy security, such as installation of solar rooftop at hospitals, public health facilities, and schools.
4. Socio-Economic: The project promoted the career of “Electricity Doctor” to generate income for people in the community. It equipped them with professional skills so that they might become electricians with basic knowledge. They could then take care of their households and communities, earn extra income, or make it a primary source of income.

The LBL is a strategically important CSR project since it aligns with the organization’s business and expertise, as well as the UNSDGs, and the world’s energy direction. GSPC Group improved, installed, and delivered over 20 projects of solar power and power storage systems, especially for remote areas and communities with no electricity access in eight provinces to ensure their energy security and equality. In 2021, GSPC Group improved power systems at two schools around its business operations and installed solar power systems for three projects as follows:

No.	Project/Installation location	Type	kWp	Reduced amount of CO <sub>2</sub>	Remarks
1	Sa Kaeo College of Agriculture and Technology	On-grid	30	46,743.61	
2	8 community public health facilities (Amphoe Omkoi, Chiang Mai)	Off-grid	24.29*	24,071.97	In cooperation with Power for Sustainable Future Foundation
3	SMART Farming Projects (Amphoe Khao Chamao, Rayong and Amphoe Bo Kluea, Nan)	Off-grid	4	6,289.13	In cooperation with PTT
<b>Total</b>			<b>58.29</b>	<b>77,104.71</b>	

Remark \* According to our share of the budget

The capacities of installed solar power systems for CSR activities increased from 181.98 kilowatts in 2020 to 240.27 kilowatts in 2021 from the goals, namely community’s access to renewable energy of 1,000 kilowatts by 2026. In 2021, the three LBL projects managed to reduce the greenhouse gas emissions of 77,104.71 kilograms of carbon dioxide equivalent a year.

## Quality of life

### • GPSC Unites Thais to help the Nation Project

Due to the ongoing Covid-19 pandemic since 2020, GPSC had to modify its action plan on society, community, and environment in 2021 in line with the situation. The company switched the budget for CSR activities to assistance activities for those affected by the pandemic.

GPSC has proceeded with the GPSC Unites Thais to help the Nation Project since November 2019 until the present fourth wave of the outbreak. Activities were divided into four main aspects as follows:

- 1) Donation of money for the treatment of Covid-19 patients
- 2) Donation of medical apparatus and necessary items
- 3) Support of innovations to assist and mitigate the outbreak of Covid-19 and
- 4) Implementation of projects or activities to remedy those affected.

The budget used to support the GPSC Unites Thais to help the Nation Project totaled Baht 38.78 million.

### • Smart Farming Project

Due to the Covid-19 situation having economic and social impact, GPSC in collaboration with PTT Group drives the PTT Group SMART Farming Project under its Innovation for Smiles Project with the following objectives:

- 1) Apply innovation and technology of GPSC Group and PTT Group to develop people's quality of life through the upgrading of cultivation practice and development of agricultural produce
- 2) Develop modern agricultural business through application of technology, innovation and holistic management
- 3) Focus on development through the use of community energy and expertise of GPSC and PTT Group
- 4) Increase income through productivity, reduce expenses and time, and increase community's output through modern agriculture to ensure farmers' sustainable self-reliance

The target groups of the SMART Farming Project consisted of farmers, community enterprises, and the disadvantaged. The work structure consisted of local managers who were employees of PTT Group and staff from the RESTART Thailand Project (six persons/area). PTT Group hired new graduates who were not yet employed and mostly locals to attend basic training on agriculture and technology to specifically work on the project.

As for the company's two responsible areas, namely Ban Suan Ton Nam, Amphoe Khao Chamao, Rayong, which was the company's area of operations, and Ban Huai Khap, Amphoe Bo Kluea, Nan, which was the location for the company's continued CSR projects and activities. For the duration of one year, 12 students from the RESTART Thailand Project would go to the sites and actively conduct the study of problems and develop action plans appropriate to the context of each area. The employees of GPSC and PTT Group would provide them with advice and support in the application of their innovation and technology to solve problems of agriculture in the community. The details of the application of the innovation in each area were as follows:

- 1) Ban Suan Ton Nam, Amphoe Khao Chamao, Rayong
  - Two 6x12 meter IoT system Smart Greenhouses
  - On-grid 3 kW solar cell system
- 2) Ban Huai Khap, Bo Kluea, Nan
  - One 8x16 meter solar drying plant
  - Two 8x20 meter IoT system Smart Greenhouses.

PTT Group's Innovation for Smiles Project covered three years (2021-2023). In 2021, the SMART Farming Project was operated in 25 areas in 20 provinces across Thailand. In terms of the operation in 2022, GPSC planned to collaborate with the National Science and Technology Development Agency (NSTDA) to apply technology and energy innovation to the drive and development of more efficient projects, taking into account terrains and local cultures.



## Eco system

### • Zero Waste Village Project

The Zero Waste Village Project aimed to foster environmental consciousness and encourage community members to properly implement waste sorting themselves. As a result, the project created value for waste and surplus materials. It also minimized environmental issues and preserved natural resources for communities. This project improved people's quality of life while saving the environment. Potentially evolving into a social enterprise, it would generate income for the community and ensure society's and community's self-sustainability.

The company has participated in waste management in Ban Phai community, Tambon Nong Taphan, Amphoe Ban Khai, Rayong, continuously since 2018 through the promotion and support of knowledge transfer in comprehensive waste management, recycling and upcycling, development of community products, and increased sales channels to generate supplementary income for the community.

Due to the Covid-19 situation, Ban Phai community, Tambon Nong Taphan, Amphoe Ban Khai, Rayong could not fully implement the savings account of the Waste Bank. As a result, the waste which used to be the community's source of income was circulated less and the amount of community waste increased. Therefore, GPSC with the Community Partnership Association (CPA) in cooperation with the students from the Faculty of Commerce and Accounting, Thammasat University, assisted in marketing planning, accounting, and design of more modern and attractive products. One of them was pillows made from recycled drinking straws under the "Tayla" brand, which would increase the opportunity of sales for the community from the old style of "straw" pillow.

- Sales of pillows made from used plastic drinking straws 232 pieces
- Reduced plastic straws 196 kilograms
- Community's increased income 73, 174 baht



## Sustainable Innovation

### • GPSC Young Social Innovator Project

The GPSC Young Social Innovator Project was launched in 2018 as a training camp and innovation contest for high-school students or equivalent in the East, with 39 teams competing. Instigated by the success of one silver medal and one special award won at the Seoul International Invention Fair (SIIF), in the following year (2019) the GPSC Young Social Innovator Project extended its targets by upgrading the regional competition into a national competition. Therefore, in the second year, 158 teams participated in the project. The works of the second batch of students were more evident. Due to the outbreak of Covid-19, nearly all international innovation competitions, whose goal was to showcase Thai youths' ability and potential, were cancelled or changed into online competition. Despite the situation, the GPSC Young Social Innovator Project was recognized at the international level with one gold medal, that is, one special award won at the International British Inventions, Innovation Exhibition (IBIX) and two gold medals and one silver medal, won at the World Invention Innovation Contest (WIC).

Due to the highly successful GPSC Young Social Innovator Project (season two) in 2019, GPSC was committed to upgrading the project into a training camp for incubating innovative skills and creating new generation of innovators for Thailand. HRH Princess Maha Chakri Sirindhorn graciously bestowed the trophy for the project in 2020, which was the top prize of the competition in its third year. The project attracted even more interest from youths nationwide with up to 303 teams who applied to participate in the project.

Currently, the project is in its fourth year with modified types of innovation for competition: Product, Invention, and Process and Service. The interested youths submitted 447 entries for competition. HRH

Princess Maha Chakri Sirindhorn graciously bestowed trophies for the top prizes of the project in 2021 for each category of work, totaling three trophies.

The past GPSC Young Social Innovator Projects have seen rising entries by interested youths every year. They developed seven of their works for eligibility for the registration of patents and petty patents. Throughout the past years, the participants have won over 15 awards from various international innovation contests. Moreover, the Social Return on Investment (SROI) of the project for the past three years was 1.62, a decent score.

For further details of Corporate Social Responsibility, please log on to <https://www.gpscgroup.com/th/sustainability/social/corporate-social-responsibility>



## 4. Management Discussion and Analysis (MD&A)

### Overview

#### (1) Overall performance of 2021

In 2021, GPSC reported a net profit of THB 7,319 million, a THB 7,508 million or 3% decrease from 2020, attributable primarily to a decline in SPP's gross profit due to rising natural gas and coal prices in the market despite increased total sale volumes of power and steam, coupled with reduced margins on sale of power and steam as well as expenses incurred by the maintenance shutdown of the Glow Energy Phase 5 Power Plant despite partial compensation. The decrease in the gross profit from SPP was also due to a planned turnaround of the GHECO-One Plant in Q1 and maintenance shutdowns in Q2 and Q3 of 2021, which reduced revenue from availability payment. However, the share of profit from the Xayaburi Hydroelectric Power Plant that GPSC recognized rose by THB 702 million thanks to larger volumes of water compared to the drought-plagued 2020.

#### Synergy from the Acquisition of GLOW

In 2021, GPSC recognized over THB 1,633 million in synergy value from the merger, which was higher than initially planned. The synergy value was mainly derived from the management of power and steam network integration and maintenance, the reduction of operating costs via an improvement of procurement processes and inventory cost control for economies of scale. Other co-managements include managing financing costs, insurance, working capital, and organizational cost control.

#### (2) Economic and Industrial Circumstances Pertinent to Operations

**Overall Thai economic outlook:** The Bank of Thailand has 3.4% economic expansion for the year 2022 due to a recovery of domestic spending and gradual return of international tourists. The outbreaks of omicron variants of the coronavirus will affect Thailand's economic recovery, especially early in the year, particularly in terms of domestic economic activities, exports, and the number of international tourists.

Meanwhile, the Bank of Thailand expected a temporary rise in headline inflation rate in 2022 at 1.7% from 1.4% due mainly to supply factors, where energy prices are expected to increase from higher fuel costs that move in line with the global oil market.

**Ft adjustment:** On November 29, 2021, the Energy Regulatory Commission (ERC) approved the automatic power tariff adjustment mechanism (Ft) for the collection of electricity invoices during the January-April period at 1.39 Satang/unit, an increase of 16.71 Satang/unit from the previous period. The increase was due to rising fuel costs and higher costs of electricity purchased from private power producers.

To stabilize the Ft rate and lessen the burden on electricity users amid global economic uncertainties due to COVID-19 and the upward trend of the Ft rate in 2022, the ERC resolved to increase the 2022 Ft rate in steps.

**2022 electricity consumption forecast:** Krungsri Research has forecast continuous growth in the power production business thanks to the projected 3.6% annual growth in demand on the back of gradual economic recovery and state support for investments in accordance with Thailand's power development plan (PDP), which promotes the capacity expansion of and investment in the three following categories of power plants:

1. IPPs: There are plans to replace gas-fired power plants due to expire during 2025-2027.
2. SPPs: The SSP Replacement Program seeks to construct new power plants to replace those due to expire in 2019-2025 and expand production capacity to accommodate increasing demand, especially from new investments in the Eastern Economic Corridor (EEC).
3. VSPPs: Continuous expansion is expected for VSPPs, especially residential rooftop solar installations, biomass, biogas, and waste, all of which are supported by the government.



## Result of Operations

Operating results of GPSC and its subsidiaries as follows:

(Unit: THB million)

The Company's and Subsidiaries' Operating Performance	2020	2021	Change +/(−)
Revenue from Operations	69,578	74,874	8%
Cost of Sales (Exclusive of Depreciation and Amortization)	(48,249)	(55,206)	14%
<b>Gross Profit</b>	<b>21,329</b>	<b>19,667</b>	<b>(8%)</b>
Selling & Administrative Expenses	(1,790)	(1,963)	10%
Other Revenue from Operations	20	20	0%
<b>EBITDA</b>	<b>19,559</b>	<b>17,724</b>	<b>(9%)</b>
Depreciation & Amortization	(8,287)	(8,630)	4%
<b>EBIT</b>	<b>11,272</b>	<b>9,094</b>	<b>(19%)</b>
Financial Cost	(4,024)	(3,860)	(4%)
Other Revenue and Expenses	915	2,100	130%
Dividend Received & Share of Profits from Associates & Joint Ventures	1,320	1,792	36%
Income Tax Expense	(992)	(1,192)	20%
<b>Profit before FX and Extraordinary Items</b>	<b>8,491</b>	<b>7,934</b>	<b>(7%)</b>
Net Profit (Loss) from Foreign Exchange	(1)	(93)	9,221%
<b>Net Profit</b>	<b>8,490</b>	<b>7,841</b>	<b>(8%)</b>
Non-Controlling Interests	(982)	(522)	(47%)
<b>Net Profit – Parent Company</b>	<b>7,508</b>	<b>7,319</b>	<b>(3%)</b>
<b>Parent Company's Net Profit Excluding Amortization (Adjusted Net Income)<sup>1</sup></b>	<b>8,962</b>	<b>8,907</b>	<b>(1%)</b>
<b>Gross Margin (%)</b>	<b>31%</b>	<b>26%</b>	<b>(5%)</b>
<b>Net Gross Margin (%)</b>	<b>11%</b>	<b>10%</b>	<b>(1%)</b>
<b>Adjusted Net Income Margin (%)</b>	<b>13%</b>	<b>12%</b>	<b>(1%)</b>

Remark:

<sup>1</sup> Adjusted Net Income is net profit attributed to the Company excluding "fair value of intangible assets from the acquisition of GLOW."

## Yearly Comparison of Company's Performance (2021 VS 2020)

### 1. Revenue from Operations

Revenue from operations in 2021 was reported at THB 74,874 million, increasing by THB 5,296 million or 8% from 2020, mainly due to the following factors:

- **Revenue from Independent Power Producers (IPP)** rose THB 2,361 million or 15% compared to 2020 due to the following:
  - Revenue from Sri Racha Power Plant rose by THB 2,620 baht due to increased revenue from energy payment (EP) in line with higher electricity sales volume to EGAT, despite lower revenue from availability payment in 2021 due to more outages than the previous year.
  - Revenue from GLOW decreased by THB 259 million, mainly due to lower revenue from GHECO-One as a result of planned maintenance in Q1 2021 and unplanned outages in Q2 and Q3 of 2021 resulting in lower availability payment (AP) and energy payment (EP). However, the revenue of Glow IPP rose as a result of higher EP following higher electricity dispatch to EGAT, and the revenue of Houay Ho Power Plant increased slightly due to higher power output.
- **Revenue from Small Power Producers (SPP)** increased by THB 3,095 million or 6%, mainly attributable to the increased sales volumes of electricity and steam combined and an average 2% increase in power selling prices.
- **Revenue from Very Small Power Producers (VSPP) and others** reduced by THB 162 million or 19% compared to 2020. This was partly because GPSC sold its 50% stake in Global Renewable Power Co., Ltd. (GRP) to PTT Public Company Limited and thus recognized GRP's operating performance as share of profits on January 4, 2021 onwards. Another contributing factor was the decline in the revenue from sale power of Ichinoseki Solar Power Plant (ISP1) and the decreased revenue from sales of chilled water of Combined Heat and Power Producing Company Limited (CHPP) due to a drop in sales volume.

### 2. Cost of Sales and Service Provision

#### (Excluding Depreciation and Amortization)

Cost of sales and service provision in 2021 stood at THB 55,206 million, increasing by THB 6,957 million or 14% from 2020, mainly due to the following factors:

- **Cost of sales and service provision for Independent Power Producers (IPP)** rose by THB 2,830 million or 27% compared to 2020, mainly due to a THB 3,600 million increase in expenses on other materials due to the use of diesel of Sri Racha Power Plant and Glow IPP Power Plant as the primary fuel according to EGAT's energy dispatch as well as a THB 885 million increase in natural gas expenses resulting from increased power sales volumes of the two power plants in accordance with higher energy dispatch to EGAT, while the coal expense of GHECO-One Power Plant dropped by THB 1,534 million due to a planned turnaround in Q1 and outages in Q2 and Q3 of 2021, which caused coal consumption to decline.
- **Cost of sales and service provision for Small Power Producers (SPP)** increased by THB 4,034 million or 11%, primarily because natural gas costs saw a 5% rise on the back of greater demand and coal costs spiked by 40% while coal consumption dropped by 5%.
- **Cost of sales and service provision for Very Small Power Producers (VSPP) and others** increased THB 93 million or 39% compared to 2020, mainly due to increased recognition of other costs from the Refuse Derived Fuel (RDF) Power Plant, which began commercial operation on May 28, 2021 and an increase in maintenance expenses of Ichinoseki Solar Power Plant (ISP1) due to repairs in certain parts of the project.

### 3. Gross Profit

Gross profit in 2021 was THB 19,667 million, a THB 1,662 million or 8% decreased compared to 2020, primarily due to the following:

- **Gross profit from Independent Power Producers (IPP)** in 2021 was THB 4,889 million, decreased by THB 469 million or 7% from 2020, mainly due to a decline in the gross profit of GHECO-One Power Plant due to a planned turnaround in Q1 and outages in Q2 and Q3 of 2021, which in turn reduced revenue from availability payment (AP) and energy payment (EP).
- **Gross profit from Small Power Producers (SPP)** in 2021 was THB 14,423 million, decreased by THB 939 million or 6% from 2020, mainly attributable to rising natural gas and coal costs, despite an increase in total sales volumes of power and steam combined.
- **Gross profit from Very Small Power Producers (VSPP)** in 2021 was THB 355 million, decreased by THB 255 million or 42% from 2020, mainly due to the recognition of GRP's operating performance as share of profit from investment in an associate starting from January 4, 2021 onwards.

### 4. Selling and administrative expenses (SG&A)

Selling and administrative expenses in 2021 was THB 1,963 million, increased by THB 173 million, mainly due to an increase in insurance premiums, consultant hiring expenses, and maintenance expenses.

### 5. Depreciation

The depreciation and amortization in 2021 stood at THB 8,630 million, which rose by THB 344 million, mainly due to the increased amortization of the fair value of the net assets obtained through the acquisition of GLOW, coupled with an increase in depreciation resulting from the commencement of commercial operation of the Refuse Derived Fuel (RDF) Power Plant in Q2 2021.

### 6. Financial cost

The financial cost in 2021 was reported at THB 3,860 million, a decrease of THB 164 million, mainly attributable to the repayment of long-term loans from financial institutions and debenture redemption.

### 7. Other Revenue and Expenses

Other revenue and expenses in 2021 stood at THB 2,100 million, which rose by THB 1,186 million, primarily due to the following:

- GPSC recognized THB 1,929 million compensation from insurance from the unplanned outages of the Glow Energy Phase 5 Power Plant, while machines damaged during such periods worth THB 858 million in total were written off.
- In Q1 2021, GPSC recognized THB 115 million as profit from sales of investment from the selling of 50% shares in GRP.
- In Q3 2021, GPSC recognized revenue from the fines for GPSC CUP-4 construction delay in the amount of THB 137 million and other revenues, such as revenue from consultation fees and compensation from insurance.

### 8. Profit-Loss from Foreign Exchange

The net loss from foreign exchange in 2021 was THB 93 million, mainly attributable to the following:

- Increase in unrealized FX profit of THB 23 million
- Increase in losses from fair value valuation of derivatives instruments of THB 39 million, and
- Increase in realized FX loss of THB 76 million

### 9. Income Tax

The income tax expense in 2021 stood at THB 1,192 million, which rose by THB 200 million or 20% from 2020, mainly attributable to the fact that GPSC had used up all net tax loss carryforwards and the higher actual tax rate was higher.

### 10. Dividend Received and Share of Profits from Investment in Associates and Joint Ventures

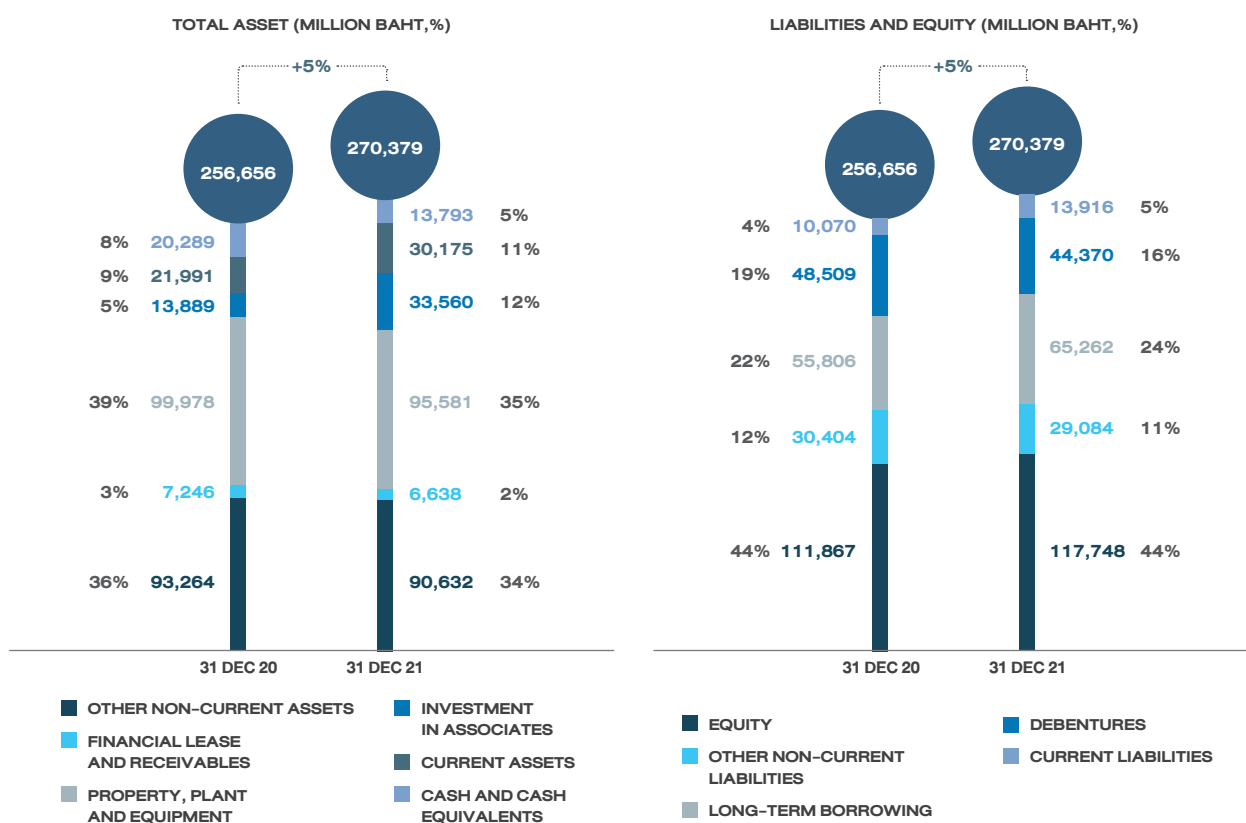
The dividend received and share of profits from the investment in associates and joint ventures in 2021 stood at THB 1,792 million, an increase of THB 472 million, mainly due to a THB 702 million increase in the share of profits from the Xayaburi Hydroelectric Power Plant, while the dividend received from Ratchaburi Power Co., Ltd. declined by THB 140 million.

## 10.1 Share of Profits from Investment in Associates and Joint Ventures

(Unit: THB million)

Operating Performance	Shareholding Proportion	2020	2021	Change +/(-)
<b>Independent Power Producer (IPP)</b>				
Xayaburi Power Co., Ltd. (XPCL)	25%	242	944	290%
<b>Small Power Producer (SPP)</b>				
Bang Pa-In Cogeneration Co., Ltd. (BIC)	25%	147	123	(16%)
Nava Nakorn Electricity Generating Co., Ltd. (NNEG)	30%	94	116	24%
<b>Very Small Power Producer (VSPP)</b>				
Eastern Seaboard Clean Energy Co., Ltd. (ESCE)	33%	40	27	(32%)
Nam Lik 1 Power Co., Ltd. (NL1PC)	40%	69	67	(3%)
Thai Solar Renewable Co., Ltd. (TSR)	40%	332	335	1%
Avaada Energy Private Limited (AEPL)	42%	0	(57)	n/a
Global Renewable Power Co., Ltd., (GRP)	50%	0	(20)	n/a
<b>Total Share of Profits (Loss) from Investment in Associates and Joint Ventures</b>		<b>924</b>	<b>1,536</b>	<b>66%</b>

## Statement of Financial Position



## Total Assets

As of December 31, 2021, the total assets of GPSC and its subsidiaries were THB 270,379 million, a THB 13,723 million or 5% increase from December 31, 2020, which was primarily attributable to the following:

- **Cash and cash equivalents** decreased THB 6,496 million or 32%.
- **Investments in associates and others** increased by THB 19,672 million or 142% mainly due to the recognition of investment in Avaada Energy Private Limited (AEPL) in India, Global Renewable Power Company Limited (GRP), and Anhui Axxiva New Energy Technology Company Limited (Axxiva) in China
- **Property, Plant and equipment** decreased by THB 4,397 million or 4%.
- **Other assets** increased by THB 4,944 million or 4% due to an increase in trade account receivables of THB 4,357 million or 48% and an increase in financial assets measured at amortized costs of THB 1,325 million or 58%, while intangible assets decreased THB 2,457 million or 6%.

## Statement of Cash Flows

In 2021, the Company's and subsidiaries' net cash and cash equivalents decreased by 6,496 million Baht, due to the following key takeaways:

(Unit: THB million)

Cash Flows	2021
Net cash from operating activities	16,109
Net cash disposed of in investing activities	(19,610)
Net cash disposed of in financing activities	(2,724)
<b>Net increase (decrease) in cash and cash equivalents (before the effect of foreign exchange)</b>	<b>(6,225)</b>
Effect of foreign exchange on cash and cash equivalents	59
Cash related to current assets held for sale	(331)
<b>Net increase (decrease) in cash and cash equivalents</b>	<b>(6,496)</b>
Cash and cash equivalents at the beginning of the period	20,289
<b>Cash and cash equivalents at the end of the period</b>	<b>13,793</b>

## Total Liabilities

As of December 31, 2021, the total liabilities of GPSC and its subsidiaries were at THB 152,632 million, a THB 7,843 million or 5% increase from December 31, 2020, which was primarily attributable to the following:

- **Current liabilities** increased by THB 3,846 million or 38% mainly from a THB 2,456 million increase in trade account payables, while other payables decreased THB 616 million.
- **Long-term borrowings and debentures** increased by THB 5,317 million or 5% mainly from an increased in long-term loans with financial institutions and related parties of THB 9,456 million and a decrease in debentures of THB 4,138 million.
- **Other liabilities** decreased by THB 1,320 million or 4%.

## Total Equity

As of December 31, 2021, the total shareholders' equity of GPSC and its subsidiaries was at THB 117,748 million, a THB 5,880 million or 5% increase from December 31, 2020 due to a THB 7,840 million increase in net profit, a THB 4,534 million decrease in dividend payment, and a THB 2,574 million increase in other comprehensive income items.



#### • Cash Flow from Operating Activities

At the end of 2021, GPSC and its subsidiaries had net cash inflow from operating activities of THB 16,109 million, consisting of THB 17,744 million in cash received from operating activities deducted by corporate income tax payment of THB 1,635 million.

#### • Cash Flow from Investing Activities

At the end of 2021, GPSC and its subsidiaries had net cash used in investment activities of THB 19,610 million from the following:

1. CAPEX of THB 4,440 million
2. Cash paid on financial assets of THB 1,116 million
3. Cash paid on investment of THB 15,274 million
4. Dividend received and others of THB 998 million
5. Other investing activities of THB 224 million

#### • Cash Flow from Financing Activities

At the end of 2021, GPSC and its subsidiaries had net cash flow used in financing activities of THB 2,724 million, which was from the following:

1. Utilization of long-term loans from financial institutions and related parties of THB 42,520 million
2. Long-term loan repayment to financial institutions of THB 23,208 million
3. Interest and fees paid to financial institutions of THB 4,037 million
4. Dividend paid of THB 4,719 million
5. Debenture repayment of THB 13,055 million
6. Cash paid for liabilities under lease agreements of THB 208 million
7. Cash paid for other financing activities of THB 17 million





## Key Financial Ratios

Key Financial Ratios	Unit	2019	2020	2021
<b>Profitability Ratios</b>				
Gross Profit Margin*	%	28.04	30.65	26.27
Net Profit Margin	%	6.10	10.79	9.77
<b>Liabilities Ratios</b>				
Interest Coverage Ratio	Time(s)	1.86	2.78	2.36
Net Debt to Equity Ratio (Net D/E)	Time(s)	0.78	0.75	0.78
Total Debt to Equity Ratio (Total D/E)	Time(s)	1.29	1.29	1.30
<b>Liquidity Ratios</b>				
Liquidity Ratio	Time(s)	1.06	1.97	1.97
Current Ratio	Time(s)	0.82	1.34	1.35

\* Not including costs from depreciation and amortization

## Financial Calculation Formulas

Total Debt to Equity Ratio	Total liabilities / Total shareholders' equity
Net Debt to Equity Ratio	(Interest-bearing debts – (Cash and cash equivalents + Deposits with withdrawal limitations + Temporary investment)) / Shareholders' equity
Interest Coverage Ratio	Profit before interest expense and income tax / Interest expense
Net Profit to Equity Ratio	Net profit attributable to parent company / Average shareholders' equity
Liquidity Ratio	Current assets / Current liabilities
Current Ratio	(Cash and cash equivalents + Deposits with withdrawal limitations + Temporary investment + Trade account receivables) / Current liabilities

## 5. General and Key Information

### 5.1 General Information, Name, Location, Phone, Fax, and Other References

Company Name	: Global Power Synergy Public Company Limited
Security Name	: GPSC
Establishment Date	: January 10, 2013
Registered as Public Company Limited	: November 27, 2014
First Day of Trade on SET	: May 18, 2015
Company Registration Number	: 0107557000411
Registered Capital	: THB 28,197,293,710 as of December 31, 2021, comprising 2,819,729,367 paid-up common shares, with a par value of THB 10 per share for paid-up capital of THB 28,197,293,670
Business	: GPSC operates as a power, steam, and utilities producer and distributor. In addition, the Company invests in other companies that generate and distribute power, steam, and utilities, including related businesses, both domestically and overseas.
Business Sector	: Energy and Utilities
Industry Group	: Resources
Number of Employees	839 <sup>(1)</sup> (as of December 31, 2021)
Website	: <a href="http://www.gpscgroup.com">www.gpscgroup.com</a>

#### Contact Information

##### Investor Relations

Phone: +66 (0) 2140-4646, +66 (0) 2140-5318, +66 (0) 2140-1818

Fax: +66 (0) 2140-4601

E-mail: [ir@gpscgroup.com](mailto:ir@gpscgroup.com)

##### Company Secretary and Corporate Governance / Company Secretary

Phone: +66 (0) 2140-4632, +66 (0) 2140-5317, +66 (0) 2140-5301

Fax: +66 (0) 2140-4601

E-mail: [company-secretary@gpscgroup.com](mailto:company-secretary@gpscgroup.com)

Remark: <sup>(1)</sup> Total 839 employees, including 17 PTT Group secondment

## Head Office and Branches

### Head Office

555/2 Energy Complex Building B, 5<sup>th</sup> Floor, Vibhavadi Rangsit Road, Chatuchak Subdistrict, Chatuchak District, Bangkok 10900, Thailand

Phone: +66 (0) 2140-4600 Fax: +66 (0) 2140-4601

### Branch 1 - Central Utility Plant 1 (CUP-1)

24 Pakorn Songkro Rat Road, Huaipong Subdistrict, Muang Rayong District, Rayong 21150, Thailand

Phone: +66 (0) 3897-4333 Fax: +66 (0) 3897-4500

### Branch 2 - Central Utility Plant 2 (CUP-2)

92/9 Rayong Highway No. 3191, Map Ta Phut Subdistrict, Muang Rayong District, Rayong 21150, Thailand

Phone: +66 (0) 3897-4333 Fax: +66 (0) 3897-4500

### Branch 3 - Central Utility Plant 3 (CUP-3)

5/11 Pakorn Songkro Rat Road, Map Ta Phut Subdistrict, Muang Rayong District, Rayong 21150, Thailand

Phone: +66 (0) 3897-4333 Fax: +66 (0) 3897-4500

### Branch 4 - Sriracha Power Plant

42/3 Moo 1, Sukhumvit Road, Thung Sukhla Subdistrict, Si Racha District, Chonburi 20230, Thailand

Phone: +66 (0) 3840-7407 Fax: +66 (0) 3840-7400

### Branch 5 - Maintenance Center

98/19 Rayong Highway No. 3191, Map Ta Phut Subdistrict, Muang Rayong District, Rayong 21150, Thailand

Phone: +66 (0) 3897-4560

### Branch 6 - RDF Plant

94/4 Moo 3, Nam Khok Subdistrict, Muang Rayong District, Rayong 21000, Thailand

### Branch 7 - Central Utility Plant 4 (CUP-4)

1/2 Moo 2, Ban Chang Subdistrict, Ban Chang District, Rayong 21130, Thailand

### Branch 8 - Branch Office

1 Empire Tower, 38<sup>th</sup> Floor - Park Wing, South Sathorn Road, Yannawa Subdistrict, Sathorn District, Bangkok 10120, Thailand

Phone: +66 (0) 2670-1500 Fax: +66 (0) 2670-1548-9

### Branch 9 - Branch Office

11/2 I-5 Road, Map Ta Phut Subdistrict, Muang Rayong District, Rayong 21150, Thailand

### Branch 10 - Branch Office

94/7 Moo 3, Nam Khok Subdistrict, Muang Rayong District, Rayong 21000, Thailand

## References

### Securities Registrar

#### Thailand Securities Depository Company Limited (TSD)

Stock Exchange of Thailand Building (next to the Embassy of the People's Republic of China)  
93 Ratchadaphisek Road, Dindaeng Subdistrict, Dindaeng District, Bangkok 10400, Thailand  
Phone: +66 (0) 2009-9999 Fax: +66 (0) 2009-9991

### Bondholder Representative

#### Bank of Ayudhya Public Company Limited, Head Office

1222 Rama III Road, Bang Phongphang Subdistrict, Yan Nawa District, Bangkok 10120, Thailand  
Phone: +66 (0) 2296-3582 Fax: +66 (0) 2683-1298

### Bond Registrar

#### Bank of Ayudhya Public Company Limited, Head Office

1222 Rama III Road, Bang Phongphang Subdistrict, Yan Nawa District, Bangkok 10120, Thailand  
Phone: +66 (0) 2296-3582 Fax: +66 (0) 2683-1298

### Auditor

#### PricewaterhouseCoopers ABAS Limited

179/74-80 Bangkok City Tower, South Sathorn Road, Thung Maha Mek Subdistrict, Sathorn District, Bangkok 10120, Thailand  
Phone: +66 (0) 2824-5000 Fax: +66 (0) 2286-0500

### Legal Consultant

#### Weerawong, Chinnavat & Partners Ltd.

540 Ploenchit Road, 22<sup>nd</sup> Floor, Mercury Tower, Lumpini Subdistrict, Pathumwan District, Bangkok 10330, Thailand  
Phone: +66 (0) 2264-8000 Fax: +66 (0) 2657-2222

## 5.2 Other Key Information

- None -

## 5.3 Litigations

GPSC and subsidiaries are currently parties to pending litigations and engaged in the following disputes that could have adverse effects on their business operations:

### 5.3.1 Dispute with EGAT

Glow Energy Public Company Limited ("Subsidiary") is currently involved in a legal dispute with the Electricity Generating Authority of Thailand (EGAT) regarding different interpretation of a provision about

the expiry date of the Power Purchase Agreement (PPA) for the Glow Energy Phase 2 Project 1 (90 MW) power plant. On February 6, 2018, the subsidiary, as claimant, filed a statement of claim with the Thai Arbitration Institute ("TAI"). EGAT, as respondent, submitted its statement of defense to TAI on July 26, 2018.

On November 20, 2018, TAI considered the statements, determined the points in dispute, and, together with the parties, established a preliminary procedural timetable for the proceedings. A list of witnesses and evidence were submitted to TAI on February 28, 2019, and the hearing of witnesses and presenting of evidence were completed on March 26, 2019. Both parties submitted their closing statements to TAI on May 17, 2019.

On November 21, 2019, TAI ruled that the expiry date of the PPA was March 31, 2017, as claimed by the subsidiary. EGAT, in disagreement, filed a suit with the Central Administrative Court on February 18, 2020, to revoke TAI's ruling, which the court received for consideration. On September 25, 2020, the subsidiary submitted its testimony to the Administrative Court, and EGAT also filed its counter-testimony stating additional evidence. The subsidiary on April 30, 2021, filed additional testimony to the court.

At present, the case is under the consideration of the Administrative Court.

### **5.3.2 Dispute with Stop Global Warming Association**

The Stop Global Warming Association ("plaintiff") filed a suit to the Rayong Administrative Court against competent authorities, namely the Energy Regulatory Commission (ERC), Industrial Estate Authority of Thailand (IEAT), Expert Review Committee on Environmental Impact Assessment Reports for Thermal Power Plants, and the Secretary-General of the Office of Natural Resources and Environmental Policy and Planning (ONEP), alleging that these authorities had unlawfully approved and granted permits to GHECO-One for operating the thermal power plant in the pollution control area. The plaintiff also requested the court to order the applicable authorities to revoke permits granted to GHECO-One and suspend GHECO-One's operation. The court eventually ordered inclusion of GHECO-One as a co-defendant of the case since it is the owner of the power plant and could be affected by court order and verdict.

In October 2013, each defendant prepared a statement of defense and submitted it to the Rayong Administrative Court. The plaintiff also submitted its statement to provide additional information to the court to counter the claim of GHECO-One Co., Ltd. The court accepted the statement and sent it to GHECO-One on June 5, 2014, and GHECO-One in response submitted its counterstatement to Rayong Administrative Court on August 5, 2014.

On September 28, 2018, GHECO-One received a court order setting out a date of the final argument on October 29, 2018. On the date, GHECO-One submitted the closing statement summarizing the case. It was expected that a judgment will be rendered within one year after the court received the closing statement, around October 2019. GHECO-One has applied and obtained all permits under relevant laws and regulations and has operated its plant under the requirements under the approved Environmental and Health Impact Assessment (EHIA) report and relevant permits. On March 29, 2021, the Rayong Administrative Court dismissed the case, saying that since the plaintiff had not appealed within the period stipulated by the law, the case was in effect concluded.

### **5.3.3 Dispute with the Revenue Department**

GHECO-One was engaged in a dispute with the Revenue Department on tax liability on unrealized FX gains/losses during the construction of its power plant. These resulted from the translation of foreign-currency denominated loans into THB accounting figures. The department argued that the FX gains during construction were taxable, while the FX losses must be capitalized as the cost of the power plant and not considered taxable expenses, but GHECO-One disagreed. To mitigate exposure to surcharges and penalties during legal proceedings, GHECO-One re-filed tax applications to pay the corporate income taxes and surcharges derived from FX gains/losses during 2008-2011, while reserving its position that such payment was not deemed as agreeing with the Revenue Department's argument. GHECO-One then started a litigation process to get refunds of disputed tax amounts for 2008-2011, detailed as follows:

### **5.3.3.1 Legal procedures of the 2008 and 2009 tax refunds**

In December 2013, GHECO-One started its litigation process by filing a lawsuit with the Central Tax Court for its taxes and surcharges paid for 2008 and 2009. The court on September 30, 2014, dismissed the case, citing that at the time of lawsuit filing, the plaintiff (GHECO-One) had no right to file the lawsuit, as the dispute was pending the appeal of order sent to the Revenue Department.

On May 26, 2016, GHECO-One re-submitted a statement of claim to the Central Tax Court for taxes and surcharges paid for 2008-2009. The Revenue Department then submitted its statement of defense to the court on September 19, 2016. The first hearing for setting out the issue to consider in this case was January 16, 2017. The hearing of witnesses began on March 7, 2017, and ended on March 10, 2017. On May 29, 2017, the Central Tax Court in its final judgment ruled in favor of GHECO-One and ordered that the Revenue Department return all taxes and surcharges paid by the plaintiff (THB 129.56 million) with applicable interest on such amount. The department then submitted its appeal to the Court of Appeal for Specialized Cases on July 27, 2017. GHECO-One submitted its response to the appeal on September 28, 2017. The Central Tax Court has sent the case for the consideration of the Court of Appeal for Specialized Cases. On July 2, 2018, the Court of Appeal for Specialized Cases upheld the decision made by the Central Tax Court, ruling that the Revenue Department was to refund the corporate income taxes and surcharges totaling THB 129.56 million, but dismissed GHECO-One's request for interest. On August 30, 2018, GHECO-One filed the complaint to the Supreme Court to order the Revenue Department to make interest payment. The department lodged an appeal against the ruling of the Court of Appeal for Specialized Cases to the Supreme Court on September 6, 2018, and GHECO-One provided a testimony to counter the appeal of the department on November 28, 2018.

On August 26, 2019, the Supreme Court accepted the appeals from both parties. On February 8, 2021, the court overturned the decision of the Court of Appeal for Specialized Cases and dismissed GHECO-One's claim, and the Revenue Department was not obliged to make a refund.

### **5.3.3.2 Legal procedures of the 2011 tax refund**

On July 22, 2016, GHECO-One filed a statement of claim for refund of the tax and surcharge for 2011 with the Central Tax Court for THB 41.475 million. The Revenue Department submitted its statement of defense to the court on November 10, 2016. The court set the date for the first hearing for reconsideration on November 28, 2016. The first hearing for setting out the issue to consider in this case was March 13, 2017, and the hearing of witnesses was from May 23, 2017, to May 26, 2017. On July 20, 2017, the Central Tax Court ruled that the Revenue Department was to refund the corporate income tax and surcharge totalling THB 31.15 million plus interest. However, the department appealed against the verdict of court to the Court of Appeal for Specialized Cases on October 19, 2017, and GHECO-One submitted its response to the appeal on December 27, 2017. On November 19, 2018, the Court of Appeal for Specialized Cases upheld the decision made by the Central Tax Court, ruling that the department was to refund the corporate income tax and surcharge totaling THB 32.15 million, but dismissed GHECO-One's request for interest.

The Revenue Department submitted its appeal to the Supreme Court on December 18, 2018. GHECO-One filed its objection and counter-petition to the court on March 18, 2019, and appealed to the Supreme Court against the decision of the Court of Appeal for Specialized Cases concerning the dismissal of its request for interest on tax refund. On December 16, 2019, the Supreme Court permitted both litigants to petition and accepted the petitions from both litigants.

On July 19, 2021, the Supreme Court overturned the previous decision, thus dismissing the case, and the Revenue Department did not have to make the refund.



### 5.3.4 Dispute with the Energy Regulatory Commission (ERC)

Glow SPP 11 Co., Ltd. filed a lawsuit against ERC and the ERC Office to the Central Administrative Court on July 30, 2019, requesting judgment or an order to cancel or revoke: (1) Item 5 (2) of the ERC Notification on the invitation of power purchase from SPPs for the firm category with cogeneration systems with contracts expiring in 2019-2025 (construction of new power plants) B.E. 2562 (2019), dated May 2, 2019, which stated that “To construct new power plants in an old area or adjacent area and sell electricity to industrial customers in industrial estates or industrial parks only”; and (2) ERC’s resolution under the order of the ERC Office dated May 15, 2019, stating that Glow SPP 11 lacked the qualifications stated in item 5 of the ERC Notification since the company was not located in an industrial estate or industrial park, as well as any order and action executed by ERC and its office that Glow SPP 11 was not qualified as an SPP applicant according to the Notification, which was the source of litigation. ERC and its office submitted its testimony to the Central Administrative Court on December 18, 2019. Glow SPP 11 submitted a counter-testimony to the court on June 8, 2020. Later, the ERC submitted an additional testimony to the court. At present, the case is under the consideration of the court.

On January 14, 2021, EGAT informed Glow SPP 11 Co., Ltd. of the outcomes of its consideration on power purchase application that Glow’s application had failed to meet the assessment criteria under the invitation, item 5 (2), since the electricity was not sold to industrial customers in industrial estates or industrial parks. Glow SPP 11 Co., Ltd. then submitted its appeal against the results to EGAT, which reaffirmed its results. On May 28, 2021, Glow SPP 11 Co., Ltd. filed a suit against EGAT and ERC to the Central Administrative Court, asking them to revoke the order refusing to purchase the power under the proposed power purchase application due to disqualification.

EGAT and ERC are currently preparing statements for submission to the Central Administrative Court.

### 5.4 Secondary Market

GPSC is not listed on the stock exchange of any other country.

### 5.5 Financial institutions with regular contacts (only in the cases of bonds)

#### (1) Bangkok Bank Public Company Limited

333 Silom Road, Bang Rak Subdistrict,  
Bang Rak District, Bangkok 10500, Thailand  
Phone: +66 (0) 2230-2295, +66 (0) 2230-2328,  
+66 (0) 2626-3646, +66 (0) 2353-5421

#### (2) Bank of Ayudhya Public Company Limited

Head Office:  
1222 Rama III Road, Bang Phongphang  
Subdistrict, Yan Nawa District, Bangkok  
10120, Thailand  
Contact Address:  
550 Ploenchit Road, Lumpini Subdistrict,  
Pathumwan District, Bangkok 10330, Thailand  
Phone: +66 (0) 2296-3999, +66 (0) 2296-4776

#### (3) Standard Chartered Bank (Thai) PCL

100 North Sathorn Road, Silom  
Subdistrict, Bang Rak District, Bangkok  
10500, Thailand  
Phone: +66 (0) 2267-7228

#### (4) Siam Commercial Bank PLC

9 SCB Park Plaza, Ratchadapisek Road,  
Chatuchak Subdistrict, Chatuchak  
District, Bangkok 10900, Thailand  
Phone: +66 (0) 2777-7777

# CORPORATE GOVERNANCE





## 6. Corporate Governance Policy

Global Power Synergy Public Company Limited (GPSC) has operated in adherence to principles of good corporate governance and code of business conduct to ensure that in its advancement toward success and business growth, its business is still characterized by good governance, transparency, and responsibility toward all groups of stakeholders.

GPSC has revised its Corporate Governance and Code of Business Conduct Handbook in line with current applicable laws. The revised handbook, effective from 2020, is aimed to guide its employees at all levels in their operation toward efficiency, effectiveness, management excellence, transparency, and accountability, as well as confidence among all stakeholders that GPSC is a leading listed company that adheres to corporate governance and sustainable growth.

## 6.1 Overview of Corporate Governance Policy and Guidelines

### 6.1.1 Corporate Governance Policy and Guidelines relevant to the Directors

The Board of Directors is committed to promoting GPSC as an efficient and effective organization with good corporate governance and management excellence to benefit shareholders, employees, customers, stakeholders, and all relevant parties with business ethics, and that the executives and employees operate with transparency and accountability. The Corporate Governance Policy has therefore been formulated as guidance for the Board of the Directors, executives, and employees in carrying out their duties, as detailed below:

1. To uphold good corporate governance, the Board of Directors, executives, and employees of GPSC shall adhere to the six following principles in fulfilling their duties:
  - Accountability: Responsibility toward one's decisions and actions, and the ability to account for such decisions
  - Responsibility: Responsibility toward fulfilling one's duties with competency and efficiency
  - Equitable Treatment of Stakeholders: Treating stakeholders equally with fairness and reasons
  - Transparency: Transparency for conducting business operations with accountability and information disclosure
  - Vision to Create Long-Term Value: Vision for the creation of long-term added value for GPSC
  - Ethics: Integrity and ethical principles in business operations.
2. The Board of Directors shall fulfill its duties with dedication, responsibility, and independence and shall clearly separate the roles and responsibilities between the Chairman of the Board and the President and CEO.
3. The Board of Directors and executives shall play a significant role in determining GPSC's vision, strategies, policies, and key plans while taking into consideration risk factors and preparing appropriate management of such risks and ensure the reliability of the accounting system, financial statements, and the auditing.
4. The Board of Directors and executives shall serve as role models of integrity and adherence to GPSC's corporate governance policy as well as overseeing the management of conflicts of interest and connected transactions.
5. The Board of Directors may appoint Sub-Committees as deemed appropriate to review significant matters.
6. The Board of Directors shall perform self-assessment and cross-assessment annually to serve as a framework for examining the performance of the Board of Directors.
7. The Board of Directors and executives shall define GPSC's code of business conduct to be adopted as guidelines by the Board of Directors, executives, and all employees in tandem with GPSC's rules and regulations.
8. The Board of Directors and executives shall oversee sufficient, reliable, and timely disclosure of information on financial and non-financial matters to ensure equal access to GPSC's information among shareholders and stakeholders as well as putting in place public relations and investor relations divisions to be responsible for information disclosure for investors and the public.



9. GPSC's shareholders shall receive equitable treatment, have access to IT information, and be able to communicate with GPSC through appropriate channels.
10. The Board of Directors and executives shall implement an appropriate, transparent, and fair talent acquisition and selection system to recruit personnel for all key positions.
11. The Board of Directors and executives shall implement an effective anti-corruption system to ensure that the management gives precedence to anti-corruption and adhere to anti-corruption measures.

Apart from the above policy, the Board has determined other guidelines based on GPSC's corporate Governance as follows:

**Guidelines for Serving in Other Companies, Organizations, and Juristic Persons of the President and Chief Executive Officer, Senior Management and Employees**

- (1) If any of GPSC's senior management is appointed under an applicable law or by the Cabinet under its authority to assume a position in the government sector or a position for other public interest, apart from performing the Company's duties, the management must report such matter to the Board for acknowledgment.
- (2) If GPSC's top executive is appointed by a governmental agency, state enterprise, other state organization, independent organization, or governmental educational institution as a director, subcommittee member, working group, expert, qualified person, advisor or to any position for government services or for other public interest apart from performing the Company's duties,

management must report such matter to the Board for acknowledgment and comments before the top executive takes up the duties under the new position appointed.

- (3) If any of the Company's senior management is taking up the duty as a director, subcommittee member, working group, expert, qualified person, advisor or any position in other companies or juristic persons besides those mentioned in (2) or besides performing the Company's duties, that person must submit such matters to the Board for approval before taking up the position.
- (4) Other executives and employees who are not senior management but fall under (1), or (2) or (3) above must submit such matter to the Management Committee (MC) meeting for acknowledgment or approval, as applicable, before taking up the position.

**6.1.2 Corporate Governance Policies and Guidelines Applicable to Shareholders and Stakeholders**

GPSC respects the rights of shareholders with equitable treatment of all shareholders. The Company's actions in 2021 were as follows:

**1. Rights of Shareholders and Equitable Treatment**

The 2021 Annual General Meeting of Shareholders (AGM) was held on April 2, 2021 at BCC Hall, 5th Floor, Building 1, Central Plaza Ladprao. GPSC provided the shareholders convenience in attending the AGM as well as in exercising their voting rights as follows:

### Pre-Meeting

- GPSC shareholder(s), which can be either one shareholder or combined shareholders, holding not less than one percent of the total voting rights of GPSC, were invited to propose agenda items and nominate director candidates from October 1 to December 31, 2020 (at least three months before the date of the AGM). The selection criteria and processes were published on GPSC's website.
- The resolutions of the Board of Directors on the AGM date and agenda items as well as the record date to determine the shareholders entitled to attend and vote in the AGM and receive the dividend (Record Date) were published via SET's disclosure system as soon as the resolutions were reached on February 11, 2021.
- The meeting notice, in Thai and English, meeting documents, and proxy forms were made available on GPSC's website on March 3, 2021 (30 days before the AGM) and delivered to shareholders via post on March 11, 2021 (21 days before the AGM) to allow sufficient time for shareholders to study the information for the AGM. Foreign shareholders were given the English version of the documents.
- Shareholders unable to attend the meeting were invited to appoint a proxy or grant proxy to independent directors to attend the meeting and vote in their lieu. Proxy Form B (in which shareholders could cast their votes) is encouraged and was enclosed with the meeting notice sent via post to every shareholder.
- Shareholders were invited to submit inquiries about AGM attendance and the agenda before the meeting. The channels for inquiries were disclosed in the meeting notice.
- For institutional investors, GPSC contacted their representatives to provide information for institutional investors on the preparation of accurate and complete documents before the meeting.

### At the Meeting

- The AGM was held at BCC Hall, 5<sup>th</sup> Floor, Building 1, Central Plaza Ladprao, which was accessible via various public transport and spacious enough to accommodate all attending shareholders.
- Sufficient staffs were stationed at the venue to welcome and assist shareholders with the registration and document examination. In addition, revenue stamps were prepared to ensure convenience for proxies during the document examination process.
- An IT System (Shareholder Meeting System) was employed for registration, vote counting, and result displaying processes. The technology expedited the meeting as well as ensuring accuracy.
- The rules and regulations of the meeting as well as the voting procedure were announced before the meeting commenced.
- Voting tickets were employed for every agenda item. For director election, the shareholders were eligible to vote for each director separately.
- Independent legal counselors and shareholder representatives were invited to witness the vote counting. After the meeting was concluded, no dispute over the vote counting was lodged.
- The Chairman of the meeting encouraged and invited inquiries and free expression of opinions of shareholders as well as oversaw that all inquiries were addressed.
- The meeting was conducted in accordance with the agenda detailed in the meeting notice, and no agenda item was added.

### Post-Meeting

- The resolutions of the AGM were published via SET's electronic disclosure system for listed companies within the business day after the AGM, along with the results and the numbers of votes (approval, disapproval, and abstention) for each resolution.



- The minutes, which identified the list of directors and top executives attending the meeting, the information presented by the directors, inquiries and answers, and the voting result of the shareholders for each resolution, were submitted to SET and published on GPSC's website within 14 days from the date of the AGM.

## 2. Conflicts of Interest by Directors and Executives

GPSC has stipulated that its directors and executives shall declare any vested interests of their own and their related persons so that the Board of Directors may consider transactions potentially involving conflicts of interest and make decisions in the interest of GPSC. Any directors and executives with conflicts of interest in such transactions of GPSC shall take no part in any decision-making for those transactions. The Board of Directors approved the reports of conflicts of interest of the directors, executives, and related persons, and the criteria of interest reporting which comprised first report, report in changes of interest, and yearly report.

## 3. Roles of Stakeholders

GPSC takes most seriously the roles of stakeholders, from shareholders, investors, customers, associated government agencies and other applicable agencies, employees, business partners, suppliers, contractors, to society and communities. To this end, GPSC has defined its policy on the roles of stakeholders in its 2020 Corporate Governance and Code of Business Conduct Handbook.

## 6.2 Code of Business Conduct

The Board of Directors has formulated a Code of Business Conduct, describing standards of behavior and conduct that GPSC's personnel at all levels should adopt in carrying out business operations and performing their duties, and has included it as part of the agreement on GPSC's business.

The Code of Business Conduct comprises 15 categories:

1. Compliance with laws and human rights
2. Political rights and political neutrality
3. Conflicts of interest
4. Confidentiality and use of inside information
5. Treatment of customers and consumers
6. Treatment of business competitors
7. Procurement and treatment of business partners
8. Communities, social, and environmental responsibility
9. Treatment of employees
10. Treatment of creditors
11. Internal control and internal audit
12. Receiving and offering of gifts and other benefits
13. Safety, health, and environment
14. Intellectual properties and the use of ICT
15. Prevention of money laundering.

The details and guidelines of the principles of GPSC's corporate governance and code of business conduct are available in the Corporate Governance and Code of Business Conduct Handbook 2020 which is publicized on GPSC's website, accessible to the general public.

In addition, GPSC values Investors Relations and emphasizes disclosure of information and strict compliance with the laws and relevant regulations for the best interests of shareholders and stakeholders, and has formulated the following ethics for Investors Relations:

1. Perform duties with integrity, honesty and professionalism without discrimination
2. Ensure timely, complete and accurate disclosure of crucial information which is essential for making investment decisions, with equal access for all stakeholders under the criteria
3. Provide equal access to information and allow queries from all stakeholders
4. Safeguard GPSC's confidential information and refrain from using inside information for personal or others' gain before public disclosure
5. Comply with GPSC's rules and policy on safeguarding inside information.

## 6.3 Highlights of Changes and Development of Corporate Governance Policies, Guidelines, and System

### 6.3.1 Highlights of Changes and Development of the Review of Corporate Governance Policies, Guidelines, and System, or the Directors' Charters in 2021:

#### 1. Corporation Governance

- Review of CG & Code of Conduct Manual to ensure consistency and suitability with GPSC's current operations and circumstances: No changes were made in 2021.
- Review of the charters of the Board of the Directors and the sub-committees: No changes were made in 2021.

#### 2. Group Management

GPSC has announced the GPSC Group Way of Conduct for the following objectives.

- To provide frameworks, mechanisms, and practical guidelines for overseeing the group's policies and operations at levels suitable for the business through collaboration and effective group management
- To serve as operational and compliance guidelines for companies in which GPSC holds shares through:
  - GPSC's representative designated to take directorship at or oversee such companies
  - Internal agencies designated to oversee such companies

- To serve as mutual agreement for guidelines on policies between GPSC and the companies in which GPSC is a shareholder
- To foster collaboration and create management synergy to achieve investment objectives
- To enhance the group's capabilities to operate businesses, manage risks, and foster sustainability as well as provide clarity for GPSC's operations

GPSC reviewed the GPSC Group Way of Conduct to ensure consistency with the PTT Group Way of Conduct and compliance operations of its subsidiaries. No changes were made in 2021.

#### 3. Compliance with the Laws and the Organization's Regulations

- To ensure preparedness for compliance with the Personal Data Protection Act, GPSC has reviewed, amended, and announced the following policy and procedure.
  - Privacy policy (revised), dated May 5, 2021
  - Guidelines for personal data management, dated May 31, 2021

### 6.3.2 Application of SEC's Principles of Good Corporate Governance for Listed Companies 2017 (CG Code)

The Board of Directors considered and assigned the management to apply SEC's Principles of Good Corporate Governance for Listed Companies 2017 (CG Code) in the context of GPSC's business and monitored the performance of the CG Code. In 2021, the Company appropriately applied the CG Code in accordance with the context of its business.



### 6.3.3 Other Corporate Governance-related Actions

- 1) GPSC regularly reviews and improves the Table of Authority to ensure compatibility with the circumstances and its business operations.
- 2) With regard to the handling of complaints on violation of the code of business conduct, from January 1, 2021 to December 31, 2021, GPSC received two complaints, which were processed in accordance with the whistleblowing procedure.
- 3) An assessment of GPSC's 2021 AGM was conducted based on the AGM Checklist by the Thai Investors Association, which seeks to elevate the AGM standard of Thai listed companies to international standards and includes assessment criteria for various meeting stages. GPSC achieved a perfect score of 100.

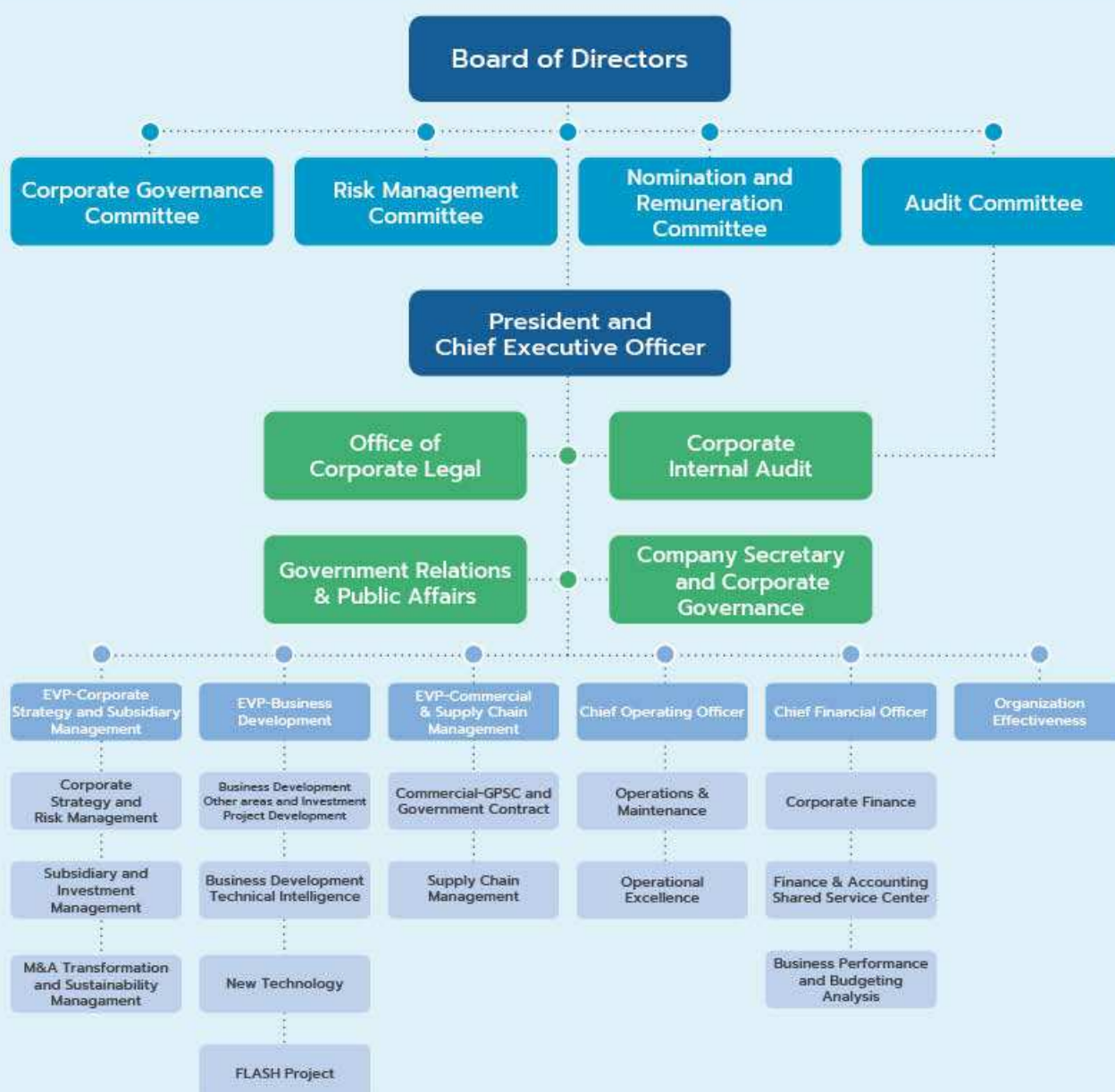


## 7. Corporate Governance Structure and Key Information on the Board of Directors, Subcommittees, Management, Employees, and Others

### 7.1 Structure of Corporate Governance

As of December 31, 2021, the management structure of GPSC Plc consisted of the Board of Directors and four subcommittees (Corporate Governance Committee, Risk Management Committee, Nomination and Remuneration Committee, and Audit Committee), with a management team led by the President & CEO (CEO).

#### GPSC Organization Structure (Senior Vice President upward)





## 7.2 Board of Directors

### 7.2.1 Composition of the Board

As of December 31, 2021, GPSC's Board of Directors consisted of 15 directors, 14 of whom were non-executive directors; seven were independent directors, and one executive director, namely the President and CEO (CEO). The composition above is in line with GPSC's Articles of Association, which prescribe that the Board must comprise at least five but not exceeding 15 directors, no less than half of whom must reside in Thailand.

As a rule, GPSC's Board consists of qualified directors who possess an appropriate mix of skills, expertise, and experiences suitable for overseeing GPSC's business operations to the attainment of the objectives and goals. The Board set a Board Skill Matrix by classifying it into 12 subject matters under two categories:

1) Core Skills/Experience: Basic expertise necessary for directorship, namely policy development, business judgment, strategic planning, human resource and organization development, finance and accounting, internal audit, law, risk management and internal control, and corporate governance and corporate social responsibility (CSR).

2) Specific Skills/Experience: Expertise useful for directors to govern GPSC, namely power industry expertise, international business, and innovation management.

Name – Last Name	Director Pool	Board Skill Matrix (Latest update on December 31, 2021)											
		Core Skills									Specific Skills		
		Policy Development	Business Judgment	Strategic Planning	Finance & Accounting	Internal Audit	Law	Corporate Governance & CSR	Risk Management & Internal Control	HR & Organization Development	Power Industry Expertise	International Business	Innovation Management
1 Mr. Pailin Chuchottaworn	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2 Mr. Kurujit Nakornthap	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	
3 Maj. Gen. Chaowalek Chayansupap		✓	✓	✓		✓		✓		✓	✓		
4 Mrs. Nicha Hiranburana Thuvatham		✓		✓		✓		✓	✓	✓			
5 Mrs. Saowanee Kamolbutr		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
6 Mr. Somchai Meesen		✓	✓	✓				✓		✓	✓		
7 Mr. Pakorn Apaphant	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
8 Mr. Noppadol Pinsupa		✓	✓	✓				✓	✓	✓	✓		✓
9 Mr. Atikom Terbsiri	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	
10 Mr. Wuttikorn Stithit		✓	✓	✓	✓				✓	✓	✓		
11 Mr. Kongkrapan Intarajang		✓	✓	✓	✓			✓	✓	✓		✓	✓
12 Mr. Lavaron Sangsnit		✓	✓	✓	✓			✓	✓	✓			
13 Mr. Wirat Unarumit		✓	✓	✓	✓			✓	✓	✓	✓	✓	
14 Mr. Jeerawat Pattanasomsit		✓	✓	✓					✓		✓	✓	✓
15 Mr. Worarat Pitayasiri		✓	✓	✓	✓				✓	✓	✓	✓	✓
<b>SOU</b>	<b>4</b>	<b>15</b>	<b>14</b>	<b>15</b>	<b>10</b>	<b>5</b>	<b>3</b>	<b>12</b>	<b>12</b>	<b>14</b>	<b>13</b>	<b>9</b>	<b>7</b>



## BOARD OF DIRECTORS



**01**

**Mr. Pailin Chuchottaworn**

Chairman of the Board / Independent Director (Non-Executive Director)

**02**

**Mr. Kurujit Nakornthap**

Independent Director / Chairman of the Corporate Governance Committee / Member of the Audit Committee (Non-Executive Director)

**03**

**Maj. Gen. Chaowalek Chayansupap**

Independent Director / Chairman of the Remuneration and Nomination Committee / Member of the Audit Committee (Non-Executive Director)



**08**

**Mr. Noppadol Pinsupa**

Director / Chairman of the Risk Management Committee / Member of the Remuneration and Nomination Committee (Non-Executive Director)

**09**

**Mr. Atikom Terbsiri**

Director / Member of the Remuneration and Nomination Committee (Non-Executive Director)

**10**

**Mr. Wuttikorn Stithit**

Director (Non-Executive Director)

**11**

**Mr. Kongkrapan Intarajang**

Director / Member of the Risk Management Committee (Non-Executive Director)

**04****Mrs. Nicha Hiranburana Thuvatham**

Independent Director /  
Member of the Corporate Governance  
Committee  
(Non-Executive Director)

**05****Mrs. Saowanee Kamolbutr**

Independent Director /  
Chairman of the Audit Committee  
(Non-Executive Director)

**06****Mr. Somchai Meesen**

Independent Director /  
Member of the Corporate  
Governance Committee  
(Non-Executive Director)

**07****Mr. Pakorn Apaphant**

Independent Director /  
Member of the Risk  
Management Committee  
(Non-Executive Director)

**12****Mr. Lavaron Sangsrit**

Director / Member of the Corporate  
Governance Committee  
(Non-Executive Director)

**13****Mr. Wirat Uanarumit**

Director / Member of the  
Risk Management Committee  
(Non-Executive Director)

**14****Mr. Jeerawat Pattanasomsit**

Director  
(Non-Executive Director)

**15****Mr. Worawat Pitayasiri**

Director / Secretary to the Board /  
Member of the Risk Management  
/ Committee President & Chief  
Executive Officer  
(Executive Director)

### 7.2.2 Board of Directors

As of December 31, 2021, the Board comprised 15 directors:

No.	Name – Last Name	Position	Date of Appointment
1.	Mr. Pailin Chuchottaworn <sup>(1)</sup>	Independent Director Chairman of the Board	April 2, 2021 (re-elected) April 2, 2021
2.	Mr. Kurujit Nakornthap	Independent Director Chairman of the Corporate Governance Committee Member of the Audit Committee	June 4, 2020 (re-elected) June 18, 2020 June 18, 2020
3.	Maj. Gen. Chaowalek Chayansupap <sup>(2)</sup>	Independent Director Chairman of the Remuneration and Nomination Committee Member of the Audit Committee	April 1, 2019 (re-elected) April 28, 2021 April 24, 2019
4.	Mrs. Nicha Hiranburana Thuvatham <sup>(3)</sup>	Independent Director Member of the Corporate Governance Committee	April 2, 2021 (re-elected) April 28, 2021
5.	Mrs. Saowanee Kamolbutr	Independent Director Chairman of the Audit Committee	June 4, 2020 June 18, 2020
6.	Mr. Somchai Meesen	Independent Director Member of the Corporate Governance Committee	June 4, 2020 June 18, 2020
7.	Mr. Pakorn Apaphant <sup>(4)</sup>	Independent Director Member of the Risk Management Committee	April 2, 2021 April 28, 2021
8.	Mr. Noppadol Pinsupa <sup>(5)</sup>	Director Chairman of the Risk Management Committee Member of the Remuneration and Nomination Committee	November 1, 2021 November 1, 2021 November 1, 2021
9.	Mr. Atikom Terbsiri	Director Member of the Remuneration and Nomination Committee	June 4, 2020 (re-elected) June 18, 2020
10.	Mr. Wuttikorn Stithit	Director	April 1, 2019
11.	Mr. Kongkrapan Intarajang	Director Member of the Risk Management Committee	April 1, 2019 (re-elected) April 24, 2019
12.	Mr. Lavaron Sangsnit <sup>(6)</sup>	Director Member of the Corporate Governance Committee	September 1, 2021 October 21, 2021
13.	Mr. Wirat Uanarumit	Director Member of the Risk Management Committee	June 4, 2020 (re-elected) June 18, 2020
14.	Mr. Jeerawat Pattanasomsit <sup>(7)</sup>	Director	November 1, 2021
15.	Mr. Worawat Pitayasiri <sup>(8)</sup>	Director / Secretary to the Board Member of the Risk Management Committee President & Chief Executive Officer	April 2, 2021 (re-elected) April 28, 2021 December 1, 2020



Remarks: <sup>(1)</sup> Mr. Pailin Chuchottaworn, at the 2021 Annual General Meeting of Shareholders (AGM), convened on April 2, 2021, was re-appointed as an independent director, with effect from April 2, 2021, and at the Board Meeting No. 4/2021 of April 28, 2021, was appointed as Chairman of the Board of Directors, with effect from April 2, 2021.

<sup>(2)</sup> Maj. Gen. Chaowalek Chayansupap, at the Board Meeting No. 4/2021 of April 28, 2021, was appointed as Chairman of the Nomination and Remuneration Committee, with effect from April 28, 2021.

<sup>(3)</sup> Mrs. Nicha Hiranburana Thuvatham, at the 2021 AGM of April 2, 2021, was re-appointed as an independent director, with effect from April 2, 2021, and, at the Board Meeting No. 4/2021 of April 28, 2021, was re-appointed as a member of the Corporate Governance Committee, with effect from April 28, 2021.

<sup>(4)</sup> Mr. Pakorn Apaphant, at the 2021 AGM of April 2, 2021, was appointed as an independent director, replacing Mr. Payungsak Chartsutipol who has completed his term, with effect from April 2, 2021, and, at the Board Meeting No. 4/2021 of April 28, 2021, was appointed as a member of the Risk Management Committee, with effect from April 28, 2021.

<sup>(5)</sup> Mr. Noppadol Pinsupa, at the Board Meeting No. 12/2021 of October 20, 2021, was appointed as a director, replacing Mr. Wittawat Svasti-Xuto who resigned, and as a member of the Nomination and Remuneration Committee and Chairman of the Risk Management Committee, all with effect from November 1, 2021.

<sup>(6)</sup> Mr. Lavaron Sangsrit, at the Board Meeting No. 10/2021 of August 25, 2021, was appointed as a director, replacing Mr. Todsaporn Boonyapipat who resigned, with effect from September 1, 2021, and at the Board Meeting No. 12/2021 of October 20, 2021, was appointed as a member of the Corporate Governance Committee, with effect from October 21, 2021.

<sup>(7)</sup> Mr. Jeerawat Pattanasomsit, at the Board Meeting No. 12/2021 of October 20, 2021, was appointed as a director, replacing Mr. Pongpun Amornvivat who resigned, with effect from November 1, 2021.

<sup>(8)</sup> Mr. Worawat Pitayasiri, at the 2021 AGM of April 2, 2021, was re-appointed as a director, with effect from April 2, 2021, and, at the Board Meeting No. 4/2021 of April 28, 2021, was re-appointed as a member of the Risk Management Committee, with effect from April 28, 2021.

### Directors who resigned and retired in 2021

No.	Name – Last Name	Position	Reason
1.	Mr. Boonchai Chunhawiksit	Director	Resigned with effect from January 1, 2021
2.	Mr. Payungsak Chartsutipol	Independent Director / Chairman of the Risk Management Committee / Chairman of the Remuneration and Nomination Committee	Retired at the 2021 AGM
3.	Mr. Bandhit Thamprajamchit	Director / Member of the Corporate Governance Committee	Retired at the 2021 AGM
4.	Mr. Toasaporn Boonyapipat	Director	Resigned with effect from August 1, 2021
5.	Mr. Wittawat Svasti-Xuto	Director / Chairman of the Risk Management Committee / Member of the Nomination and Remuneration Committee	Resigned with effect from October 1, 2021
6.	Mr. Pongpun Amornvivat	Director / Member of the Corporate Governance Committee	Resigned with effect from October 1, 2021

### Authorized Directors

As of December 31, 2021, the directors authorized to act on behalf of GPSC as stated in its affidavit were “Mr. Worawat Pitayasiri, President and CEO (with his signature and the corporate seal affixed), or Mr. Wirat Uanarumit, or Mr. Kongkrapan Intarajang, or Mr. Wuttikorn Stithit, or Mr. Atikom Terbsiri, or Mr. Noppadol Pinsupa (with signatures of any two and the corporate seal affixed).”

### 7.2.3 Roles and Responsibility of the Board

#### Roles and Responsibility of the Board

The roles and responsibility of the Board are to oversee GPSC's operations to ensure compliance with laws, regulations, GPSC's objectives and articles of association and resolutions of shareholders' meetings as well as strict adherence to corporate governance principles and best practices for the board of directors of listed companies to safeguard GPSC's and its shareholders' interests. The roles and responsibility of the Board can be summarized as follows.

1. Devote themselves to the determination of GPSC's vision, mission, directions, and strategies by expressing their opinions fully and seeking relevant information useful in defining GPSC's directions.
2. Review and approve GPSC's key strategies, policies, objectives, action plans, and financial goals as well as regularly overseeing and monitoring management so that such plans are carried out in accordance with the set directions and strategies to ensure effective and efficient implementation of GPSC's vision, directions, and strategies.
3. Define corporate governance policies and a code of business conduct comprising appropriate guidelines and good practices for directors, executives, and employees to foster a sense of professional responsibility and understanding, which are to be strictly complied with along with the rules and regulations of GPSC to ensure equity among all stakeholders.
4. Approve expenditures for investments, borrowing or application for credits from financial institutions, lending, and being a guarantor as part of GPSC's regular operations without budget limits in accordance with the rules and regulations of GPSC and pertinent regulations and laws stipulated by the Stock Exchange of Thailand and the Securities and Exchange Commission.
5. Consider potential risk factors, formulate comprehensive risk management guidelines, ensure that executives operate with efficient risk

management systems and processes in place, and predict possible risks that may arise from new business opportunities.

6. Ensure sufficient and effective internal control as well as regular assessment of the suitability of internal control systems.
7. Monitor and remedy issues related to potential conflicts of interest and related transactions, prioritizing major transactions that will result in maximum benefits for shareholders and stakeholders.
8. Consider and approve the appointment of qualified candidates with no prohibited characteristics under the Public Limited Companies Act B.E. 2535 (1992) (including amendments) and the Securities and Exchange Act B.E. 2535 (1992) (including amendments), as well as laws, notifications, regulations, and/or other relevant rules as new directors upon vacancies of directorship, either as a result of an expiration of terms of office or for other reasons, and upon the rise of such necessity, as well as determining remuneration to propose at shareholders' meetings for approval.
9. Determine and amend the list of authorized directors.
10. Appoint the Audit Committee or another subcommittee as well as defining their roles and responsibility to assist and support the Board in their operation.
11. Implement an appropriate and transparent talent acquisition and selection system to fulfill key management positions.
12. Appoint GPSC's executives with qualifications as defined by the Securities and Exchange Commission or the Capital Market Advisory Board, appoint a Company Secretary, as well as determining the remuneration of the executives and the Company Secretary.
13. Put in place a remuneration determination system or mechanism for GPSC's top executives to ensure appropriateness and consistency with GPSC's performance to create short-term and long-term motivation.
14. Conduct regular self-performance appraisals and the President and CEO's performance appraisals on a regular basis.



15. Ensure reliable accounting systems, financial reports, and audit systems as well as an efficient and effective internal auditing system.
16. Oversee the completion of GPSC's financial statements at the end of each accounting year and counter-sign to approve such statements, to be proposed for approval at annual general meetings of shareholders.
17. Consider and approve the selection and appointment of auditors as well as determining the appropriateness of the remuneration submitted by the Audit Committee before proposing it for approval at annual general meetings of shareholders.
18. Value social and environmental responsibility in GPSC's business operations for a better and sustainable quality of life in society.
19. Assess GPSC's performance under its corporate governance policies and business code of conduct at least once a year.
20. Provide each shareholder group with appropriate communication channels and ensure that information disclosure is complete, clear, transparent, reliable, and of highest standards.
21. Encourage GPSC's directors and executives to attend courses and seminars hosted by the Thai Institute of Directors (IOD), especially those relevant to their roles and responsibility.
22. Convene internal meetings between non-executive directors and independent directors as called for by necessity or when deemed appropriate to discuss various management issues of current interest in the absence of management and submit the summaries of such meetings to the President and CEO.
23. Formulate policies and perform supervisory roles to ensure that GPSC has an efficient anti-corruption system in place so as to ensure that management recognizes the significance of anti-corruption practices and cultivate them into a corporate culture.
24. Comply with anti-corruption measures, with penalties imposed for non-compliance.

The Board may authorize and/or designate individuals to perform specific tasks on its behalf. The appointment of attorneys or sub-attorneys shall conform to the scope defined in the letter of authorization and/or in compliance with the rules, regulations, or orders prescribed by the Board and/or GPSC. The authorization of the roles and responsibility of the Board shall not be in such a manner that enables the Board or the appointed attorneys, through the attorneys or sub-attorneys, to approve transactions that may benefit themselves or others who may have conflicts of interest (as defined in the notifications of the Securities and Exchange Commission or the Capital Market Supervisory Board) in any manner or create conflicts of interest with GPSC or GPSC's subsidiaries, except transactions that are in accordance with the policies and criteria approved by shareholders' meetings or by the Board.

In addition, the businesses of the Board that require approval from shareholders' meetings are as follows.

- Entry into a related transaction, or acquire or sell major assets of GPSC as defined by laws and the Securities and Exchange Commission (SEC).
- Selling or transferring GPSC's business, either in its entirety or partially, to another party.
- The drawing up, amendment, or revocation of contracts related to a full or partial lease of GPSC's business, the appointment of a proxy to act on behalf of GPSC, or the merging of the business with another party to share profits.
- Amendment of the memorandum of association or articles of association.
- Increasing or decreasing GPSC's authorized capital.
- Company dissolution or a merger with another company.
- Debenture issuance.

#### **Roles and Responsibility of the Chairman**

1. Supervise and monitor the performance of the Board to ensure efficiency in fulfilling the objectives and main goals of GPSC and compliance with laws, corporate governance principles, and the scope of duties and responsibility of the Board of Directors of GPSC.

2. Determine the agenda of board meetings, considering recommendations of the President and CEO, and ensure that vital agenda items are included.
3. Convene, either by the Chairman or any individual assigned by the Chairman, board meetings and deliver meeting notices to the directors no less than seven days prior to the meetings so as to allow sufficient time for directors to consider information necessary for decision-making.
4. Preside over board meetings, ensure efficiency of the meetings and sufficient allocated time for the presentations and discussion required for all agenda items, encourage careful consideration and free expression of opinions, guide the meetings towards resolutions, and conclude the meetings.
5. Preside over annual general meetings of shareholders to keep them in line with laws and articles of association of GPSC and the prescribed agenda and allocate sufficient time for presentations and shareholders' inquiries.
6. Oversee and encourage directors to adhere to corporate governance principles and contribute to a corporate culture characterized by ethical principles and corporate governance.
7. Foster a cordial relationship between the Board and the management team.

## 7.3 Subcommittees

### 7.3.1 Board Structure





### 7.3.2 Subcommittees

#### 1. The Audit Committee

As of December 31, 2021, the Audit Committee comprised three members:

No.	Name – Last Name	Position
1.	Mrs. Saowanee Kamolbutr	Chairperson (Independent Director) An expert with experience in accounting and audit of financial statements
2.	Mr. Kurujit Nakornthap	Member (Independent Director)
3.	Maj. Gen. Chaowalek Chayansupap	Member (Independent Director)

Ms. Attayar Sukotanang, Senior Vice President, Corporate Internal Audit, served as secretary to the committee

The Audit Committee of Global Power Synergy Plc comprises three independent directors who command expertise in financial accounting, engineering and energy businesses, law and management and are qualified to review the credibility of financial statements in accordance with the regulations of the Securities and Exchange Commission (SEC) and the Stock Exchange of Thailand (SET).

#### Composition

The Audit Committee consists of one Chairman and 2-4 members. Each member must be an independent director and possess qualifications related to independence as stipulated in the notifications of SEC regarding qualifications and scope of responsibility of an audit committee. In addition, at least one member of the committee must possess knowledge, expertise and experience in finance and accountancy to be able to review the reliability of financial statements.

#### Scope of duties and responsibility

1. Define regulations and guidelines to ensure compliance with the Audit Committee Charter, and regularly review the appropriateness of such regulations and guidelines.
2. Financial Reports and Audit
  - 2.1) Review the financial process and reports to ensure that the reports are accurate and

credible in illustrating the financial status of the company, with complete disclosure of material information and in compliance with accounting standard as well as other applicable standards and laws.

- 2.2) Review, select, and nominate external auditors and propose their audit fees to ensure their independence and propose their dismissal if they demonstrate inability to perform their duties, neglect of duty, or abuse of functions.
- 2.3) Promote the independence of external auditors, provide opinions on their suitability, and attend at least one meeting with external auditors per year in the absence of management.

#### 3. Internal Control

- 3.1) Review to ensure that GPSC's systems for internal control, internal audit, and risk management are efficient and effective, and that Internal Audit appropriately performs in accordance with the internal control standards.
- 3.2) Guide management in the improvement of work processes and systems to reduce risks and enhance its efficiency, as well as to ensure that financial reports are accurate and reliable.
- 3.3) Offer advice in defining a good corporate governance policy, monitor, assess, and report the implementation under the CG guidelines.

3.4) Review GPSC's CG implementation and procedures to ensure compliance with the policy, rules, regulations, requirements and laws, including directives in relation to the GPSC's operations.

3.5) Ensure that management has put in place procedures to deal with complaints and whistleblowing.

#### 4. Internal Audit

4.1) Review to ensure that the internal audit system is appropriate and efficient, and that Internal Audit complies with the standard of internal audit, as well as considering the adequacy of human resources, and the independence of Internal Audit.

4.2) Set a scope of internal auditing and review and approve the annual audit plan, as well as any change to the plan, including to consider the report of the auditor on the result of the auditing.

4.3) Assess the performance of the Chief of Internal Audit.

4.4) Review and approve the appointment, transfer and dismissal of the Chief of Internal Audit.

4.5) Review and approve the Internal Audit Charter.

4.6) Coordinate to ensure that the understanding among the Audit Committee, Management, Internal Audit and external auditor is in the same direction, and jointly consider the scope of the auditing with the external auditors to ensure that the internal auditing by internal and external auditors, are in alignment and supportive of each other.

#### 5. Compliance with the law and other relevant regulations.

5.1) Review compliance with the law on securities and exchange, requirements of SET and other rules and regulations which are relevant to business.

5.2) Review related transactions or transactions of potential conflicts of interest or fraud or corruption which might have material impact on the performance of GPSC, and ensure that such transactions, if taken, must be

reasonable and for the utmost benefit to GPSC and ultimately, must comply with SET's law and regulations.

5.3) Review the appropriateness of the Audit Committee Charter at least once a year and propose it to the Board for approval.

5.4) Conduct performance self-assessment of the Audit Committee and report the results with problems or obstacles in performing the duties which might hinder it from achieving the goals to the Board annually.

#### 6. Reporting

The Audit Committee prepares the Report of the Audit Committee, and its Chairman countersigns in the report to endorse it, and discloses it in the annual report. The report must at least contain the following information:

- The Audit Committee's views on:

- Accuracy, completeness and reliability of financial reports.
- Adequacy of GPSC's internal control system.
- Compliance with the securities and exchange act, SET's notifications and other applicable laws in relation to GPSC's business.
- Suitability of the auditor.
- Transactions of potential conflicts of interest.
- Number of the meetings of the Audit Committee and meeting attendance of each director.
- Overall opinions or comments of the Audit Committee regarding its performance under the Audit Committee Charter.
- Other matters that the Committee deems that shareholders and investors should know according to its scope of duties and responsibility assigned by the Board.

#### 7. Other duties

7.1) In the course of auditing, if knowledge and expertise from an external independent specialist is needed, the Audit Committee may propose to the Board for consideration to invite or hire such specialist at the expense of GPSC. The hiring procedure must comply with GPSC's articles of association, rules and



regulations, including the authority to appoint a working group to support the work of the Audit Committee.

- 7.2) Upon receiving reports from internal auditor about the results of the internal auditing which indicating performance in violation with the law, rules, regulations, practices, notifications and orders concerning GPSC's operations, the Audit Committee must notify senior executives to order the unit which is responsible for GPSC's operation to rectify the situation and ensure compliance with GPSC's policy, rules and regulations, practices and relevant laws, including directives concerning GPSC's operations.

If the report on the results of the internal auditing indicates suspicious transactions or activity which might cause significant damage to GPSC's performance, such as

- Conflicts of interest,
- Fraud or corruption, or irregular transactions or great defects in the internal control system,
- Violation with the law on securities and exchange, SET's regulations or applicable laws in relation to GPSC's business

The Audit Committee must promptly report the incident to the Board for rectification and immediate action. If the Board or Management fails to take any action for the rectification within

the appropriate time, any member of the Audit Committee may file a report to the SEC.

- 7.3) After the Audit Committee has been informed that the auditor has reasonable suspicion that a director, manager or person responsible for the operation of GPSC has committed an offense in duties and responsibility under the Securities and Exchange Act, Section 281/2, paragraph two, Section 305, Section 306, Section 308, Section 309, Section 310, Section 311, Section 312 or Section 313, the Audit Committee must conduct an investigation or auditing and submit a preliminary report to the Board for acknowledgement, and to the SEC and SET and the external auditor within 30 days from the date the Audit Committee has been informed by the auditor.

- 7.4) Perform other duties as assigned by the Board or by the shareholders with the approval of the Audit Committee or as required under the law.

If the Audit Committee's scope of duties and responsibility has been changed, the Company must disclose the resolution on the change of duties, name of director and the scope of operation of the Audit Committee in accordance with the form defined by SET within three working days from such change and in accordance with the methods under SET's notification on e-reporting.

## 2. Nomination and Remuneration Committee

As of December 31, 2021, the Nomination and Remuneration Committee comprised three members:

No.	Name - Last Name	Position
1.	Maj. Gen. Chaowalek Chayansupap	Chairman (Independent Director)
2.	Mr. Atikom Terbsiri	Member
3.	Mr. Noppadol Pinsupa	Member

Ms. Pallapa Achanon, Senior Vice President, Company Secretary and Corporate Governance / Company Secretary, served as secretary.



### Composition

The Nomination and Remuneration Committee consists of at least three members, one of whom shall be an independent director. The term of each member is equal to his or her directorship term, and a vacating member is eligible for re-election.

### Scope of duties and responsibility

1. Select qualified candidates to be nominated as GPSC's new directors and President and CEO as well as ensuring that the selection criteria and processes are principled and transparent before proposing to the Board and/or shareholders' meetings for approval.
2. Review remuneration policies and criteria for GPSC's directors and President and CEO to ensure fairness and reasonableness for subsequent proposal to the Board and/or shareholders' meetings for approval.
3. Review and nominate qualified directors as subcommittee members before proposing to the Board for appointment as deemed necessary.
4. Provide recommendations on the remuneration structure and composition for GPSC's directors to the Board annually.
5. Assess the President and CEO to provide recommendations to the Board of GPSC regarding the appropriate remuneration.
6. Review the succession plan for the President and CEO and the list of candidates qualified for the succession consideration.
7. Report the performance of the Nomination and Remuneration Committee to the Board, and prepare the Report of the Nomination and Remuneration Committee, endorsed by its Chairman to be disclosed in the annual report.
8. Perform other duties as assigned by the Board.

### 3. Corporate Governance Committee

As of December 31, 2021, the Corporate Governance Committee comprises four members:

No.	Name – Last Name	Position
1.	Mr. Kurujit Nakornthap	Chairman (Independent Director)
2.	Mrs. Nicha Hiranburana Thuvatham	Member (Independent Director)
3.	Mr. Somchai Meesane	Member (Independent Director)
4.	Mr. Lavaron Sangsnit	Member

Ms. Pallapa Achanon, Senior Vice President, Company Secretary and Corporate Governance / Company Secretary, served as secretary.

## Composition

The Corporate Governance Committee consists of at least three members, at least half of whom shall be independent directors. The term of each member is equal to his or her directorship term, and a vacating member is eligible for re-election.

## Scope of duties and responsibility

1. Determine guidelines and propose policies regarding GPSC's business ethics and code of conduct in accordance with corporate governance principles to propose to the Board for approval and implementation as part of GPSC's standard practices.
2. Formulate policies, promote internal assessment of corporate governance standards, and apply for assessment by recognized external organizations on a regular basis.
3. Offer recommendations on corporate governance to the Board.
4. Oversee performance of the directors and management to ensure adherence to corporate governance principles stipulated by supervisory institutions, such as SET, SEC, and other relevant organizations.
5. Review GPSC's corporate governance guidelines in comparison to international practices on a regular basis and propose to the Board.
6. Formulate corporate governance policies for GPSC's CG working teams for further implementation.
7. Formulate policies and guidelines regarding sustainability management and corporate social responsibility.
8. Monitor sustainability management operations and report results to the Board.
9. Establish guidelines for GPSC's anti-corruption operations.
10. Promote the organizational culture of corporate governance among executives and employees at all levels to create practical results in both GPSC and its subsidiaries.
11. Provide advice and consultancy to the working team on corporate governance to be prepared for the CG ranking performed by neutral external organizations and conducted at least once every three years.
12. Review and offer recommendations on the assessment form and the results of the performance assessment of GPSC's directors for subsequent proposal to the Board.
13. Formulate compliance frameworks for anti-corruption related operations of GPSC.
14. Prescribe and review the anti-corruption policy; offer recommendations and guidance; monitor and assess anti-corruption related operations.
15. Report the results of corporate governance assessment to the Board. Should a factor or situation that may significantly affect GPSC arise, the Corporate Governance Committee must report it to the Board for acknowledgment and consideration immediately.
16. Regularly review the Corporate Governance Committee Charter.
17. Appoint a secretary to the Corporate Governance Committee as deemed appropriate.
18. Perform other duties as assigned by the Board.

#### 4. Risk Management Committee

As of December 31, 2021, the Risk Management Committee comprised five members:

No.	Name – Last Name	Position
1.	Mr. Noppadol Pinsupa	Chairman
2.	Mr. Pakorn Apaphant	Member (Independent Director)
3.	Mr. Kongkrapan Intarajang	Member
4.	Mr. Wirat Uanarumit	Member
5.	Mr. Worawat Pitayasiri	Member

Mr. Manatchai Kongrakkawin, Senior Vice President, Corporate Strategy and Risk Management, served as secretary.

##### Composition

The Risk Management Committee consists of at least three directors who are either executives or independent directors. The term of each member is three years, equal to his or her directorship term, and a vacating member is eligible for re-election.

##### Scope of duties and responsibility

1. Define and review corporate risk management policies and frameworks relevant to the business of GPSC.
2. Oversee and support risk management implementation to ensure alignment with GPSC's strategies and business goals as well as the prevailing situations.
3. Provide recommendations on the guidelines for the monitoring and assessment of risk management to the Risk Management and Internal Control Committee (RMCC) (management level) for further implementation.
4. Review the results of corporate risk management, offer opinions on potential risks and recommendations on risk control measures and mitigation plans as well as the development of GPSC's corporate risk management system to RMCC regularly to ensure efficiency.

5. Ensure that GPSC has risk management plans, systems, or procedures to minimize impacts on the business of GPSC, as well as monitoring and assessing the implementation under the risk management framework across the organization to ensure that adequate and appropriate risk management has been put in place.
6. Oversee and promote risk management implementation which covers all aspects, including environmental, social, and governance risks (ESG risks), as well as the anti-corruption efforts of GPSC and all companies in GPSC Group.
7. Support and develop risk management and related instruments at all levels across the organization as well as promote risk management as part of the organizational culture.
8. Report the results of risk management to the Board. Should a factor or situation that may significantly affect GPSC arise, the Risk Management Committee must promptly report it to the Board for acknowledgment and consideration.
9. Hold a meeting of the Audit Committee at least every quarter.
10. Perform other duties as assigned by the Board.





## BOARD OF EXECUTIVES



**01**

**Mr. Worawat Pitayasiri**

President and Chief Executive Officer

**02**

**Mr. Sirimet Leepagorn**

Chief Operating Officer

**03**

**Mr. Thitipong Jurapornsiridee**

Chief Financial Officer



**07**

**Mr. Smornchai Khoonrak**

Executive Vice President  
of Chief Operating Officer

**08**

**Mr. Arjan van den Broek**

Executive Vice President-  
Operations and Maintenance

**09**

**Mr. Wisit Srinuntawong**

Acting Executive Vice President-  
Operational Excellence





**04**

**Mr. Kulapat Permbhusri**

Acting Executive Vice President-  
Corporate Strategy and  
Subsidiary Management

**05**

**Ms. Rosaya Teinwan**

Executive Vice President- Business  
Development

**06**

**Ms. Sriprapha Sumruatruamphol**

Executive Vice President-Commercial and  
Supply Chain Management



**10**

**Mrs. Prinda Ma-imjai**

Senior Vice President-Organization  
Effectiveness

**11**

**Mr. Jaruwat Singsomdee**

Senior Vice President-Transformation  
and Sustainability Management

**12**

**Ms. Dutdao Suksamran**

Senior Vice President-Office of Legal

## BOARD OF EXECUTIVES



**13**

**Ms. Attayar Sukotanang**

Senior Vice President  
Corporate Internal Audit

**14**

**Ms. Pallapa Achanon**

Senior Vice President Company  
Secretary and Corporate  
Governance

**15**

**Mr. Laksanapreecha Krutkuntode**

Senior Vice President New Technology



**19**

**Mrs. Sirobon Boontaworn**

Senior Vice President Corporate  
Finance and Investor Relations

**20**

**Ms. Suttasinee Pengsupaya**

Senior Vice President attached to  
the Chief Financial Officer

**21**

**Mr. Sutthi Chuesook**

Senior Vice President Plant  
Operations, Rayong Cogen



**16**

**Mr. Narongchai Visutrachai**

Senior Vice President Government  
Relations & Public Affairs

**17**

**Mr. Reungpong Reunghirun**

Senior Vice President Business  
Development & Technical  
Intelligence

**18**

**Ms. Sukittee Chaiyarak**

Senior Vice President attached  
to the Chief Financial Officer and  
seconded as Managing Director to  
GPSC TC



**22**

**Mr. Surajit Bourtherng**

Senior Vice President Plant Operations  
Other Areas

**23**

**Mr. Somsak Lertcharoensermuk**

Senior Vice President Project  
Construction Management

**24**

**Mr. Saochai Sookkasem**

Senior Vice President SSHE



## BOARD OF EXECUTIVES



**25**

**Mr. Suratchai Bangluang**

Senior Vice President  
Maintenance Execution

**26**

**Mrs. Mantana Kunakorn**

Senior Vice President Smart  
Office Project

**27**

**Mr. Akarin Prathuangsit**

Senior Vice President Supply  
Chain Management



**31**

**Mr. Louis Holub**

Senior Vice President attached  
to the Chief Operating Officer

**32**

**Mrs. Patchara Charoonwutthitham**

Senior Vice President Business  
Performance and Budgeting Analysis

**33**

**Mr. Punnavich Pianpucktr**

FLASH Project Director



**28**  
**Mr. Pavarate Rattanasuwan**  
 Senior Vice President  
 Commercial GPSC and  
 Government Contract

**29**  
**Mr. Manatchai Kongrakkawin**  
 Senior Vice President Corporate  
 Strategy and Risk Management

**30**  
**Mr. Aungsuthon Puboonterm**  
 Senior Vice President Plant and  
 Production Optimization



**34**  
**Mr. Nutthapong Puangmanee**  
 Senior Vice President Business  
 Development - Other Areas and  
 Investment Project Development

**35**  
**Mr. Teerasak Meepansaen**  
 Acting Senior Vice President  
 Finance & Accounting Shared  
 Service Center

**36**  
**Mr. Thananchai Chaisrakaew**  
 Acting Senior Vice President  
 Plant Engineering & Improvement



## 7.4 Management Information

### 7.4.1 As of December 31, 2021, GPSC's Senior Vice Presidents and over were:

No.	Name – Last Name	Position
1.	Mr. Worawat Pitayasiri	President and CEO
2.	Mr. Sirimet Leepagorn	Chief Operating Officer
3.	Mr. Thitipong Jurapornsiridee	Chief Financial Officer
4.	Mr. Kulapat Permbhusri	Acting Executive Vice President, Corporate Strategy and Subsidiary Management
5.	Ms. Rosaya Teinwan	Executive Vice President, Business Development
6.	Mrs. Sriprapha Sumruatruamphol	Executive Vice President, Commercial and Supply Chain Management
7.	Mr. Smornchai Khoonrak	Executive Vice President, attached to Chief Operating Officer
8.	Mr. Arjan van den Broek	Executive Vice President, Operations and Maintenance
9.	Mr. Wisit Srinuntawong	Acting Executive Vice President, Operational Excellence
10.	Mrs. Prinda Ma-imjai	Senior Vice President, Organization Effectiveness
11.	Mr. Jaruwat Singsomdee	Senior Vice President, Transformation and Sustainability Management
12.	Ms. Dutdao Suksamran	Senior Vice President, Office of Legal
13.	Ms. Attayar Sukotanang	Senior Vice President, Corporate Internal Audit
14.	Ms. Pallapa Achanon	Senior Vice President, Company Secretary and Corporate Governance
15.	Mr. Laksanapreecha Krutkuntode	Senior Vice President, New Technology
16.	Mr. Narongchai Visutrachai	Senior Vice President, Government Relations & Public Affairs
17.	Mr. Reungpong Reunghirun	Senior Vice President, Business Development & Technical Intelligence
18.	Mrs. Sukittee Chaiyarak	Senior Vice President, attached to the Chief Financial Officer and seconded as Managing Director to GPSC TC
19.	Mrs. Sirobon Boontaworn	Senior Vice President, Corporate Finance and Investor Relations
20.	Ms. Suttasinee Pengsupaya	Senior Vice President, attached to the Chief Financial Officer
21.	Mr. Sutthi Chuesook	Senior Vice President, Plant Operations, Rayong Cogen
22.	Mr. Surajit Bourtherng	Senior Vice President, Plant Operations, Other Areas
23.	Mr. Somsak Lertcharoensersuk	Senior Vice President, Project Construction Management
24.	Mr. Saochai Sookkasem	Senior Vice President, SSHE
25.	Mr. Suratchai Bangluang	Senior Vice President, Maintenance Execution
26.	Mrs. Mantana Kunakorn	Senior Vice President, Group Facility Management Smart Office Project
27.	Mr. Akarin Prathuangsit	Senior Vice President, Supply Chain Management
28.	Mr. Pavarate Rattanasuwan	Senior Vice President, Commercial GPSC and Government Contract
29.	Mr. Manatchai Kongrakkawin	Senior Vice President, Corporate Strategy and Risk Management
30.	Mr. Aungsuthon Puboonterm	Senior Vice President, Plant and Production Optimization

No.	Name - Last Name	Position
31.	Mr. Louis Holub	Senior Vice President, attached to the Chief Operating Officer
32.	Mrs. Patchara Charoonwutthitham	Senior Vice President, Business Performance and Budgeting Analysis
33.	Mr. Punnavich Pianpucktr	FLASH Project Director
34.	Mr. Nutthapong Puangmanee	Senior Vice President, Business Development-Other Areas and Investment Project Development
35.	Mr. Teerasak Meepansaen	Acting Senior Vice President, Finance & Accounting Shared Service Center
36.	Mr. Thananchai Chairsakaew	Acting Senior Vice President, Plant Engineering & Improvement

Executives No. 1-9 are qualified as the first four executives according to SEC's definition.

### Scope of Authority of the President and CEO

The President and CEO has the authority and duties to manage business operations as assigned by the Board and to manage plans or budgets approved by the Board of Directors with stringency, honesty, and circumspection, while protecting the best interest of GPSC and shareholders. The scope of authority of the President and CEO entails the following matters:

1. To manage GPSC's daily operations
2. To manage GPSC's plans and budgets approved by the Board of Directors
3. To prepare reports, plans, and financial statements and present them to the Board of Directors on a quarterly basis
4. To formulate GPSC's commercial policies and engage in or terminate current and future agreements or obligations concerning trading of raw materials and products on its behalf for a period of up to five years and worth up to THB 300 million. Should additional investment be required, he or she must conform to GPSC's regulations on investment criteria before approving any engagement or obligation.
5. To enter into or terminate any contract or obligations other than specified in Item 4., with the contract value not exceeding THB 300 million
6. To employ, appoint, remove, transfer, promote, demote, decrease salary or payment, impose disciplinary sanctions on, or terminate employment of employees on behalf of GPSC; to appoint

executives; as well as to delegate authority and responsibility to suitable personnel.

In addition, the Board of Directors has granted a power of attorney to the President and CEO, the scope of which is defined as follows.

- The authority to manage GPSC's business operations in accordance with GPSC's objectives, and articles of associations, policies, regulations, orders, and resolutions of the Board of Director's meetings and/or shareholders' meetings.
- The authority to command, contact, order, and proceed as well as execute juristic acts, sign contracts, agreements, orders, announcements, and any other documents that are deemed necessary and appropriate to fulfill the assigned responsibility.
- The authority to authorize and/or assign other individuals to act on his or her behalf to perform certain specific tasks. The appointment of a lawful attorney or assigning individuals must be conducted within the scope of authority indicated in that specific letter of authorization and/or in accordance with relevant rules, regulations, or orders issued by the Board of Director and/or GPSC.

However, the scope of the President and CEO's authority shall not apply if the CEO is a stakeholder or has any conflict of interest with GPSC



#### 7.4.2 Policy of compensation for management director and management executives

The compensation for all management executives varies with their respective Key Performance Indicators (KPIs) defined by the Board of Directors, the President & CEO, and senior management. These KPIs consist of four balanced perspectives: financial, stakeholder, internal work process, and learning and growth of GPSC and the workforce in addition to their respective annual performances (short-term) and assessed caliber and leadership that ensure GPSC's achievement of strategic goals (long term). Each executive's KPIs correspond to his or her roles for a given year. The Board decides the President & CEO's annual salary adjustment, while the President & CEO decides the adjustment for senior management against their respective performances. Such adjustment must conform to GPSC's criteria.

#### 7.4.3 Total compensation for management executives

##### Cash Compensation

- Cash compensation for management executives:

	2021
<b>Persons</b>	36
<b>Compensation (Baht)</b>	156,987,874.05

##### Other Compensation

- Other cash compensation, including provident fund contribution and other income:

	2021
<b>Persons</b>	36
<b>Compensation (Baht)</b>	82,502,118.85

#### 7.5 Employee Data

GPSC's employee headcount (excluding Senior Vice Presidents and higher) by function as of December 31, 2021, was as follows.

No.	Function	Headcount (Person)
		As of December 31, 2021
1.	President and Chief Executive Officer	5
2.	Chief Operating Officer	445
3.	Chief Financial Officer	78
4.	EVP-Corporate Strategy and Subsidiary Management	55
5.	EVP-Business Development	53
6.	EVP-Commercial and Supply Chain Management	75
7.	Organization Effectiveness	33
8.	Company Secretary and Corporate Governance	14
9.	Corporate Internal Audit	6
10.	Government Relations & Public Affairs	27
11.	Office of Legal	12
<b>Total</b>		<b>803</b>

### Employee Remuneration (Excluding Senior Vice Presidents and Higher)

Remuneration, including salary, bonus, provident fund contributions, and other income in 2021 (from January 1, 2021 to December 31, 2021), were as follows.

No.	Function	Remuneration (Baht)
		As of December 31, 2021
1.	President and Chief Executive Officer	5,259,979.20
2.	Chief Operating Officer	554,909,359.75
3.	Chief Financial Officer	88,656,687.59
4.	EVP-Corporate Strategy and Subsidiary Management	70,320,327.41
5.	EVP-Business Development	71,255,238.48
6.	EVP-Commercial and Supply Chain Management	104,822,564.64
7.	Organization Effectiveness	48,480,102.25
8.	Company Secretary and Corporate Governance	19,420,124.64
9.	Corporate Internal Audit	12,139,249.15
10.	Government Relations & Public Affairs	37,187,079.26
11.	Office of Legal	16,494,850.96
<b>Total</b>		<b>1,028,945,563.33</b>

### HR Management Policy

GPSC recognizes that employees are valuable and essential resources that drive business growth. As a result, it emphasizes HR management, covering capacity development, employee care, long-term talent retention, employee engagement, and incentives. It believes that efficient HR management will enhance business competitiveness and drive the organization toward goals to help GPSC become a global leading innovative and sustainable power company.

GPSC's challenge in HR development for sustainable operations is to prepare and develop employee capacity in line with its strategic direction under global dynamic conditions in economy, society, the environment, and technology affecting employees' skills, knowledge, and abilities. Moreover, it promotes employee engagement. In 2021, GPSC underwent reorganization and process improvement to serve new business expansion and improve systems that manage performance, compensation, and benefits.

It also strengthened executives' and employees' leadership to support GPSC's future growth. The effort includes recruiting internal personnel who are ready to fill vacancies promptly.

### Performance of Human Resources and Organizational Development Strategies

In 2021, GPSC formulated HR management strategies relevant to strategic plans, including synergy & integration, selective growth, and S-Curve and changing external and internal situations. Details are as follows:

1. **To build a culture and unite teams** that work with strong determination and dedication to achieve the goals through the corporate culture and GPSC Group's way of working together under the Company's core values-ACT SPIRIT. GPSC also promotes awareness-building and employee engagement through various communication channels and activities with its executives as role models of behavior under the corporate values.



2. To create Organization and People readiness to enhance the capacity of the company, its employees, and leader development through efficient human resource systems and mechanisms, with emphasis on a recruitment and selection process for candidates with knowledge and capacity (talent acquisition) and with attitude and behavior which are in line with the company's core values. GPSC is committed to human resource development to ensure that they are equipped with work expertise, management competency and leadership. In addition, GPSC has focused on productivity growth by supporting and promoting reskilling and upskilling of employees and the application of technology in their work to enhance efficiency of work performance and to prepare them in both quality and quantity for GPSC's sustainable growth.

#### **Key Performance Aligned with Human Resource and Organizational Development Strategies**

GPSC values organizational development in parallel with HR development throughout the organization. High-potential employees will serve as a success factor that leads the organization to sustainable growth. Therefore, GPSC implemented holistic employee care and capacity building. The details are below:

##### **1. Organizational Development**

GPSC set ACT SPIRIT as the core values and established a program promoting a corporate culture in working together with efficiency, through efficient communication channels and creative activities to ensure that employees are happy with their work amid the Covid -19 situation. To efficiently fulfill the needs of customers, the office of the Chief Operating Officer underwent organizational restructuring and work process improved to cope with the increasing reliability and for more efficiency. Organization as well as remuneration structures of GPSC and its group were restructured to support business expansion in new areas.

##### **2. Human Resource Development**

Employees' capacity is crucial in enhancing GPSC's business competitiveness, especially under dynamic conditions of the power business. GPSC values human resource development and ensures that its employees command necessary knowledge and skills required under corporate business directions. Guidelines for human resource development are clearly defined to suit business operations and GPSC Academy was established as the center for HR development program.

##### **3. Spark Accelerator Management Trainee Program**

One of GPSC's most crucial strategies is to create New S-Curve businesses. Therefore, GPSC values building skilled leaders for the future. As the PTT Group power flagship, it initiated a "Spark Accelerator Management Trainee Program" by adopting various challenging learning mechanisms inside and outside the country to prepare highflyers who can grow into future leaders. It is open to employees both inside and outside GPSC. Within three years, participants can rotate to three major functions, including strategy, organization and management of affiliates, business development, commerce, financial management, and operation.

Four successful candidates have participated in the program, which started in July 2020 for a duration of three years and six months. The first six months was spent preparing the four management trainees under the care of the mentors and a clear progress reporting system for senior GPSC executives. The four trainees also took online Leadership and Business programs for their preparedness and capability enhancement.

The SPARK Accelerator Management Trainee Program is also a project in which the company is committed to retaining employees of high potential with the organization and to play an important role in driving key strategies of the company that are in accordance with its business growth plans.



#### 4. Succession Plan

GPSC established a succession management strategy, which is a succession plan for critical positions and has prepared potential executives for development to inherit the positions either by taking offices left vacant by retirement or filling new positions created under the business expansion plan. The succession plan has been systematically formulated and the actions taken under the key succession plan are detailed below:

1. Preparation of success profiles of critical positions.
2. Grouping of potential executives in key management positions.
3. Assessment of the competency of the executive group through the assessment center that covers leadership competency, interpersonal, business/management and personal attributes.
4. Using the evaluation results obtained in determining the individual development plan (IDP).

Moreover, to ensure that GPSC has prepared the leaders of the organization at different levels to support its growth, the success profiles and a succession plan for middle executives as well as the design and development of career paths for all employees have been set up to aid them to participate in setting their own career progression goals. These also create shared success and sustainable progress between employees and the organization.

#### 5. Knowledge Management

GPSC conducts corporate knowledge management to increase employees' knowledge and skills and ensure efficient work, lower risks, and operational excellence. Since these employees will help GPSC achieve goals under the vision and strategy, GPSC nurtures an atmosphere and culture that facilitate learning and knowledge-sharing, which leads to lifelong learning for new knowledge and innovation. The effort focuses on mutual learning of employees in the organization to share knowledge, experiences, and skills while continuously receiving external knowledge. Thanks to the support of the Knowledge Management Portal technology, they can access and scale up the ability to find creative ways to achieve best practices.

#### Performance Evaluation

In 2021 GPSC enhanced its Performance Management System (PMS) to provide clarity for measuring and evaluating employees' performance. This implementation would drive the organization's performance toward goals and ensure continuous development. GPSC improved behavioral evaluation in line with core competencies and the ACT SPIRIT corporate values. Evaluation broke down into behavioral and performance evaluation. All employees were required to set individual KPIs in line with the corporate strategy and goals. Then GPSC would use the results to plan and identify appropriate career development for employees in the short term and long term. The information is also used for remuneration adjustment and promotion in line with corporate performance.

#### Key Project

##### GPSC Academy Core Program

GPSC developed its employees through the GPSC Academy, the center of HR development program. GPSC, in collaboration with leading HR development and leadership consultants, designed the program for the core competencies which the company wants to develop in all its employees. The development program, called the Core Program, were prepared with emphasis on Business Management and People Management. This program includes special programs specifically for employees of each group level, such as Leading Task Development Program, Leading Self Development Program, Leading People Development Program, and Leading Culture Development Program, all to ensure that its employees are provided with appropriate development programs which suit the capacity of each group level. The design of the leadership development programs of each year is based on the company's key business strategies and issues on employee care.

#### Diversity

GPSC recognizes and accepts individual diversity of gender, race, nationality, religion, political view, socio-economic status, age, background, and

disability or physical disorder, believing that diversity will help GPSC respond creatively to stakeholders' different needs and the changing nature of business, resulting in sustainable benefit. For recruitment, GPSC sets out personnel qualifications and provides an equal opportunity for HR development to prepare employees for career advancement. In 2021, female executives represented 28% of all GPSC executives.

## Employee Welfare

In addition to salary and bonus, GPSC offers all employees various benefits to meet their needs:

1. The social security fund offers compensation to those in the social security system for non-work-related hazards, sickness, disability, or death. The benefits also cover maternity, children's education, retirement, and unemployment expenses.
2. A provident fund provides security to employees who voluntarily join the fund, including their families. Employees contribute in the proportion determined by GPSC, and the Company matches the amounts.
3. Medical welfare is provided to employees and their family members (parents, spouse, and children) under the conditions set by GPSC. The Company also offers employees an annual health check-up.
4. Life insurance offers security to employees and their families.
5. Housing allowance is provided to employees working outside Bangkok, Nonthaburi, Pathum Thani, Samut Prakan, Samut Sakhon, and Nakhon Pathom as specified by GPSC.
6. Extra allowance is paid to shift employees who work on odd days or hours from other employees as specified by GPSC.
7. Extra allowance is paid to support employees on duty or on standby in the precinct or accommodation specified by GPSC.
8. Children's educational fund is provided to employees, based on educational institutions' levels and types specified by GPSC.
9. A token of appreciation is provided when employees' years of service reach given periods.
10. Optional welfare is a welfare plan where GPSC allows employees to declare their intention of

receiving. If waiving the right to do so, they can choose substitute welfare as specified by GPSC.

11. Substitute welfare is specified and provided by GPSC for employees who have waived their rights to optional welfare as specified by GPSC.
12. Other allowances as specified by GPSC, such as gym, phone bill, parking fee, and funeral assistance.

## 7.6 Other Key Information

### 7.6.1 List of officers responsible for the following key duties at GPSC:

#### Company Secretary

The Board of Directors' Meeting No. 7/2562 of July 26, 2019, appointed **Ms. Pallapa Achanon** as the Company Secretary, effective from August 1, 2019, with the following roles and responsibility:

- 1) To prepare and maintain GPSC documents, namely a registrar of directors, notices and minutes of the Board meetings, notices and minutes of shareholders' meetings, and annual reports
- 2) To maintain reports on vested interests submitted by directors or management.
- 3) To arrange Board meetings and shareholders' meetings.
- 4) To provide advice on applicable laws and regulation to the Board and management.
- 5) To organize training and orientations as well as providing current and new directors with information essential to the fulfillment of their roles.
- 6) To oversee and ensure complete compliance with laws, regulations, rules, and resolutions of the Board meetings and shareholders' meetings, as well as corporate governance policies and business code of conduct.
- 7) To carry out other tasks under the stipulations of the Capital Market Supervisory Board.

Ms. Achanon possesses the following education and Company Secretary training:

- Master of Business Administration (Finance), Kasetsart University



- Bachelor of Science (Business Administration), Kasetsart University
- Fundamentals for Corporate Secretaries, Thai Listed Companies Association
- Company Secretary Program (CSP) Class 99/2019, Thai Institute of Directors
- Director Accreditation Program (DAP) Class 163/2019, Thai Institute of Directors
- Board Reporting Program (BRP) Class 33/2020, Thai Institute of Directors
- Risk and Opportunity Management for Corporate Leaders, Thai Institute of Directors
- ASEAN CG Scorecard Coaching 2020, Thai Institute of Directors.

Her profile and qualifications appear in Attachment 1.

#### Chief Accountant

GPSC assigned **Mr. Teerasak Meepansaen**, Senior Vice President – Finance and Accounting Shared Service Center, to be directly responsible for corporate accounting supervision, effective April 1, 2021. However, **Mr. Kittapong Tangsitthisilpa**, Senior Vice President – Finance and Accounting Shared Service Center, has been appointed chief accountant in place of Mr. Teerasak Meepansaen, effective January 1, 2022. His profile appears in Attachment 1.

#### Chief of Internal Audit

GPSC has assigned **Ms. Attayar Sukotanang**, Senior Vice President, Corporate Internal Audit, to lead Internal Audit. Her profile appears in Attachment 3.

#### Chief of Compliance

GPSC has appointed **Ms. Pallapa Achanon**, Senior Vice President, Company Secretary and Corporate Governance, to head compliance and ensure corporate compliance with regulations applicable to GPSC businesses.

Her profile appears in Attachment 1.

#### 7.6.2 List of chief contacts for Investor Relations

##### Contact information

1. **Mrs. Sirobon Boontaworn**,  
Vice President, Corporate Finance and Investor Relations  
Tel.: 0-2140-5354  
Email: sirobon.b@gpscgroup.com
2. **Mr. Pongsak Plai-ngam**,  
Investor Relations Division Manager  
Tel.: 0-2140-4646  
Email: pongsak.pl@gpscgroup.com

#### 7.6.3 Audit and other fees

##### Audit fees

GPSC and subsidiaries paid a total of THB 10.94 million in audit fees over the past fiscal year to the external auditor: THB 1.02 million for its own audit and THB 9.92 million for subsidiaries' audits.

##### Other fees

GPSC and subsidiaries paid a total of THB 0.90 million in non-audit fees over the past fiscal year to the audit office where the external auditors belong for the audit of compliance with the terms of investment certificates, review of financial ratios, and counsel on accounting and tax, and THB 6.58 million to the auditors' related parties or businesses.

## 8. Key Corporate Governance Implementation

### 8.1 Performance of the Board of Directors in 2021

#### Corporate Governance and Code of Business Conduct

The Board of Directors has reviewed and improved the Corporate Governance and Code of Business Conduct Handbook (CG Handbook). The revision, which came into effect in 2020, provides guidelines for all employees to abide by in performing their duties and in conducting business to ensure that GPSC's operation is efficient and effective and that its management, characterized by development toward excellence, transparency, and accountability, will foster stakeholders' confidence in GPSC as a leading SET-listed company whose business is guided by governance toward sustainable growth.

#### Policies, Directions, Business Strategies and Key Performance Indicators

In 2021, the Board:

- Reviewed and defined the policies, directions, and business strategies of GPSC and its invested companies, as well as reviewing its vision, mission, and business goals.
- Approved Key Performance Indicators (KPIs), both financial and non-financial, under the Balanced Scorecard. The indicators included Financial Perspective, Stakeholder Perspective (Customers' Satisfaction), Internal Process Perspective, and Learning & Growth Perspective (Employee Engagement and Succession Planning).

#### 8.1.1 Nomination, Development and Performance Assessment of the Board of Directors

##### 1) Independent Directors

As of December 31, 2021, out of the 15 directors on the Board, GPSC had a total of seven independent directors, who are independent from the the Company's management and major shareholders, in line with SEC's criteria which stipulated that at least one third of the members of the Board, but no fewer than three, must be independent directors.

The Board has assigned the Nomination and Remuneration Committee to nominate candidates to be appointed as directors, based on shareholders' recommendations and the Directors' Pool of recognized organizations. This committee considers the qualifications of each qualified candidate based on GPSC's definition of independent directors, considering those set forth in the notification of the Capital Market Supervisory Board, as detailed below:

1. Holds no more than 0.5% of the voting shares of GPSC, its parent company, subsidiary, associated company, major shareholder, or controlling persons of GPSC, including the shares held by persons related to the independent director;
2. Is not or has never been an executive director, worker, employee, salaried consultant, or controlling persons of GPSC, its parent company, subsidiary, associated company, sister company, major shareholder, or controlling person, unless such status has ceased for at least 2 years. However, the prohibited characteristics do not include cases where the independent director used to be a government official or an advisor in government agencies that are major shareholders or controlling parties of GPSC;
3. Is not related by blood or legally registered as the father, mother, spouse, sibling, or offspring, or spouse of the offspring of any other director, executive, major shareholder, controlling persons, or any person who will be nominated as a director, executive, or controlling person of GPSC or its subsidiary;
4. Does not have or has never had any business relationship with GPSC, its parent company, subsidiary, associated company, major shareholder, or controlling persons in a way that such relation may impede the person from exercising independent views, and should not be or has never been a key shareholder or controlling person for persons with business relations with GPSC, its parent company, subsidiary, associated company, major shareholder, or controlling persons, unless such status has ceased for at least two years;



Such “business relationship” shall include conducting ordinary business transactions, offering or taking on leases of any immovable properties, conducting transactions relating to assets or services, or granting or accepting any financial support by way of offering or taking on loans, guarantees, asset-based collaterals, including any other similar action, which results in the Company or the counterparty being indebted to the other party in the amount of 3% or more of the net tangible assets of the Company or THB 20 million or more, whichever is lesser, based on the calculation of the related transaction value under the notification of the Securities and Exchange Commission (SEC), where the consideration of such indebtedness shall include any indebtedness taking place in one year before the commencement date of the business relationship with such person;

5. Is not or has never been an auditor of GPSC, its parent company, subsidiary, associated company, major shareholder, or controlling persons, and should not be or has never been a key shareholder, a controlling person, or a partner of current auditing firm of GPSC’s auditor’s, or of its parent company, subsidiary, associated company, major shareholder, or controlling persons, unless such status has ceased for at least two years;
6. Is not providing or has never provided professional services, legal consulting, nor financial consulting services with a fee more than THB 2 million per year from GPSC, its parent company, subsidiary, associated company, major shareholder, or controlling person, and should not be or has never been a key shareholder, controlling person, or partner of such professional services provider, unless such status has ceased for at least two years;
7. Is not a director appointed to represent GPSC, a major shareholder, or a shareholder connected to a major shareholder;
8. Is not operating under similar business nature and significant competition with GPSC or its subsidiaries, or not a significant partner of a partnership, executive director, worker, employee, or salaried consultant, or holding more than 1% of voting shares of any other company operating under similar business nature and significant competition to GPSC or its subsidiaries; and
9. Is not under any conditions that may impede him or her from expressing independent views on GPSC’s operations.

GPSC’s definition of independent directors is more stringent than that of the Capital Market Supervisory Board, such as, its independent directors must not hold more than 0.5% of the voting shares in GPSC, its parent company, subsidiary, associated company, major shareholder, or controlling person of GPSC, including the shares held by persons related to the independent director (this is 1% under the Capital Market Supervisory Board’s definition), and has also limited the consecutive terms of office for independent directors to no more than nine years (or three consecutive terms).

## 2) Nomination of Directors and the Top Executives

The Board has appointed the Nomination and Remuneration Committee to select and nominate directors. In this process, the committee takes into consideration recommendations from major shareholders and free float as well as Director’s Pools of reliable organizations, which provides a list of qualified persons in different fields, before reviewing the qualifications of the candidates in the following aspects:

- Must be qualified and have none of the prohibited characteristics under the laws and the Public Company Limited Act, and have no characteristics indicating a lack of appropriateness in respect of trustworthiness in managing business whose shares are held by public shareholders as specified by laws and in SEC’s notifications.

- Must not be over 70 years of age.
- Must be knowledgeable, capable and possess diverse expertise, skills and work experience in line with GPSC's business strategies and Director Skill Matrix.
- Must be capable of devoting sufficient time to GPSC, in good health, capable of regularly attending, contributing to and freely expressing opinions at Board meetings, and/or have good reputation, good record of work performance and ethics.
- Must command good leadership and be able to oversee performance of executives with efficiency and effectiveness.
- Must hold directorship in not more than four listed companies. The diversity aspect is intentionally incorporated into director nomination process across gender, race, nationality, religion, age, cultural background, or an other distinction.

Nomination of directors to replace those who complete their terms and retire at the upcoming AGM will be publicized on the Company website so that shareholders may propose qualified candidates for directorship in advance of the meeting. The Board considers their qualifications and propose qualified candidates at the AGM under GPSC's criteria.

## **Appointment of Directors**

### **1) Appointment of Directors to Replace Directors Retiring by Rotation**

The Nomination and Remuneration Committee shall select and nominate qualified candidates as defined by GPSC's nomination criteria to recommend to the Board for approval and to be subsequently proposed at the AGM for approval by a majority votes of the total votes of shareholders attending the meeting. The candidates that win the next highest votes are also to be appointed to match the number of directorships up for appointment at the time.

- A shareholder shall have one vote for each share held
- Shareholders shall vote for each individual candidate nominated for directorship
- In case the votes cast for candidates in descending order are tied, which would otherwise cause the number of directors to be exceeded, the chairman

of the meeting shall cast the decisive vote.

### **2) Appointment of Directors to Fill Vacancies Incurred by Reasons Other than Expiration of Term of Office**

The committee shall select and nominate qualified candidates as defined by GPSC's nomination criteria to recommend to the Board for appointment to fill the vacancies. At least three-quarters of the total votes of the remaining directors are required in the appointment of new directors, and the newly appointed directors shall be in office for as long as the remaining term of office of their predecessors.

## **Termination of Directorship**

1. At each AGM, one third of the directors must retire from office by rotation. If the number is not a multiple of three, the number nearest to one third of the total number of the directors must retire by rotation. A retiring director is eligible for re-election.
2. Apart from retirement upon expiry of the term of office, a director shall cease to hold office upon death, resignation or having prohibited characteristic under the Public Company Limited Act, the Securities and Exchange Act, resolution of the shareholders' meetings or court order.
3. Any director who wishes to resign shall submit a resignation letter to GPSC. The resignation letter shall be effective from the date the letter reaches GPSC. A director who resigns may inform the registrar of his or her resignation.
4. Shareholders' meetings may reach a resolution removing any director from office before the expiration of the term of office, by a vote of no less than three-quarters of the total voting shares from eligible shareholders attending the meeting, and the shares held by the voting shareholders shall, in aggregate, be no less than one-half of the number of shares held by the shareholders attending the meeting and eligible to vote.

## **Director Development**

It is GPSC's policy to encourage its directors to continuously develop themselves to enhance their efficiency in fulfilling their duties. The training sessions attended by GPSC's directors were as follows.

## Directors' Training with Thai Institute of Directors (IOD)

No.	Name – Last Name	DCP	DAP	RCP	ACP	AACP	RCL	RCC	Others
1.	Mr. Pailin Chuchottaworn	51/2004	24/2004						FND 14/2004 ACEP 4/2012
2.	Mr. Kurujit Nakornthap		64/2007		32/2010			12/2011	R-CF 2/2013 C-Conference 1/2014
3.	Maj. Gen. Chaowalek Chayansupap	217/2016				24/2016			
4.	Mrs. Nicha Hiranburana Thuvatham		164/2019						
5.	Mrs. Saowanee Kamolbutr	69/2006		23/2010		17/2014		8/2009	FGP 1/2010 BMD 9/2019 ITG 15/2020
6.	Mr. Somchai Meesen		161/2019						
7.	Mr. Pakorn Apaphant		72/2008		34/2011		20/2020		FSD 35/2018 HRP 27/2020
8.	Mr. Noppadol Pinsupa	146/2011							FSD 12/2011 Briefing on International Anti-Corruption International Cases and Practices
9.	Mr. Atikom Terbsiri	125/2009		41/2017			4/2016		
10.	Mr. Wuttikorn Stithit	158/2012							
11.	Mr. Kongkrapan Intarajang	119/2009		21/2009					
12.	Mr. Lavaron Sangsnit	205/2015							
13.	Mr. Wirat Uanarumit	8/2001			38/2012				DCPU 5/2015 ELP 7/2017
14.	Mr. Jeerawat Pattanasomsit	186/2014							ITG 16/2021 DRP 3/2021
15.	Mr. Worawat Pitayasiri	158/2012							

DCP : Director Certification Program

DAP : Director Accreditation Program

RCP : Role of the Chairman Program

ACP : Audit Committee Program

AACP : Advanced Audit Committee Program

RCL : Risk Management Program for Corporate Leaders

RCC : Role of Compensation Committee

FND : Finance for Non-Finance Director

ACEP : Anti-corruption for Executive Program

R-CF : R-CF-Chairman Forum

C-Conference : Collective Action Against Corruption Conference

FGP : Financial Institutions Governance Program

BMD : Boards that make a difference

ITG : IT Governance and Cyber Resilience Program

FSD : Financial Statements for Directors

HRP : How to Develop a Risk Management Plan

DCPU : Director Certification Program Update

ELP : Ethical Leadership Program

DRP : Director Refreshment Program

### Additional Directors' Training Record in 2021

In 2021 one director received additional training:

- Mr. Jeerawat Pattanasomsit attended the IT Governance and Cyber Resilience Program (ITG), Class 16/2021, and the Lessons Learnt from Financial Cases: How Board Should React, Director Refreshment Program (DRP 3/2021, organized by the Thai Institute of Directors (IOD).

### Orientation of New Directors

GPSC organized an orientation for new directors before their first Board meeting to inform them of its business policies and relevant information such as the nature of the business, business strategies, organizational structure, shareholding structure, operating results, good corporate governance, and code of business conduct, as well as laws and regulations beneficial to their role as directors.

In 2021 six directors attended the Orientation of New Directors of the Company:

- 1) Mr. Toasaporn Boonyapipat
- 2) Mr. Pakorn Apaphant
- 3) Mr. Pongpun Amornvivat
- 4) Mr. Lavaron Sangsnit
- 5) Mr. Jeerawat Pattanasomsit
- 6) Mr. Noppadol Pinsupa.

### Performance Assessment of the Board and the Sub-committees of 2021

#### Assessment Process and Criteria

In 2021 the Board assigned Kincentric (Thailand) Co., Ltd., an external independent assessor, to conduct performance assessment of the Board covering three assessment forms: the Board Assessment Form (entire Board), Individual Director Assessment Forms (self-assessment and cross-assessment), and Sub-committee Assessment Forms (entire committee) for the four sub-committees. All Board members underwent the assessment and in-depth interviews conducted by the assessor. The data acquired were analyzed for more accurate results of the assessment and further improvement.

Assessment scales: the percentages represent the assessment results as follows:

- Over 85% = Practice regularly/ Excellent/ Most Appropriate
- Over 75% = Practice most of the time/ Very Good / Very Appropriate
- Over 65% = Practice sometimes/ Good/ Appropriate
- Over 50% = Rarely practice/ Satisfactory
- Below 50% = Never practice/ Poor/ Need Improvement.

### Assessment Results of the Board and the Sub-committees:

1. The Board Assessment (entire Board) comprises seven topics:

- 1) Composition and qualification of the Board
- 2) Monitoring of the Company's strategies and performance
- 3) Results of the Company's performance and succession plan for senior executives
- 4) Monitoring of the management and risk management
- 5) Environment, society and good governance
- 6) Meeting of the Board, and
- 7) Self-development of the Board.

▶ **Assessment result: "Excellent" (91.39%)**

2. Individual Director Assessment (self-assessment and cross-assessment) comprises five topics:

- 1) Accountability - in decision-making and one's own actions on a reasonable ground
- 2) Responsibility - to perform duties to the full extent of ability and effectiveness
- 3) Uphold business ethics and the code of conduct in performing duties
- 4) Vision to create long-term value
- 5) Knowledge and capability.

▶ **Assessment result (self -assessment): "Excellent" (94.12%)**

▶ **Assessment result (cross-assessment): "Excellent" (94.65%)**



3. Sub-committee Assessment (entire committee) for the four Sub-committees comprises five topics:

- 1) Composition of the Sub-committees
- 2) Meeting of the Sub-committees
- 3) Satisfaction with the efficiency in performing duties of the Sub-committees
- 4) Roles, duties, and responsibilities of the committees
- 5) Relations with the internal auditor, external auditor and the management (Audit Committee only).

▶ **Assessment result (Audit Committee): “Excellent” (99.15%)**

▶ **Assessment result (Nomination and Remuneration Committee): “Excellent” (85.83%)**

▶ **Assessment result (Corporate Governance Committee): “Excellent” (97.27%)**

▶ **Assessment result (Risk Management Committee): “Excellent” (96.00)**

### **Rights of Minority Shareholders in Nominating Directors**

One or more shareholders holding at least 1% of the total GPSC's voting shares can propose meeting agenda item and candidates to be elected as directors from October 1, 2020 to December 31, 2020 (at least three months before the 2021 AGM). Consideration criteria and process were disclosed on the Company's website about the rights and equitable treatment of shareholders.

### **Nomination Criterion for the Chief Executive Officer (CEO)**

#### **Nomination and Appointment of the President & Chief Executive Officer**

If the position of President & Chief Executive Officer becomes vacant, the Nomination and Remuneration Committee is required to review candidates with qualifications under relevant criteria and laws as well as other appropriate qualifications, such as knowledge, competency, experience, leadership, and breadth of vision, and nominate such candidates to the Board Meeting to be approved for appointment.

### **Performance Assessment and Remuneration Policy of the President & Chief Executive Officer**

In 2021 the Board conducted a performance assessment of the President & Chief Executive Officer, with the criteria consisting of performance in relation to the KPIs, which included annual performance (short-term), and performance in pursuing the Company's strategies in the long term in achieving sustainable growth which required managerial ability and leadership to contribute to the Company's long-term sustainability. The Board, with a careful review by the Nomination and Remuneration Committee, conducted performance assessment and determined the remuneration of the President & Chief Executive Officer using such criteria in tandem with the self-assessment of the President & Chief Executive Officer.

### **Succession Plan and Management**

GPSC has devised a succession planning system for key positions in which a list of individuals with potential for executive positions is compiled before they are assessed for their capacity as executives on competency and personal attributes. Subsequently, the assessment results are utilized to create Individual Development Plans (IDPs) to prepare these individuals for succession either by taking office left vacant by retirement or filling new positions created with future expansion of the business. The progress in succession planning is constantly being reported to management. In 2021, 41 executives were assessed and provided with IDPs, and more executives will be assessed soon.

#### **8.1.2 Board Meeting Attendance**

Under the corporate governance code, the Board designates dates of meetings in advance each year to enable the directors to allocate their time for the meetings. The Board may call special meetings to consider urgent matters if required. Directors who have unexpected engagement or urgent matters and are unable to attend a meeting must submit a leave

of absence letter to the Chairman. Meeting notices and support documents are delivered to directors at least seven days before each meeting to give them adequate time to review the agenda before the meeting, except for urgent matters that require the calling of urgent meetings. If more information is needed, directors can request the Company Secretary to respond to queries in advance.

In addition, the Board values appropriate handling of conflicts of interest, and directors who have any conflict of interest with each agenda must not take part in the decision-making process of such agenda.

After the meeting, the minutes of the meeting are prepared for the Board's endorsement at the next meeting. The Chairman countersigns to endorse the minutes, which are systematically kept for further use.

In 2021 GPSC held a total of 14 Board Meetings: 12 ordinary meetings and 2 special ones, one Non-Executive Directors' Meeting, and one Independent Directors' Meeting. More important, GPSC has set up Protocols for Meetings of the Board to obtain a clear procedure, embracing meeting management processes to ensure their efficiency.



## Meeting Attendance of GPSC Directors in 2021

Name - Last Name	Position	Board	Board (Special Meeting)	Audit Committee (AC)	Remuneration and Nomination Committee (NRC)	Corporate Governance Committee (CGC)	Risk Management Committee (RMC)	Risk Management Committee (RMC) (Special)	Non- Executive Directors	Independent Director	Independent Director
		12 Meetings	2 Meetings	7 Meetings	5 Meetings	4 Meetings	12 Meetings	1 Meetings	1 Meetings	1 Meetings	1 Meetings
1. Mr. Pailin Chuchottaworn <sup>(1)</sup>	Independent Director / Chairman of the Board of Directors	12/12	2/2	-	-	-	-	-	1/1	1/1	1/1
2. Mr. Kurujit Nakomthap	Independent Director / Chairman of the Corporate Governance Committee / Member of the Audit Committee	12/12	2/2	7/7	-	4/4	-	-	1/1	1/1	1/1
3. Maj. Gen. Chaowalek Chayansupap <sup>(2)</sup>	Independent Director / Chairman of the Remuneration and Nomination Committee / Member of the Audit Committee	12/12	2/2	7/7	2/2	-	-	-	1/1	1/1	1/1
4. Mrs. Nicha Hiranburana Thuvatham <sup>(3)</sup>	Independent Director / Member of the Corporate Governance Committee	12/12	2/2	-	-	4/4	-	-	1/1	1/1	1/1
5. Mrs. Saowanee Kamolbutr	Independent Director / Chairman of the Audit Committee	12/12	2/2	7/7	-	-	-	-	1/1	1/1	1/1
6. Mr. Somchai Meesen	Independent Director / Member of the Corporate Governance Committee	12/12	2/2	-	-	4/4	-	-	1/1	1/1	1/1
7. Mr. Pakorn Apaphant <sup>(4)</sup>	Independent Director / Member of the Risk Management Committee	9/9	2/2	-	-	-	8/8	1/1	1/1	1/1	N/A

## Meeting Attendance of GPSC Directors in 2021

Name - Last Name	Position	Board	Board (Special Meeting)	Audit Committee (AC)	Remuneration and Nomination Committee (NRC)	Corporate Governance Committee (CGC)	Risk Management Committee (RMC)	Risk Management Committee (RMC) (Special)	Non- Executive Directors	Independent Director	Independent Director
		12 Meetings	2 Meetings	7 Meetings	5 Meetings	4 Meetings	12 Meetings	1 Meetings	1 Meetings	1 Meetings	1 Meetings
8. Mr. Noppadol Pinsupa <sup>(6)</sup>	Director/ Chairman of the Risk Management Committee/ Member of the Remuneration and Nomination Committee	2/2	N/A	-	-	-	2/2	1/1	N/A	-	N/A
9. Mr. Atikom Tebsiri	Director/ Member of the Remuneration and Nomination Committee	12/12	1/2 <sup>(6)</sup>	-	5/5	-	-	-	1/1	-	1/1
10. Mr. Wuttikom Sithit	Director	12/12	2/2	-	-	-	-	-	1/1	-	1/1
11. Mr. Kongkrapan Intarajang	Director/ Member of the Risk Management Committee	12/12	2/2	-	-	-	12/12	1/1	1/1	-	1/1
12. Mr. Lavaron Sangsrit <sup>(7)</sup>	Director/ Member of the Corporate Governance Committee	4/4	N/A	-	-	1/1	-	-	N/A	-	N/A
13. Mr. Wirat Unarumit	Director/ Member of the Risk Management Committee	12/12	2/2	-	-	-	12/12	1/1	1/1	-	1/1
14. Mr. Jeerawat Pattanasomrit <sup>(8)</sup>	Director	2/2	N/A	-	-	-	-	-	N/A	-	N/A
15. Mr. Worawat Pitayasiri <sup>(9)</sup>	Director/ Secretary to the Board/ Member of the Risk Management Committee/ President & Chief Executive Officer	12/12	2/2	-	-	-	11/11	1/1	-	-	1/1



## Meeting Attendance of GPSC Directors in 2021

Name – Last Name	Position	Board	Board (Special Meeting)	Audit Committee (AC)	Remuneration and Nomination Committee (NRC)	Corporate Governance Committee (CGC)	Risk Management Committee (RMC)	Risk Management Committee (RMC) (Special)	Non- Executive Directors	Independent Director	Independent Director
		12 Meetings	2 Meetings	7 Meetings	5 Meetings	4 Meetings	12 Meetings	1 Meetings	1 Meetings	1 Meetings	1 Meetings
Directors who retired/ resigned In 2021											
16. Mr. Boonchai Chunhawikit <sup>(10)</sup>	Director	N/A	N/A	-	-	-	-	-	N/A	-	N/A
17. Mr. Payungsak Chartsutipol <sup>(11)</sup>	Independent Director/ Chairman of the Risk Management Committee/ Chairman of the Remuneration and Nomination Committee	3/3	N/A	-	2/2	-	3/3	N/A	N/A	N/A	1/1
18. Mr. Bandhit Thamprajamchit <sup>(12)</sup>	Director/ Member of the Corporate Governance Committee	3/3	N/A	-	-	1/1	-	-	N/A	-	1/1
19. Mr. Toasaporn Boonyapipat <sup>(13)</sup>	Director	7/7	2/2	-	-	-	-	-	N/A	-	1/1
20. Mr. Wittawat Svasti-Xuto <sup>(14)</sup>	Director/ Chairman of the Risk Management Committee/ Member of the Remuneration and Nomination Committee	9/9	2/2	-	4/4	-	9/9	N/A	1/1	-	1/1
21. Mr. Pongpun Amornvivat <sup>(15)</sup>	Director/ Member of the Corporate Governance Committee	6/6	2/2	-	-	2/2	-	-	1/1	-	N/A

Remarks:

N/A: Not attended either the Director resigned or was appointed during the year 2021.

- <sup>(1)</sup> Mr. Pailin Chuchottaworn, at the 2021 Annual General Meeting of Shareholders (AGM), convened on April 2, 2021, was re- appointed as an independent director, with effect from April 2, 2021, and, at the Board Meeting No. 4/2021 of April 28, 2021, was appointed as Chairman of the Board of Directors, with effect from April 2, 2021.
- <sup>(2)</sup> Maj. Gen. Chaowalek Chayansupap, at the Board Meeting No. 4/2021 of April 28, 2021, was appointed as Chairman of the Nomination and Remuneration Committee, with effect from April 28, 2021.
- <sup>(3)</sup> Mrs. Nicha Hiranburana Thuvatham, at the 2021 AGM of April 2, 2021, was re - appointed as an independent director, with effect from April 2, 2021, and, at the Board Meeting No. 4/2021 of April 28, 2021, was re-appointed as a member of the Corporate Governance Committee, with effect from April 28, 2021.
- <sup>(4)</sup> Mr. Pakorn Apaphant, at the 2021 AGM of April 2, 2021, was appointed as an independent director, replacing Mr. Payungsak Chartsutipol who has completed his term, with effect from April 2, 2021, and, at the Board Meeting No. 4/2021 of April 28, 2021, was appointed as a member of the Risk Management Committee, with effect from April 28, 2021.
- <sup>(5)</sup> Mr. Noppadol Pinsupa, at the Board Meeting No. 12/2021 of October 20, 2021, was appointed as a director, replacing Mr. Wittawat Svasti-Xuto who resigned, and as a member of the Nomination and Remuneration Committee and Chairman of the Risk Management Committee, all with effect from November 1, 2021.
- <sup>(6)</sup> Mr. Atikom Terbsiri was not able to attend the Board Meeting No. 7/2021 of May 29, 2021, due to prior engagement.
- <sup>(7)</sup> Mr. Lavaron Sangsnit, at the Board Meeting No. 10/2021 of August 25, 2021, was appointed as a director, replacing Mr. Todsaporn Boonyapipat who resigned, with effect from September 1, 2021, and at the Board Meeting No. 12/2021 of October 20, 2021, was appointed as a member of the Corporate Governance Committee, with effect from October 21, 2021.
- <sup>(8)</sup> Mr. Jeerawat Pattanasomsit, at the Board Meeting No. 12/2021 of October 20, 2021, was appointed as a director, replacing Mr. Pongpun Amornvivat who resigned, with effect from November 1, 2021.
- <sup>(9)</sup> Mr. Worawat Pitayasiri, at the 2021 AGM of April 2, 2021, was re-appointed as a director, with effect from April 2, 2021, and, at the Board Meeting No. 4/2021 of April 28, 2021, was re- appointed as a member of the Risk Management Committee, with effect from April 28, 2021.
- <sup>(10)</sup> Mr. Boonchai Chunhawiksit resigned as a director with effect from January 1, 2021
- <sup>(11)</sup> Mr. Payungsak Chartsutipol retired at the 2021 AGM on April 2, 2021.
- <sup>(12)</sup> Mr. Bandhit Thamprajamchit retired at the 2021 AGM on April 2, 2021.
- <sup>(13)</sup> Mr. Toasaporn Boonyapipat resigned as a director with effect from August 1, 2021
- <sup>(14)</sup> Mr. Wittawat Svasti-Xuto resigned as a director, Chairman of the Risk Manegement Committee, and member of the Remuneration and Nomination Committee, with effect from October 1, 2021.
- <sup>(15)</sup> Mr. Pongpun Amornvivat resigned as a director, and member of the Corporate Governance Committee, with effect from October 1, 2021



## Director Remuneration

In 2021 the Board, at the recommendation of the Nomination and Remuneration Committee, considered the remuneration of the Board and the Sub-committees, taking into account various factors, including the Company's operating results, dividend payouts to shareholders, the Board's performance, responsibility of the Board and the Sub-committees, and comparison with other listed companies within the same industry and with a similar size. The following remuneration scheme for the Board was proposed to and subsequently approved at the 2021 AGM.

### 1. Retainer fee for Directors

#### 1.1 Retainer fee

- Chairman 65,000 THB/ month
- Directors 45,000 THB/ month

#### 1.2 Meeting allowance

(only for those in attendance)

- Chairman 25,000 THB/ meeting; for no more than 15 meetings per year
- Directors 20,000 THB/ meeting; for no more than 15 meetings per year

### 2. Meeting allowance for Sub-committees

Meeting allowance for Sub-committees, namely Audit Committee, Nomination and Remuneration Committee, Corporate Governance Committee, and Risk Management Committee (only for those in attendance):

- Chairman 37,500 THB/ meeting; for no more than 15 meetings per year
- Directors 30,000 THB/ meeting; for no more than 15 meetings per year

### 3. Annual Bonus

The 2021 AGM resolved to approve annual bonuses for the directors, including those who completed their terms and/or retired during 2020, at the rate of 0.5 percent of the 2020 net profit and up to THB 40 million. The bonus portion is calculated based on the term of each director. The Chairman of the Board shall receive an amount which is 25 percent higher than other directors.

### 4. Other Remuneration

-None-



# Remuneration of GPSC's Directors in 2021

(Unit: Baht)

Name - Last Name	Position	Board		Board		Audit Committee		Remuneration and Nomination Committee		Corporate Governance Committee		Risk Management Committee		Total
		Retention Fee	Meeting Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance	
1. Mr. Pailin Chuchottaworn <sup>(2)</sup>	Independent Director/ Chairman	780,000.00	350,000.00	-	-	-	-	-	-	-	-	-	-	4,387,341.02
2. Mr. Kurujit Nakomthap	Independent Director/ Chairman of the Corporate Governance Committee/ Member of the Audit Committee	540,000.00	280,000.00	180,000.00	-	150,000.00	-	-	-	-	-	-	-	3,755,872.81
3. Maj. Gen. Chaowalek Chayansupap <sup>(3)</sup>	Independent Director/ Chairman of the Remuneration and Nomination Committee/ Member of the Audit Committee	540,000.00	280,000.00	180,000.00	75,000.00	-	-	-	-	-	-	-	-	3,680,872.81
4. Mrs. Nicha Hiranburana Thuvatham <sup>(4)</sup>	Independent Director/ Member of the Corporate Governance Committee	540,000.00	280,000.00	-	-	120,000.00	-	-	-	-	-	-	-	3,545,872.81
5. Mrs. Saowanee Kamolbutr	Independent Director/ Chairman of the Audit Committee	540,000.00	280,000.00	225,000.00	-	-	-	-	-	-	-	-	-	2,551,408.67
6. Mr. Somchai Meesen	Independent Director/ Member of the Corporate Governance Committee	540,000.00	280,000.00	-	-	120,000.00	-	-	-	-	-	-	-	2,446,408.67
7. Mr. Pakorn Apaphant <sup>(5)</sup>	Independent Director/ Member of the Risk Management Committee	403,500.00	220,000.00	-	-	-	-	-	-	-	-	270,000.00	-	893,500.00
8. Mr. Noppadol Pinsupa <sup>(6)</sup>	Director/ Chairman of the Risk Management Committee/ Member of the Remuneration and Nomination Committee	90,000.00	40,000.00	-	-	-	-	-	-	-	-	112,500.00	-	242,500.00
9. Mr. Atikom Terbsiri	Director/ Member of the Remuneration and Nomination Committee	540,000.00	260,000.00	-	150,000.00	-	-	-	-	-	-	-	-	3,555,872.81
10. Mr. Wuttikorn Stithit	Director	540,000.00	280,000.00	-	-	-	-	-	-	-	-	-	-	3,425,872.81
11. Mr. Kongkrapan Intarajang	Director/ Member of the Risk Management Committee	540,000.00	280,000.00	-	-	-	-	-	-	-	-	390,000.00	-	3,815,872.81
12. Mr. Lavaron Sangsni <sup>(7)</sup>	Director/ Member of the Corporate Governance Committee	180,000.00	80,000.00	-	-	30,000.00	-	-	-	-	-	-	-	290,000.00



## Remuneration of GPSC's Directors in 2021

(Unit: Baht)

Name – Last Name	Position	Board		Audit Committee Meeting Allowance	Remuneration and Nomination Committee Meeting Allowance	Corporate Governance Committee Meeting Allowance	Risk Management Committee Meeting Allowance	Bonus for 2020 <sup>(1)</sup>	Total
		Retention Fee	Meeting Allowance						
13. Mr. Wirat Unanarumit	Director/ Member of the Risk Management Committee	540,000.00	280,000.00	-	-	-	390,000.00	2,605,872.81	3,815,872.81
14. Mr. Jeerawat Pattanasomsi <sup>(8)</sup>	Director	90,000.00	40,000.00	-	-	-	-	-	130,000.00
15. Mr. Worawat Pitayasiri <sup>(9)</sup>	Director/ Secretary to the Board/ Member of the Risk Management Committee/ President & Chief Executive Officer	540,000.00	280,000.00	-	-	-	360,000.00	221,320.70	1,401,320.70
Directors retired/ resigned in 2021									
16. Mr. Boonchai Chunhawiksit <sup>(10)</sup>	Director	-	-	-	-	-	-	2,605,872.81	2,605,872.81
17. Mr. Payungsak Chartsutpol <sup>(11)</sup>	Independent Director/ Chairman of the Risk Management Committee/ Chairman of the Remuneration and Nomination Committee	136,500.00	60,000.00	-	75,000.00	-	112,500.00	2,605,872.81	2,989,872.81
18. Mr. Bandhit Thamprajamchit <sup>(12)</sup>	Director/ Member of the Corporate Governance Committee	136,500.00	60,000.00	-	-	30,000.00	-	2,605,872.81	2,832,372.81
19. Mr. Toasaporn Boonyapipat <sup>(13)</sup>	Director	315,000.00	180,000.00	-	-	-	-	-	495,000.00
20. Mr. Wittawat Svasti-Xuto <sup>(14)</sup>	Director/ Chairman of the Risk Management Committee/ Member of the Remuneration and Nomination Committee	405,000.00	220,000.00	-	120,000.00	-	307,500.00	2,605,872.81	3,658,372.81
21. Mr. Pongpun Amornviva <sup>(15)</sup>	Director/ Member of the Corporate Governance Committee	268,500.00	160,000.00	-	-	60,000.00	-	-	488,500.00
Directors retired/ resigned in 2020									
22. Mr. Chawalit Tippawanich <sup>(16)</sup>	Director/ Secretary to the Board/ Member of the Risk Management Committee/ President & Chief Executive Officer	-	20,000.00	-	-	-	30,000.00	2,394,552.11	2,434,552.11
Total		8,205,000.00	4,210,000.00	585,000.00	420,000.00	510,000.00	1,972,500.00	37,540,632.12	53,443,132.12

Remarks:

- <sup>(1)</sup> Bonus for 2020 performance approved at the 2021 AGM was paid to directors on April 23, 2021.
- <sup>(2)</sup> Mr. Pailin Chuchottaworn, at the 2021 Annual General Meeting of Shareholders (AGM) of April 2, 2021, was re - appointed as an independent director, with effect from April 2, 2021, and, at the Board Meeting No. 4/2021 of April 28, 2021, was appointed as Chairman of the Board of Directors, with effect from April 2, 2021.
- <sup>(3)</sup> Maj. Gen. Chaowalek Chayansupap, at the Board Meeting No. 4/2021 of April 28, 2021, was appointed as Chairman of the Nomination and Remuneration Committee, with effect from April 28, 2021.
- <sup>(4)</sup> Mrs. Nicha Hiranburana Thuvatham, at the 2021 AGM of April 2, 2021, was re - appointed as an independent director, with effect from April 2, 2021, and, at the Board Meeting No. 4/2021 of April 28, 2021, was re-appointed as a member of the Corporate Governance Committee, with effect from April 28, 2021.
- <sup>(5)</sup> Mr. Pakorn Apaphant, at the 2021 AGM of April 2, 2021, was appointed as an independent director, replacing Mr. Payungsak Chartsutipol who has completed his term, with effect from April 2, 2021, and, at the Board Meeting No. 4/2021 of April 28, 2021, was appointed as a member of the Risk Management Committee, with effect from April 28, 2021.
- <sup>(6)</sup> Mr. Noppadol Pinsupa, at the Board Meeting No. 12/2021 of October 20, 2021, was appointed as a director, replacing Mr. Wittawat Svasti-Xuto who resigned, and as a member of the Nomination and Remuneration Committee and Chairman of the Risk Management Committee, all with effect from November 1, 2021.
- <sup>(7)</sup> Mr. Lavaron Sangsnit, at the Board Meeting No. 10/2021 of August 25, 2021, was appointed as a director, replacing Mr. Todsaporn Boonyapipat who resigned, with effect from September 1, 2021, and at the Board Meeting No. 12/2021 of October 20, 2021, was appointed as a member of the Corporate Governance Committee, with effect from October 21, 2021.
- <sup>(8)</sup> Mr. Jeerawat Pattanasomsit, at the Board Meeting No. 12/2021 of October 20, 2021, was appointed as a director, replacing Mr. Pongpun Amornvivat who resigned, with effect from November 1, 2021.
- <sup>(9)</sup> Mr. Worawat Pitayasiri, at the 2021 AGM of April 2, 2021, was re-appointed as a director, with effect from April 2, 2021, and, at the Board Meeting No. 4/2021 of April 28, 2021, was re- appointed as a member of the Risk Management Committee, with effect from April 28, 2021.
- <sup>(10)</sup> Mr. Boonchai Chunhawiksit resigned as a director with effect from January 1, 2021.
- <sup>(11)</sup> Mr. Payungsak Chartsutipol retired at the 2021 AGM of April 2, 2021.
- <sup>(12)</sup> Mr. Bandhit Thamprajamchit retired at the 2021 AGM of April 2, 2021.
- <sup>(13)</sup> Mr. Toasaporn Boonyapipat resigned as a director with effect from August 1, 2021
- <sup>(14)</sup> Mr. Wittawat Svasti-Xuto resigned as a director, Chairman of the Risk Management Committee, and member of the Remuneration and Nomination Committee, with effect from October 1, 2021.
- <sup>(15)</sup> Mr. Pongpun Amornvivat resigned as a director, and member of the Corporate Governance Committee, with effect from October 1, 2021.
- <sup>(16)</sup> Mr. Chawalit Tippawanich resigned as a director, Secretary to the Board, member of the Risk Management Committee and President & CEO, with effect from December 1, 2020.



Remuneration of GPSC's Independent Directors Seconded to GPSC's Parent Company, Subsidiaries, or Sister Companies, as of December 31, 2021.

(Unit: Baht)

Name - Surname	Company	Position	Secondment Period in 2021	Total Remuneration (Baht)
1. Mr. Pailin Chuchottaworn	PTT Public Company Limited <sup>(1)</sup>	Independent Director/ Member of the Risk Management Committee	January 1, 2021 - April 30, 2021	1,858,076.29
	Thai Oil Public Company Limited <sup>(2)</sup>	Independent Director	May 1, 2021 - December 31, 2021	880,000.00
Total				2,738,076.29

Remarks:

<sup>(1)</sup> Mr. Pailin Chuchottaworn resigned as an Independent Director and Member of the Risk Management Committee of PTT Public Company Limited with effect from May 1, 2021.

<sup>(2)</sup> Mr. Pailin Chuchottaworn was appointed as an independent director of Thai Oil Public Company Limited with effect from May 1, 2021.

### 8.1.3 Governance of Affiliates

GPSC, valuing policy and operations of its affiliates (subsidiaries, associates and related companies) and in ensuring their efficient operations and sustainable growth, has established a "GPSC Group Way of Conduct" as an administrative mechanism for GPSC Group. This is a collection of guidelines and processes in GPSC and GPSC Group to align all practices and create a standard for the connection and coordination in business of all GPSC companies to attain investment targets.

The GPSC Group Way of Conduct comprises five governance practices:

#### 1. Key Strategic Positions

GPSC has a long-standing practice of seconding executives and employee to key strategic positions in its affiliates under agreed commitment or business conditions. It has defined a "Criteria for Recruitment and Appointment of Directors of Invested Companies" as criteria for its selection of directors and executives of subsidiary companies and associates. The number of directors in subsidiary companies and associates depends on GPSC's equity or as agreed.

The responsibility of GPSC's representatives is to provide due diligence for subsidiaries, associates, and related companies and ensure strict adherence to operational and management requirements, as well as best practices in line with the policy framework and business strategic directions of the Company, including

policies on corporate governance, legal compliance, accounting and finance, quality, security, safety, health, and environment (QSHE), human resource management as well as other key policies.

In addition, GPSC has defined clear operational indicators to ensure that the operation of the management of GPSC Group is effectively and efficiently driven.

#### 2. Rules and Regulations

The Company has a requirement that rules, regulations, conditions, policies as well as orders are part of the governance principles to generate linkage and coordination under GPSC's governance policies and successful application of these policies. The various rules, regulations, conditions and policies as well as orders are what GPSC representatives will be using in their service as directors, top executives, executives or operators in affiliates and are required to follow and establish as the same standards in GPSC Group.

#### 3. Reporting Line and Performance Management

GPSC requires that a performance report and operational outcomes of GPSC Group management be submitted to GPSC's management and/or Company's directors under the following guidelines:

- Monitor and provide recommendations for all operations of each subsidiary, associate, and related company to ensure compliance with various contracts and applicable rules and regulations.
- Constantly follow up on performance outcomes of each subsidiary, associate, and related company

as well as providing recommendations to ensure that each performance is achieved on target and that each can manage obstacles in a timely and appropriate manner.

- Consider, monitor and provide recommendations for each subsidiary, associate, and related company to feature appropriate disclosure of information and internal control as well as a system to effectively and efficiently sustain business operations.
- Consider, monitor and provide recommendations for regular review and improvement of key policies and plans of each subsidiary, associate, and related company to ensure updated and appropriate business operations.

#### **4. Multi-level Governance**

To unify the management of GPSC Group and ensure that procedures are clear and connected, the Company has designed a multi-level governance system by direct knowledge transfer of the GPSC Group Way of Conduct to a daughter company with the authority to conduct due diligence through GPSC executives serving as the top executive of a given affiliate. This company must establish a group management system of its own to cascade the GPSC Group management approach to each next company they hold shares in. The transfer must be made to a company with the capacity of governance and must comprise governance principles and a strategic alignment policy to provide a unified standard throughout GPSC Group.

#### **5. Management Committee**

GSPC has appointed a GSPC Group Management Committee to help formulate systematic and standardized guidelines, operational practices, and work procedures as a model for each affiliate in GSPC Group to practice and apply in their operations and in driving the GSPC Group Management toward efficiency and effectiveness.

The Company must also define plans and implement them to ensure that each subsidiary, associate, and related company disclose its performance data and financial status, including other data that must be made available to regulators, relevant state organizations and outside investors, including the public, accurately, completely and credibly. If it is

necessary for the affiliate to have related transactions or engage in potential conflicts of interest, it must monitor the affiliate's action to make sure that the transaction is made with transparency and fairness. The Company must strictly comply with the criteria of related transactions as well as acquisition and sale of assets as stated by regulators.

#### **8.1.4 Monitoring of Compliance with Corporate Governance Policy and Guidelines**

##### **1) Prevention of Conflicts of Interest**

GPSC's directors, executives, and employees must produce disclosure reports that may result in possible conflicts of interest of themselves or their related persons with the Company yearly and every time a conflict is encountered (incident report) by using the designated "GPSC Conflict of Interest Disclosure Form" and notify their supervisor to sign his/her name for acknowledgment and then send the "GPSC Conflict of Interest Disclosure Form" to Compliance.

Compliance will then compile the information and summarize the connected transactions of potential conflicts of interest to the Management Committee for acknowledgment and management to prevent such actions by related parties, and report to the Corporate Governance Committee for acknowledgment yearly.

##### **2) Supervision of the Use of Inside Information for Unlawful Gain**

GPSC has developed a policy on the protection against abuse of inside information in compliance with laws and corporate governance principles, which has been disseminated among GPSC's directors, executives, and employees. The policy and measures against abuse of inside information for unlawful gain are described as follows:

##### **Policy on the Protection against Abuse of Inside Information**

- 1) GPSC's directors and executives have been informed of their duty to submit reports of change in securities holding of themselves, their spouses, and their minor children to the Securities and Exchange Commission (SEC), a duty as stipulated in the Securities and Exchange Act B.E. 2535 (1992) (including its amendment).



- 2) GPSC's directors and executives must report changes in their holding of GPSC's securities at Board meetings.
- 3) GPSC's directors and executives, including executive officers in accounting or finance at or above the vice president level and employees involved in operations that give them knowledge of inside information material to changes in securities prices, must suspend their trading of GPSC's securities until the public disclosure of financial statements or positions. These individuals will be informed of their suspension in written form at least 30 days before the public disclosure and should wait at least 24 hours after the disclosure before making any trade. They are also prohibited from disclosing such material information to other people.
- 4) GPSC's directors, executives, and employees are prohibited from exploiting inside information that may affect changes in GPSC's securities prices that has not been publicly disclosed but is accessible to them because of their offices or positions to purchase or sell, offer to purchase or sell, or invite any other person to purchase, sell or offer to purchase or sell GPSC's stocks or securities (if any or directly or indirectly) in such a way as to harm GPSC, whether or not such an act is done for their own or another person's benefit or to disclose such information so that they may receive consideration from the person who engages in such acts.
- 5) GPSC's directors, executives, and employees, both current and former, are prohibited from disclosing inside information and classified information as well as confidentiality of GPSC's suppliers accessible to them because of their duties to an external person even if such disclosure may not harm GPSC and its suppliers.
- 6) GPSC's directors, executives, and employees, both current and former, must safeguard GPSC's confidentiality and/or inside information and must use inside information solely for its business operations. In addition, GPSC's directors, executives, and employees are prohibited from exploiting GPSC's confidentiality and/or inside information to benefit any other company in which they are shareholders, directors, executives, and employees.
- 7) Disciplinary actions shall be enforced for any violation of the use of inside information for personal gain, ranging from warning notifications, payment cuts, temporary suspension without pay, to termination of employment. The severity of the disciplinary action is based on the intention and the gravity of the violation.

#### **Protection against Abuse of Inside Information in Action**

- 1) New directors and executives of GPSC are informed and made aware of their duty to report changes in securities holdings of themselves, their spouses, and their minor children within three work days after such changes via SEC's online system. In addition, current directors and executives are also reminded regularly via notices and emails to submit reports in changes in securities holdings (if applicable).
- 2) GPSC's directors, executives, and relevant employees are notified in writing of black-out periods designated by GPSC before public disclosure of information material to changes in securities prices.
- 3) The securities holdings of GPSC's directors and executives are disclosed in annual reports and on GPSC's website. In addition, the Board tracks changes in securities holdings of GPSC's directors and executives monthly through reports at Board meetings. In 2021 no directors or executives were found to have purchased or sold GPSC's securities during blackout periods.

## Directors and Executives' Shareholding in GPSC in 2021 (including Spouses and Minors)

Name – Last Name		Number of Shares		Increase/ (Decrease)	Remark
		Dec. 31, 2020	Dec. 31, 2021		
Director					
1.	Mr. Pailin Chuchottaworn	-	-	-	-
2.	Mr. Kurujit Nakornthap	57,029	57,029	-	-
3.	Maj. Gen. Chaowalek Chayansupap	-	-	-	-
4.	Mrs. Nicha Hiranburana Thuvatham	-	-	-	-
5.	Mrs. Saowanee Kamolbutr	-	-	-	-
6.	Mr. Somchai Meesen	-	-	-	-
7.	Mr. Pakorn Apaphant	-	-	-	-
8.	Mr. Noppadol Pinsupa	137,300	137,300	-	-
9.	Mr. Atikom Terbsiri	137,300	137,300	-	-
10.	Mr. Wuttikorn Stithit	-	-	-	-
	Spouse	10,000	10,000	-	-
11.	Mr. Kongkrapan Intarajang	-	-	-	-
12.	Mr. Lavaron Sangsnit	-	-	-	-
13.	Mr. Wirat Uanarumit	-	-	-	-
14.	Mr. Jeerawat Pattanasomsit	-	-	-	-
15.	Mr. Worawat Pitayasiri	-	-	-	-
Executives (under SEC's definition)					
1.	Mr. Worawat Pitayasiri	-	-	-	-
2.	Mr. Sirimet Leepagorn	-	-	-	-
3.	Ms. Rosaya Teinwan	28,228	28,228	-	-
4.	Mr. Thitipong Jurapornsiridee	-	-	-	-
	Spouse	11,500	11,500		
5.	Mrs. Sriprapha Sumruatruamphol	-	-	-	-
6.	Mr. Smornchai Khoonrak	73,500	73,500	-	-
7.	Mr. Arjan van den Broek	-	-	-	-
8.	Mr. Kulapat Permbhusri	-	-	-	-
9.	Mr. Wisit Srinuntawong	-	-	-	-

Remarks:

- Mr. Wuttikorn Stithit was the only director with indirect shareholding through his spouse. Others did not.
- As of December 31, 2021, the total GPSC shares held directly and indirectly by directors and executives equaled 0.0121157 percent.

### 3) Promotion of Corporate Governance, Business Ethics, and Anti-Corruption Efforts

- GPSC prescribed suitable internal control measures against bribing domestic and foreign government officers and international organization officers according to the announcement of the National Anti-Corruption Commission.
- GPSC reviewed compliance with the code of business ethics to ensure that GPSC fully complied with such code. The assessment showed that GPSC complied with all the topics of the code.
- Prioritizing its personnel, which is its vital asset and the foundation of good corporate governance, GPSC organizes training and communicates with them on a regular basis, including new employee orientations, annual training through the e-learning system, as well as awareness building activities and media. In 2021, emphasis was placed on management of conflict of interest, confidentiality, and the no-gift policy.
- GPSC held training sessions and issued communications to other stakeholders on its anti-corruption policy, no-gift policy, and the whistleblowing policy, as detailed below:
  - Communication to suppliers: On November 4, 2021, GPSC communicated with its suppliers about compliance with the Personal Data Protection Act B.E. 2019, the whistleblowing policy, and code of conduct on the offering of gifts, assets, and other benefits at GPSC Group Supplier Day 2021, placing emphasis on the roles of duties of the personnel of GPSC and its suppliers in working together with good governance.
  - Communication to companies in GPSC Group/subsidiaries: On December 22, 2021, GPSC, in collaboration with PTT Group companies, organized PTT Group CG Day 2021 under the concept “the Power of Business Integrity” for employees across PTT Group. Relevant government agencies and the suppliers of each subsidiary were invited to witness PTT Group’s commitment to corporate governance. The event was held online as part of the new normal practice.
- GPSC developed an online conflict of interest reporting system for systematic data collection. All directors, executives, and employees reported their conflict of interest, which was then reported to the supervisor of each agency for acknowledgment and the management of conflict of interest of the personnel if there is any.
- GPSC has been a certified member of the Thai Private Sector Collective Action Against Corruption (CAC) since June 7, 2018 and was successfully recertified on December 21, 2020 (the membership period lasts three years). GPSC strives to consistently uphold its anti-corruption standards.
- GPSC underwent corporate governance assessments by domestic and international external agencies to obtain corporate governance certification:
  - Corporate Governance Report of Thai Listed Companies (CGR): GPSC was assessed against the CGR Checklist and received the rating of “Excellent” for the sixth consecutive year from the Thai Institute of Directors (IOD).
  - ASEAN CG Scorecard: In 2021, GPSC submitted data to IOD as a representative of Thailand in the joint development and improvement of the ASEAN CG Scorecard.
- GPSC announced its no-gift policy for the New Year or other occasions along with a related message from the President and Chief Executive Officer to all stakeholders, including its business partners, customers, the Company’s subsidiaries, and external parties on its website [www.gpscgroup.com](http://www.gpscgroup.com).
- GPSC supported compliance with corporate governance practices among directors and executives through the following:
  - Orientations for new executives
  - Director training
  - Non-executive directors’ meetings
  - Meetings of the independent directors
  - Report of compliance with SEC’s CG Code
  - Prevention of the use of inside information (directors and executives were reminded to submit reports on changes in securities and

derivatives holding (Form 59-2) and of black-out periods set by GPSC prior to disclosure of material information that might impact the Company's stock prices so as to allow the information to be publicly disclosed first)

- Directors and executives were reminded to submit their reports of conflicts of interest in compliance with the policy of the Board of Directors.
- Review of the charters of the Board and the sub-committees. No changes were made in 2021.
- Independent assessment of the Board of Directors
- Protection of stakeholder rights (minority shareholders)
  - AGM was held in accordance with good corporate governance principles.
  - Shareholders were invited to propose agenda items and nominate director candidates at the AGM.
- Raising awareness of the public through disclosure of information
  - Preparation of data on GPSC's CG compliance and internal control for disclosure in the Company's Annual Report, Form 56-1, and Sustainability Report
  - Preparation of GPSC's performance data on CG and compliance with evaluation by an external auditor to improve Dow Jones Sustainability Indices (DJSI) indicators

#### **4) Compliance with the Laws and the Organization's Regulations**

To ensure that GPSC's business conduct are in strict compliance with laws, rules, regulations, requirements, orders, and notifications of both internal and external organizations for smooth and legal business operations, GPSC has announced the implementation of compliance policy and relevant procedures to ensure suitable conduct among employees. In 2021, GPSC undertook the following activities under such policy and procedures:

- Keeping abreast with new laws impacting the business and prescribing protocols in compliance with such laws

- Developing the Compliance Monitoring System (CMS) to ensure full compliance with laws across all relevant processes
- Reviewing license renewal to ensure completeness and review compliance of relevant agencies
- Encouraging compliance with laws and GPSC's regulations among personnel by organizing compliance training and issuing communications through various channels, such as email, on a regular basis
- To ensure preparedness for compliance with the Personal Data Protection Act
  - Putting in place IT systems in compliance with the Personal Data Protection Act
  - Organizing training sessions to foster an understanding of the Personal Data Protection Act among executives, employees, relevant agencies, and subsidiaries
  - Ensuring operational preparedness for compliance with the Personal Data Protection Act
  - Announcing a privacy policy (revised), dated May 5, 2021
  - Announcing guidelines for personal data management, dated May 31, 2021

#### **5) Guidelines for Information Disclosure on Anti-Fraud and Anti-corruption Measures**

In 2021 GPSC prevented involvement in fraud and corruption of business operations of the Company and its Subsidiaries through the following measures:

- GPSC announced its anti-fraud and anti-corruption measures through its No-Gift Policy (on accepting/giving gifts, receptions, and other benefits), whistleblowing and a whistleblower protection policy approved by the Board to ensure implementation by GPSC's employees, as well as raising their awareness and training held to foster their understanding. Upon any violation, the Company would exercise the most severe penalty of employment termination and may take legal action if damage was done to the Company.



- To ensure that GPCS's personnel operate with transparency, fairness, and accountability in compliance with laws, rules, regulations, as well as the company's corporate governance policy and code of business ethics and to provide both its personnel and stakeholders with channels for reporting corruption, GPSC has announced and implemented a whistleblowing and whistleblower protection policy as well as prescribed appropriate whistleblowing channels and complaint handling procedure.

## **6) Whistleblowing**

**GPSC provides the following channels for whistleblowing and whistleblower protection:**

### **Mailing Address:**

Global Power Synergy Public Company Limited  
555/2 Energy Complex Building B, 5<sup>th</sup> Floor, Vibhavadi-Rangsit Road, Chatuchak Sub-district, Chatuchak District, Bangkok 10900

### **E-mail Address**

[whistleblowing\\_complaint@gpscgroup.com](mailto:whistleblowing_complaint@gpscgroup.com)

### **Website:**

<http://www.gpscgroup.com/th/cg/whistle-blowing>

### **In person:**

Compliance Division

Phone: 0-2140-4600

With regard to the handling of complaints on violation of the code of business conduct in the period from January 1, 2021 to December 31, 2021, GPSC received two complaints, which were processed in accordance with the whistleblowing procedure. No corruption was found in both cases, and rectification of relevant processes was carried out to prevent recurrence.



## 8.2 Performance Report of the Sub-committees

### 8.2.1 Audit Committee Report

Dear Shareholders,

The Audit Committee of Global Power Synergy Public Company Limited consists of three independent directors, all of whom command pertinent expertise and experience in financial accounting, engineering, energy businesses, law, and management. They are therefore qualified to review the credibility of financial statements under the regulations of the Office of Securities and Exchange Commission (SEC) and the Stock Exchange of Thailand (SET). The Audit Committee comprises the Chairman, Mrs. Saowanee Kamolbutr, and two audit committee members, namely Mr. Kurujit Nakornthap and Maj. Gen. Chaowalek Chayansupap. Ms. Attayar Sukotanang, Senior Vice President, Corporate Internal Audit was appointed to act as secretary.

The Committee performs its duties under the scope of duties and responsibility as prescribed by GPSC's Board and as specified in the Audit Committee Charter, in compliance with the rules stipulated by SEC and SET. The Audit Committee strives to ensure good corporate governance and comprehensive reviews of financial reports, connected transactions, risk management, and efficient internal controls and internal audit systems. The Audit Committee also ensures that the Company remains in compliance with laws and regulations relevant to GPSC's domestic and overseas operations to ensure business continuity and to achieve the set goals.

In 2021 the Committee held seven meetings, where consultations were held with management, Internal Audit, and the external auditor. This year's performance highlights are as follows:

**1. Review of Financial Statements:** The Committee reviewed material items and issues of quarterly and annual financial statements of GPSC and its subsidiaries, in cooperation with management and the external auditors. Material items reviewed included the accuracy and completeness of financial

statements, important adjustment entries, accounting estimation, as well as information disclosure in the notes to the financial statements to ensure that GPSC's financial statements and disclosures in the notes to the financial statements are in line with the Thai Financial Reporting Standards (TFRS). The external auditor gave an unqualified opinion that the internal control evaluation results were appropriate, no data were concealed, and the external auditor was able to work independently. In addition, the Audit Committee together with the external auditor, in the absence of the executives, discussed matters related to the annual auditing scope and plan of the external auditor.

**2. Review of Connected Transactions or Transactions of Potential Conflicts of Interest:** The Committee reviewed connected transactions, particularly those posing potential conflicts of interest with GPSC under the guidelines of SET's and SEC's notifications. This review revealed that GPSC operated under regular business practices, exercised fairness and sensibility, and exhibited no benefit siphoning. In addition, its disclosure of information was carried out with accuracy and completeness in compliance with GPSC's corporate governance policies as well as SEC's and SET's notifications.

**3. Review of Risk Management:** The Committee reviewed the efficiency and appropriateness of risk management, for which risk identification must consider internal and external factors, in policy and processes to ensure that GPSC and its subsidiaries commanded appropriate risk management processes that minimized any negative impact and responded to changes effectively and promptly. Risk management practices were effectively executed under the policy and plans, and were in line with GPSC's and its subsidiaries' short-term and long-term goals and strategic plans.

**4. Review of Internal Control System:** The Committee reviewed compliance with the law and applicable regulations, and managed under the Three Lines of Defense concept, in which legal and regulatory compliance was audited, monitored, assessed, and reported regularly, using the internal control practice framework of the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Moreover, the external auditor's findings demonstrated that GPSC's and subsidiaries' performances are efficient and effective, with an appropriate internal control system in place, and without any material problem or defect. As a result, in 2021 no cases of violation of applicable laws and regulations were found in GPSC and its subsidiaries.

**5. Review of Internal Audit System:** Having Corporate Internal Audit report directly to the Committee ensured the unit's independence as required by the Audit Committee Charter. The Committee also reviewed and approved the annual internal audit plans and long-term plan covering GPSC, its subsidiaries, and their joint ventures. It also regulated the unit's operation to comply with internal auditing standards and to align with the strategies and directions of GPSC. This included the enhancement of internal audit quality and the review and assessment of internal audit quality to ensure the competency of international professional standard of the internal auditor. The Committee also assessed the annual performance of Corporate Internal Audit. In addition, the Committee reviewed the structural suitability, HR development, and workforce of Internal Audit to ensure efficiency and effectiveness. The Committee also reviewed the Audit Committee Charter and the Internal Audit Charter.

In 2021 the Committee took seriously internal audit efficiency enhancement and applied Robotic Process Automation (RPA) and Data Analytics technology in the systematic data analysis and formulated Continuous Monitoring and Continuous Auditing (CM&CA) procedures for the procurement and payment system to enable management, operators and related units to assess the efficiency of internal auditing.

**6. Appointment of the External Auditor for 2022:** The Audit Committee appointed PricewaterhouseCoopers ABAS Limited (PWC) as External Auditor for 2022. The names of four individual auditors from PWC to be appointed as signing external auditors are Ms. Amornrat Permpoonwathanasuk (CPA 4599), or Mr. Boonruang Lertwisetwit (CPA 6552), or Ms. Rodjanart Banyatananusard (CPA 8435), or Ms. Wanvimol Preechawat (CPA 9548). These auditors have been on the SEC's approved auditor list. The Audit Committee has proposed PWC to the Board of Directors to be proposed to the AGM for consideration and appointment as the External Auditor for 2022.

In summary, the Audit Committee carried out its duties and responsibilities as stated in the Audit Committee Charter, employing their diverse expertise, care, prudence, and adequate independence while providing recommendations for the equitable benefit of stakeholders. The Audit Committee's opinion is that GPSC's financial reports are accurate and credible, and also fully consistent with generally accepted accounting practices. GPSC's operations were in full compliance with all applicable laws and business obligations in conducting businesses under its objectives. Furthermore, GPSC had implemented good corporate governance and put in place adequate risk management, suitable and effective internal control, and efficacious internal audit systems.

On behalf of the Audit Committee.



**(Mrs. Saowanee Kamolbutr)**

**Chairman of the Audit Committee**

### 8.2.2 Report of the Nomination and Remuneration Committee

Dear Shareholders,

The Board of Directors of Global Power Synergy Public Company Limited (GPSC) has appointed a Nomination and Remuneration Committee consisting of at least three directors, one of whom must be an independent director. The current Committee comprises three directors, namely Maj. Gen. Chaowalek Chayansupap (independent director) serving as chairman, with Mr. Atikom Terbsiri (director) and Mr. Noppadol Pinsupa (director) serving as members.

In 2021 the Committee held five meetings, as highlighted below:

1. Reviewed the 2020 performance assessment of the President & CEO, the findings of which were forwarded to the Board for approval
2. Screened and proposed Board compensation for 2021 by reviewing GPSC's performance results and business size as well as those of companies of the same industry and Board responsibility for the Board's endorsement before forwarding to the AGM for approval.
3. Nominated candidates for directorship to be submitted to the Board for consideration and appointment as directors succeeding those who had completed their terms.
4. Nominated candidates for serving on Sub-committees by reviewing them against Sub-committee composition, specifically expertise and appropriate skills for such service, before submitting them for the Board's appointment.
5. Nominated candidates for directorship to be submitted to the Board for consideration and proposing to the 2020 AGM for appointment as directors succeeding those who had resigned before term completion.

On behalf of the Nomination  
and Remuneration Committee



(Maj. Gen. Chaowalek Chayansupap)

Chairman of the Nomination  
and Remuneration Committee



### 8.2.3 Report of the Corporate Governance Committee

Dear Shareholders,

Recognizing the importance of corporate governance (CG) to the foundation of corporate sustainability, which promotes business efficiency, the Board of Directors of Global Power Synergy Plc (GPSC) appointed a Corporate Governance Committee to steer tasks relating to CG practices, code of business conduct, sustainability management, and stewardship of society, communities, and the environment. The current Committee is made up of four directors, namely Mr. Kurujit Nakornthap (Chairman), Mrs. Nicha Hiranburana Thuvatham (independent director), Mr. Somchai Meesen (independent director), and Mr. Lavaron Sangsnit serving as members.

This year the Committee held a total of four meetings, highlighted as follows:

1. Endorsed the results of the Board's performance assessment of 2020
2. Endorsed the Corporate Governance Report (CGR) 2020 on CG Code compliance for disclosure in the 2020 Form 56-1 One Report.
3. Acknowledged the report on the assessment results of CG standards for 2021 (CGR Checklist / ASEAN CG Scorecard / AGM Checklist)
4. Acknowledged the result of CAC (Thailand's Private Sector Collective Action Coalition against Corruption) membership renewal.
5. Endorsed the 2021 Board Assessment Form by an independent external assessor (Independent Assessment)
6. Endorsed the results of the 2021 Board Performance Assessment, recommendations, and performance improvement plan of the independent external assessor (Independent Assessment)
7. Endorsed the criteria for shareholders' proposal of meeting agenda and nomination of directors for election at the 2022 AGM
8. Endorsed the report on CG implementation and corporate compliance for the first six months of 2021
9. Endorsed the report on stewardship of society, communities, and the environment for the first six months of 2021
10. Endorsed the report on sustainability management for the first six months of 2021
11. Endorsed the 2021 annual report on stewardship of society, communities, and the environment and considered the operation plan for 2022
12. Endorsed the 2021 annual report on sustainability management and considered the operation plan for 2022
13. Endorsed the 2021 annual report on CG implementation and corporate compliance and considered the operation plan for 2022
14. Acknowledged a summary of good practices for directors in monitoring anti-corruption measures.

Thanks to GPSC's commitment to running its businesses with CG, the company garnered the following domestic awards for CG and sustainability management:

- Excellence rating by The Thai Institute of Directors (IOD) under its Corporate Governance Report of Thai Listed Companies (CGR) 2020 program for the sixth consecutive year
- CAC (Thailand's Private Sector Collective Action Coalition against Corruption) membership was renewed for three years from the date of recertification
- Ranked in "The Sustainability Year Book 2021" in the Electric Utilities industry group, by S&P Global, the assessor of Dow Jones Sustainability Indices (DJSI)

- B (Management) rating for the fifth consecutive year in recognition of its management on climate change by an international non-profit organization, Carbon Disclosure Project (CDP) 2021, for disclosure of information on climate change
- Asia's Best Integrated Report (First Time), Silver Medal, and Asia's Best Materiality Reporting, Bronze Medal, at the 6th Asia Sustainability Reporting Awards (ASRA) 2020, organized by CSR Works International Pte Ltd. for outstanding Asian organisations in sustainability reporting.
- SET Awards 2021, Sustainability Excellence, Rising Star Sustainability Awards category, organized by SET in collaboration with the Money and Banking Magazine, given to listed companies with outstanding sustainable business operations.
- Thailand Sustainability Investment (THSI) Awards 2021 from SET, citing GPSC's outstanding Environmental, Social, and Governance (ESG) management, successfully passing selection for a fourth year
- For the sixth consecutive year, ranking among the ESG 100 securities group for 2021 out of 824 listed companies, presented by Thaipat Institute, which adopted the criterion of Environmental, Social and Governance (ESG) operation in parallel with GPSC's performance outcomes
- Low Carbon and Sustainable Business Index (LCSi) Excellence Award, for two consecutive years, presented by Thailand Greenhouse Gas Management Organization (Public Organization), which reflects GPSC's strong determination and commitment to greenhouse gas management and emission reduction as well as maintaining balanced business in operations and economic, social and environmental sustainability.
- Sustainability Disclosure Award 2021 (an honorary award), for three consecutive years, from Thaipat Institute for publicizing sustainability data to applicable stakeholders in the form of a sustainability development report, illustrating corporate development for long-term sustainability.

On behalf of the Corporate Governance Committee



(Mr. Kurujit Nakornthap)

Chairman of the Corporate Governance  
Committee

### 8.2.4 Report of the Risk Management Committee

Dear Shareholders,

This past year was truly a challenging one for GPSC's business operations under restrictions from the Covid-19 epidemic, economic stagnation, fuel price fluctuation from government's electricity price cap policy, including emerging threats such as cyber attacks while the Company's strategies are to achieve its goals in domestic and international energy and renewable-energy business expansion, battery and related businesses development, regarded as GPSC's and Thailand's New S-Curve undertaking, maintaining production and distribution stability, business competitiveness and performance, together with social and environmental responsibility and its commitment to greenhouse gas emission reduction.

Hence, GPSC emphasized concrete risk management under the situations to maintain efficiency of its operations, potential impact mitigations and new business opportunities arising from risk management. GPSC steered corporate risk management through the Risk Management Committee (RMC) which comprises five knowledgeable and experienced directors of the Board, namely Mr. Noppadol Pinsupa, (Chairman), Mr. Pakorn Apaphant, Mr. Wirat Uanarumit, Mr. Kongkrapan Intarajang, and Mr. Worawat Pitayasiri (members). This committee executes its tasks to the best of its ability in integrating risk management and monitoring management's operational efficiency to ensure that GPSC's performance is in line with the business directions, both short-term and long-term.

This past year Risk Management Committee held 13 meetings to screen and consider issues of significance, summarized as follows:

1. Defined and reviewed the risk management policy together with the scope of corporate risk management and reviewed GPSC's risk appetite in keeping with the volatile business environment.
2. Screened and commented on the preparation of long-term and short-term corporate risk management, and monitored and provided quarterly

recommendations on management's operations to ensure efficiency, thus leading to the goals in a sustainable way.

3. Monitored and analyzed various external circumstances, including the Covid-19 epidemic and cyber-attacks, which represented emerging risks. Advocated new models of management to enable GPSC to manage impacts efficiently and promptly, thus enabling itself to still proceed with its strategic plans and maintain planned outcomes.
4. Considered and provided recommendations and opinions on risk issues in assorted aspects to support investment decisions, followed up and evaluated the progress of the operations to ensure its efficiency under controlling measures or concrete mitigation plans and an acceptable risk appetite for maximum benefit.
5. Monitored and supported management's risk implementation to ensure its efficiency and in line with prevailing circumstances.

The Risk Management Committee is committed to performing duties with responsibility and supporting corporate risk management to its full capacity to achieve GPSC's business goals and mission, leading to its sustainable growth and utmost benefits for all groups of shareholders and stakeholders.

On behalf of the Risk Management Committee



(Mr. Noppadol Pinsupa)

Chairman of the Risk Management  
Committee

## 9. Internal Control and Connected Transactions

### 9.1 Internal Control

GPSC manages its internal control under the international scope of The Committee of Sponsoring Organizations of the Treadway Commission (COSO) to achieve the three aspects of internal control objectives, namely operations, reporting, and compliance.

We promote and oversee internal control policy implementation through the Corporate Internal Control Division of Company Secretary and Corporate Governance, which is responsible for staging assessment of internal control system effectiveness in conjunction with management and applicable corporate units each year against the adequacy assessment scope of the Office of the Securities and Exchange Commission (SEC). The Audit Committee conducts such assessment and then reports findings to the Board.

This year GPSC continued from last year its development of internal control system and policy along with business processes and control measures for key business processes so as to strengthen the efficiency of the internal control system, adequately suiting prevailing circumstances.

Audit Committee Meeting No. 4/2564 of November 5, 2021, reviewed the adequacy assessment of GPSC's internal control process for the year and agreed that it was effective, adequate, and suitable for business. Board Meeting No. 14/2564 of December 15, 2021, acknowledged these findings and views of the Audit Committee.

Below is an overview of the five-point internal control system under the scope of internal control:

#### 1. Control Environment

Organizing its control environment that fits and is adequate for business, GPSC defines charters, policies, and a management structure that suits its business environment. In place is advocacy of the corporate culture focusing on compliance with

corporate governance and the code of business conduct of GPSC Group. The Board and management provide role models for employees. Management practices also align with the internal control scope.

- **Commitment to integrity and ethics**

We define corporate governance and the code of conduct in writing (known as the CG & Code of Conduct Handbook), which the Board, management, and all employees must acknowledge in writing and strictly comply. They must also report conflicts of interest annually or at once. Integrity and Ethics form part of the corporate values (ACT SPIRIT).

- **Independence and roles of the Board**

The Board defines the scope, authority, and responsibility that are clearly segregated between the Board and management. The Board oversees corporate directions and goals as well as regularly monitoring management's performance to ensure achievement of strategic plans and goals under the defined directions and policies. To this end, the Audit Committee oversees and provides views on the internal audit system, financial reports, and assessment findings of internal control system adequacy.

- **Suitable structure for reporting line, approval authorities, and responsibility**

We define an organization structure compatible with our core business conduct as well as the Three Lines of Defense for comprehensive checks and balances. We also define operating authorities and levels of approval authorities in writing under the Table of Authorities (TOA) to duly separate the duties of approving, operating or bookkeeping, and stewardship of properties.

- **Personnel administration for corporate objective achievement**

We define policies and strategies for human resource (HR) administration as well as systematizing and laying down HR processes that align and support corporate objective



achievement. These processes embrace manpower administration, recruitment, development, retention of talented executives and employees, and succession of key positions.

We communicate and relay the internal control policy to all employees in the hope of their mastery, while systematizing performance assessment of all employees to include their compliance with corporate values.

## 2. Risk Assessment

We value risk management as a directly and indirectly supporting tool for business efficiency. Today we manage risks under the guidelines of COSO ERM Framework 2017 and ISO 31000:2009, which focus on enabling corporate risk management practices as shown below:

- **Identification, assessment, and analysis of risks related to corporate goal achievement**

GPSC's risk management entails a review of its business contexts arising from internal as well as external factors along with emerging risks. The outcomes then find application in risk analysis and pursuit of business opportunities and in the support of corporate strategic direction definition. Assorted aspects are scrutinized: strategic, financial, operating, and compliance. The Risk Management and Internal Control Committee (RMCC), made up of senior members of management, screens, monitors, and drives risk management practices and then report findings to the Risk Management Committee (RMC) quarterly so that GPSC can indeed satisfy its risk appetite by defining adequate and suitable internal control and mitigation measures. This leads to efficient management of risks and business undertakings for goal achievement.

- **Identification and assessment of change affecting the internal control system**

We monitor and assess change in external factors, including business model change potentially affecting business as part of corporate risk management. We also define a Management of Change Policy to manage change potentially

affecting the internal control system so that the risk appetite is achieved.

## 3. Control Activities

We define control activities as part of our various business processes, embracing manual controls and automated controls, so that our business processes may be efficient and capable of achieving our risk appetite.

- **Control measures to manage risks**

We define these measures to fit various business processes as part of the enterprise corporate control to in turn satisfy our risk appetite. Designed control measures are stated in work documents, including work protocols, procedures, and manuals. Automated controls are set in the IT system for related processes.

As for control measures for approving key items in various processes, these are stated in work documents and set in the applicable IT system in agreement with the TOA. Due segregation of duties for approving, operating, bookkeeping, and stewardship of properties is in place.

This year GPSC prepared a Business Continuity Plan (BCP) to handle the ongoing Covid-19 pandemic, which could affect the operation of the Head Office and various power plants of GPSC Group. To this end, it adopted the New Normal operating procedures with specific control measures, including the rollout of the Golden Man measure for operators of power plants where the headcount is controlled; Covid testing; isolation in prepared locations; announcement for employees of other functions to work from homes; and online meeting arrangement. To ensure adequacy and efficiency, computer notebooks and software accommodating the work-from-home measure are made available. Add to these measures the control of key operation for the safety and efficiency of work as if under business-as-usual conditions.

- **Control with technology**

Our control measures for specific business processes are in place for those involving IT operation, including commercial, production planning and control, accounting, financial, and supply procurement and administration processes. To this end, we isolate the specific IT system from the main system and then set automated controls in the IT system, including access control, approval authority, role segregation, and data compilation and verification.

We are aware of cybersecurity potentially causing damage to the company in various ways, including ransom expenses, business interruption impacts, and, worst of all, the loss of customers' confidence in GPSC. Therefore this year we developed an international-standard cybersecurity system (ISO/IEC 27001) to deal with risks arising from technological transformation and cybersecurity risks in parallel with the design and installation of infrastructure fitting the prevailing control environment so as to ward off cyberthreats, the amendment of requirements for standards on compliance with IT and communication, and the staging of internal training to educate employees on the policies and protocols of the IT system and staying informed of cyberthreats.

- **Policy control for policy implementation**

GPSC defines in document forms key policies and guidelines, namely performance guidelines for its directors in cases of vested interest or conflicts of interest, articles of association, and key corporate policies (including the Internal Control Policy, Risk Management Policy, Anti-Corruption, Giving, and Acceptance of Gifts, Assets, or Other Benefits Policy, and Compliance Policy).

GPSC declares, communicates, and trains directors, management, and other employees on key corporate policies. It commands regular monitoring and assessment of their mastery of various policies as well as publicizing these to GPSC Group and applicable external agencies

GPSC considers engagement in transactions qualified for related-party transactions to ensure

compliance with SET requirements with due regard for sensibility and optimum interests for the company. Finally, GPSC requires that transaction engagement secure approval from authorized parties without vested interests.

#### 4. Information & Communication

GPSC commands processes to deal with information and communicates it through channels and work processes designed to play key roles in operating efficient internal control processes.

- **Data management and quality**

We command a data management process embracing definition of essential data, acquisition of quality data, and storage and compilation of data on customized databases. For each work process, we define internal control measures for quality management, namely access control, classification, compilation and review of accuracy, data updating, and data release approval for work purposes. In addition, in place is external and internal data screening before their proper application to business decision-making under the policy of property management, confidentiality, and data application so as to prevent dissemination of key or confidential GPSC data.

- **Internal data communication**

We command a process of communicating and reporting key internal data to the Board through internal communication channels under the responsibility of the Office of the President. This includes meetings between management and the Board and the communication process between management and employees through channels designed for internal control, embracing online and offline modes, including GPSC Intranet, e-mails, IT systems of various business processes, communication activities like the CEO Townhall, and reporting processes.

We define whistleblowing channels along with data on unlawful acts or GPSC Group protocol breaches as part of the internal control process; these channels are kept confidential and separately housed as opposed to other data communication channels.

- **External communication**

Under GSPC's Corporate Governance Policy, the Board discloses financial and non-financial information adequately, credibly, and timely so that shareholders and stakeholders equally receive it. Investors Relations and Corporate Communications are responsible for providing key data to investors and the public.

## 5. Monitoring Activities

We command a process to monitor and assess the adequacy of the internal control system as well as improvements made to it for efficiency in keeping with the dynamic control environment.

- **Monitoring and assessment of internal control**

Each year we conduct internal control self-assessment using SEC's assessment form that embraces all corporate units. This year we delivered the GPSC Group Way of Conduct Manual for all GPSC's subsidiaries to implement, consisting of the Corporate Governance and Code of Conduct Policy, Compliance Policy, and Internal Control Policy.

- **Assessment and communication of internal control shortcomings**

Corporate Internal Audit communicates issues of internal control risks and shortcomings by holding wrap-up meetings, reporting audit findings to unit executives (exit meetings), preparing audit reports for executives' acknowledgment and prompt definition of remedial actions, and monitoring as well as reporting the outcomes of such actions to the Audit Committee.

If Corporate Internal Audit detects dubious items or acts that could hurt GPSC's performance, represent conflicts of interest, integrity breaches, irregular transactions, or key defects, it reviews and reports its opinions to the Audit Committee and GPSC's top executive immediately for immediate corrective actions.



## 9.2 Connected Transactions

### 9.2.1 GPSC and subsidiaries' connected transactions with potential parties of conflict

#### 9.2.1.1 PTT Public Company Limited ("PTT")

PTT holds 42.53% of GPSC's shares. There are four members of the Board of Directors who concurrently hold directorship or executive positions at PTT, namely Mr. Noppadol Pinsupa, Mr. Atikom Terbsiri, Mr. Wuttikorn Stithit and Mr. Worawat Pitayasiri.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power, steam, and industrial water		GPSC and PTT entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC.
- Revenue	567.00	
- Receivable	58.28	
Other income from pipe-rack rental		GPSC Group leased out its pipe racks at a price and under terms and conditions considered normal business practice. Payment was made in advance and was booked as a fee for the long-term right to use the asset; however, income was gradually booked throughout the contract period.
- Revenue	4.27	
- Payable	1.11	
Income from sale of power		GPSC and PTT entered into an agreement to purchase power from a solar farm with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC.
- Revenue	0.71	
- Receivable	0.69	
Purchase of natural gas		GPSC and subsidiaries purchased natural gas as raw material for power generation with prices and terms considered normal business practice.
- Expenses	36,336.81	
- Payable	3,979.96	
PTT secondment		PTT seconded its employees to GPSC in support of GPSC's business with prices and terms considered normal business practice.
- Expenses	99.57	
- Payable	31.00	
Expenses on pipe-rack rental		GPSC requested rental of pipe racks with prices and terms considered normal business practice. Since GPSC paid six months' rent in advance, this was treated as an advance expense item.
- Expenses	3.55	
Expenses on gas pipeline system inspection		GPSC hired PTT to run a standard safety test of the pipeline system to ensure its operability at a price comparable to other vendors.
- Expenses	0.18	
- Payable	0.04	



Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Use of PTT's Service Center		PTT set up a Service Center within its headquarters and EnCo, including a medical care center, fitness center, air booking center, and training center, and charged the fees at the same rate charged to PTT Group with prices and terms, considered normal business practice.
- Expenses	0.92	
- Payable	0.01	
Expenses on technical advisors		GPSC requested personnel support on technology research and development with prices and terms considered normal business practice.
- Expenses	8.52	
Expenses on lease of land		PTT leased out to GPSC EECi Wang Chan Valley to build a solar farm with the rental rate and agreement terms similar to what PTT charges to others.
- Interest payment on financial lease agreement	0.27	
- Advance expenses	4.66	
- Expenses	0.10	
Expenses on lease of land		PTT entered into an agreement to obtain rights of superficies for its operations with the rental rate and agreement terms similar to what PTT charges to others.
- Expenses	4.00	
- Interest payment on financial lease agreement	3.65	
- Advance expenses	1.11	
Expenses for water consumption assessment		GPSC hired PTT to conduct water consumption assessment with prices and terms considered normal business practice.
- Expenses	0.30	
Expenses for plant operation consultation and inspection		GPSC hired PTT as consultant at prices and under terms considered normal business practice.
- Expenses	0.17	
- Payable	0.18	
Expenses for energy management technology research and development		GPSC requested personnel support on technology research and development for its energy management system project with prices and terms considered normal business practice.
- Payable	4.28	
- Asset cost	3.00	

### 9.2.1.2 PTT Global Chemical Public Company Limited (“GC”)

GC holds 10% of GPSC’s shares. There are two members of the Board of Directors who concurrently hold directorship or executive positions at GC, namely Mr. Noppadol Pinsupa and Mr. Kongkrapan Intarajang.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of electricity, steam, and industrial water		GPSC and GC entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC.
- Revenue	7,532.15	
- Receivable	723.21	
Income from engineering design, procurement and construction (EPC) service		GPSC entered into an agreement with GC to provide EPC services with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC, considered normal business practice.
- Revenue	0.07	
- Expenses	0.04	
Income from operation and maintenance service		GPSC entered into an agreement with GC to provide operation and maintenance service for energy storage system (ESS) with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC, considered normal business practice.
- Revenue	0.90	
- Receivable	3.76	
Expenses on pipe-rack rental		GPSC Group leased out its pipe racks at a price and under terms and conditions considered normal business practice. Payment was made in advance and was booked as a fee for the long-term right to use the asset; however, income was gradually booked throughout the contract period.
- Expenses	0.87	
Other income from pipe-rack rental		GPSC Group leased out its pipe racks at a price and under terms and conditions considered normal business practice. Payment was made in advance and was booked as a fee for the long-term right to use the asset; however, income was gradually booked throughout the contract period.
- Revenue	8.22	
- Advance revenue	0.04	
Expenses on repurchase of condensate containing water in excess of the volume specified in the contract, returned by the customers		Under the steam agreement, GC was required to return condensate of the contractual volume. Since GPSC needed more condensate than the contractual volume, it requested to repurchase such condensate from GC over and above the contract volume with prices and terms considered normal business practice.
- Expenses	16.42	
- Payable	2.89	

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on tail gas purchase		GPSC purchased tail gas for power generation at a price and under terms considered normal business practice.
- Expenses	91.41	
- Payable	1.24	
Expenses on total organic carbon analysis		GPSC hired GC to run a standard test at a price comparable to other vendors.
- Expenses	0.19	
Expenses on furniture and fixtures		GPSC purchased furniture and fixtures from GC with prices and terms considered normal business practice.
- Asset cost	0.47	
Expenses on request for land use		GPSC entered into an agreement with GC to request land use to install high-voltage power lines at the rental rate and under terms considered normal business practice.
- Expenses	0.32	
- Interest payment on financial lease agreement	0.50	

### 9.2.1.3 Thaioil Public Company Limited ("TOP")

TOP and GPSC have the same major shareholder (PTT) with 20.78% shareholding. There are three members of the Board of Directors who concurrently hold directorships or executive positions at TOP, namely Mr. Pailin Chuchottaworn Mr. Wirat Uanarumit and Mr. Jeerawat Pattanasomsit.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from the sale of industrial water		GPSC and TOP entered into sales agreement with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC.
- Receivable	2.49	
Expenses on purchase of diesel		GPSC uses diesel as reserve fuel at the Sriracha Power Plant in case of natural gas delivery interruption with prices and terms considered normal business practice.
- Expenses	2,594.45	
- Payable	594.42	
Expenses on land rental		Sriracha Power Plant lies on state property over which TOP earned possession and usage rights.
- Receivable		
- Deposit	0.23	TOP subleased such land to GPSC with prices and terms that followed the same guidelines as those for other customers.
- Interest payment on financial lease agreement	3.04	
	3.17	

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on raw water pipe rental		GPSC rented TOP's raw-water pipes at the Sriracha Power Plant, linked to Eastern Water Resources Development and Management Plc. (EW)'s raw-water pipes, to buy water from EW with prices and terms considered normal business practice.
- Expenses	3.09	
- Payable	14.89	
Expenses on office rental, water and electricity bills		GPSC rented office space from TOP since Sriracha Power Plant was located on TOP's land with prices and terms considered normal business practice.
- Expenses	0.72	
Expenses on construction		GPSC and TOP entered into an agreement for the sale of assets for the energy recovery unit (ERU) at prices and under terms comparable to other customers related and unrelated to GPSC.
- Advance expenses	2,191.59	
Expenses on the service and supply related to inspection and maintenance of equipment		GPSC hired TOP to provide service and supply related to inspection and maintenance of equipment with prices and terms considered normal business practice.
- Expenses	0.36	

#### 9.2.1.4 IRPC Public Company Limited ("IRPC")

GPSC and IRPC have a common major shareholder, namely PTT, which holds 45.05% of IRPC's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power and steam		GPSC Group and IRPC entered into individual sales agreements with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to IRPC-CP.
- Revenue	2,408.04	
- Receivable	422.80	
Income from IRPC secondment		GPSC seconded its employees to IRPC in support of IRPC's business with prices and terms considered normal business practice.
- Revenue	1.88	
- Receivable	0.62	



Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on purchase of power, steam, industrial water and waste water treatment		Since GPSC Group's plant was on the compound of IRPC's plants, the company purchased each product and paid treatment charges to IRPC for system testing at the identical rate charged to others in the vicinity.
- Expenses	44.75	
- Receivable	4.11	
Expenses on office space rental, water and electricity bills, and central utilities		GPSC Group rented EnCo's office space, and with most of its business partners' headquarters at EnCo, the company conveniently coordinated with business partners. The rental followed the rates set under an agreement with IRPC, considered normal business practice.
- Expenses	6.55	
- Interest on financial lease agreement	0.15	
Expenses on technical advisors		GPSC requested personnel support on technology research and development at a price and under contractual terms considered normal business practice.
- Expenses	0.06	
Expenses on air pollution reduction project		IRPC-CP jointly developed an air pollution reduction project with IRPC, with a fee charged annual at the rate and under terms considered normal business practice.
- Expenses	107.00	
- Payable	0.87	
Advance income from sale of power under Minimum Take-or-Pay terms		Since the annual actual value of product purchase was lower than the minimum value specified in the contract, GPSC requested advance payment (Minimum Take-or-Pay : MTOP) from GCGC. If the purchase volume exceeds the minimum volume specified in the contract within the agreed period, GCGC can seek refund of such advance payment commensurate with the excess volume consumed. GPSC will book the remaining MTOP as the revenue for the year if IRPC is unable to consume power over the minimum volume.
- Payable	151.03	

### 9.2.1.5 PTT Treasury Center Company Limited (PTT TCC)

GPSC and PTT TCC have a common major shareholder, namely PTT, which holds 100.00% of PTT TCC's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Long-term loan		GPSC received financial assistance from PTT TCC in the amount of THB 8,000 million at an interest rate of 2.63%, which is a market rate comparable to the interest rate of short-term loans issued by commercial banks with comparable payment period and terms.
- Loan	8,000.00	
- Interest expense	102.61	
- Accrued interest	1.15	

### 9.2.1.6 Business Services Alliance Company Limited ("BSA")

GPSC holds 25% preferred shares of BSA's paid-up registered capital. Also, both companies have common major shareholders, namely PTT, which owns BSA's common shares accounting for 25% of BSA's paid-up registered capital, and GC, which holds 25% preferred shares of BSA's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on the staff outsourcing service		GPSC Group hired BSA to provide outsourcing services of personnel to fit GPSC's objectives with prices and terms considered normal business practice.
- Expenses	76.39	
- Asset cost	12.02	
- Payable	29.29	

**9.2.1.7 PTT Phenol Company Limited (“PPCL”)**

GPSC and PPCL have a common major shareholder, namely GC, which wholly owns PPCL.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power, steam, industrial water, and nitrogen		GPSC and PPCL entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC, considered normal business practice.
- Revenue	2,986.51	
- Payable	289.48	
Other income from pipe-rack rental		GPSC Group leased out pipe-racks under a contract with rental rates and terms considered normal business practice. GPSC Group received the rental in advance, which was booked as income received in advance for the long-term right to use such asset while gradually booking income throughout the contract period.
- Revenue	0.89	

**9.2.1.8 GC Maintenance and Engineering Company Limited (“GCME”)**

GPSC and GCME have a common major shareholder, namely GC, which wholly owns GCME and have a common director in Mr. Boonchai Chunhawisit.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on machinery maintenance and repair		GPSC received financial assistance from PTT TCC in the amount of THB 8,000 million at an interest rate of 2.63%, which is a market rate comparable to the interest rate of short-term loans issued by commercial banks with comparable payment period and terms.
- Expenses	46.18	
- Asset cost	2.66	
- Payable	15.10	

#### 9.2.1.9 NPC Safety and Environmental Service Company Limited (“NPC S&E”)

GPSC and NPC S&E have a common major shareholder, namely GC, which wholly owns NPC S&E.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on operating safety training and purchase of PPE		GPSC engaged in an operating safety training service agreement with NPC S&E, an expert with its own training center and a supplier of standard PPE, at mutually agreed prices and terms, considered normal business practice.
- Expenses	26.17	
- Asset cost	0.21	
- Payable	6.14	

#### 9.2.1.10 Vinythai Public Company Limited (“VNT”)

GPSC and VNT have a common major shareholder, namely GC, which holds 24.98% of VNT’s paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power and steam		GPSC and VNT entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC.
- Revenue	3,071.36	
- Receivable	320.52	
Other income from pipe-rack rental		GPSC Group leased out its pipe-racks at a price and under terms and conditions considered normal business practice. Payment was made in advance and was booked as a fee for the long-term right to use the asset; however, income was gradually booked throughout the contract period.
- Revenue	0.75	



**9.2.1.11 HMC Polymers Company Limited (“HMC”)**

GPSC and HMC have a common major shareholder, namely GC, which holds 41.44% of HMC's paid-up registered capital and have a common director in Mr. Boonchai Chunhawiksit.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power, steam, and industrial water		GPSC and HMC entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Revenue	1,392.10	
- Receivable	158.57	
Other income from pipe-rack rental		GPSC Group leased out its pipe-racks at a price and under terms and conditions considered normal business practice. Payment was made in advance and was booked as a fee for the long-term right to use the asset; however, income was gradually booked throughout the contract period.
- Revenue	0.56	
- Advance revenue	0.01	

**9.2.1.12 PTT Tank Terminal Company Limited (“PTT Tank”)**

GPSC and PTT Tank have a common major shareholder, namely PTT, which wholly owns PTT Tank.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of nitrogen		GPSC and PTT Tank entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Revenue	14.92	
- Receivable	2.75	
Other income from pipe-rack rental		GPSC Group leased out its pipe-racks at a price and under terms and conditions considered normal businesspractice. Payment was made in advance and was booked as a fee for the long-term right to use the asset; however, income was gradually booked throughout the contract period.
- Revenue	0.25	
- Receivable	0.25	
Other income from installation of pilot floating solar PV system		PTT Tank hired GPSC Group as a contractor to install the pilot Floating Solar PV system for power generation at an agreed price and under contractual conditions considered normal business practice.
- Revenue	1.05	

### 9.2.1.13 PTT Asahi Chemical Company Limited (“PTTAC”)

GPSC and PTTAC have a common major shareholder, namely GC, which holds 50.00% of PTTAC’s paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power, steam, industrial water, and nitrogen		GPSC and PTTAC entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Revenue	462.58	
- Receivable	59.29	
Other income from pipe-rack rental		GPSC Group leased out its pipe-racks in Map Ta Phut with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Revenue	2.93	
- Receivable	0.92	
Expenses on the purchase of steam		Due to excess steam in PTTAC’s processes, GPSC purchases such steam at mutually agreed prices and terms, considered normal business practice.
- Expenses	266.59	
- Payable	64.45	
Advance income from sale of steam under Minimum Take-or-Pay terms		Since the annual actual value of product purchase was lower than the minimum value specified in the contract, GPSC requested advance payment (Minimum Take-or-Pay : MTOP) from GCGC. If the purchase volume exceeds the minimum volume specified in the contract within the agreed period, GCGC can seek refund of such advance payment commensurate with the excess volume consumed. GPSC will book the remaining MTOP as the revenue for the year if PTTAC is unable to consume steam over the minimum volume.
- Receivable	19.80	

**9.2.1.14 GC Logistics Solutions Company Limited (“GCL”)**

GPSC and GCL have a common major shareholder, namely GC, which wholly owns GCL.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from operation and maintenance service		
- Revenue	0.98	GPSC entered into an agreement with GCL to provide operation and maintenance service for solar rooftop PV and energy storage system (ESS) with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC, considered normal business practice.
Income from sale of power and steam		
- Revenue	64.04	GPSC and GCL entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Receivable	5.33	

**9.2.1.15 Energy Complex Company Limited (“EnCo”)**

GPSC and EnCo have a common major shareholder, namely PTT, which owns 50.00% of EnCo's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from engineering design, procurement and construction (EPC) service		
- Revenue	0.40	GPSC entered into an agreement with EnCo to provide EPC services with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC, considered normal business practice.
- Receivable	0.05	

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on office space rental and other related services, including parking fee, water and electricity bills, and equipment repair		GPSC rented EnCo's office since most of its business partners are headquartered at EnCo and conveniently coordinated matters with them. The rent contained mutually agreed prices and terms considered normal business practice.
- Expenses	16.42	
- Deposit	4.58	
- Advance expenses	0.50	
- Payable	3.12	
- Interest payment on financial lease agreement	0.59	
- Revenue	0.18	

#### 9.2.1.16 PTT Digital Solution Company Limited (“PTT Digital”)

GPSC and PTT Digital have common major shareholders, namely GC, PTT and TOP, holding 40%, 20%, and 20% of PTT Digital’s paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from fiber optic rental		
- Revenue	0.19	
- Receivable	0.19	Since GPSC had surplus fiber optic capacities, it engaged in a memorandum of agreement for fiber optic use with PTT Digital with prices as agreed in the memorandum, considered normal business practice.
Expenses on ICT		
- Expenses	62.40	
- Payable	51.96	
- Advance expenses	1.64	
- Asset cost	22.11	GPSC Group hired PTT Digital for their specialization in ICT services for server networks, the internet, emails, training, and installation of ICT support system for meetings, together with SAP system maintenance. The service fees are considered normal business practice

**9.2.1.17 Dhipaya Insurance Public Company Limited (“TIP”)**

GPSC and TIP have a common major shareholder, namely PTT, which owns 13.33% of TIP's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expense on plants insurance, business interruption insurance, and COVID-19 insurance		The insurance taken out by GPSC Group was group insurance. PTT had hired TIP, an expert in the insurance business that was skillful in representing brokers for large-scale insurance, to handle the entire PTT Group. Insurance premiums and other terms are considered normal business practice.
- Expenses	305.27	
- Asset cost	1.34	

**9.2.1.18 GC Glycol Company Limited (“GCGC”)**

GPSC and GCGC have common major shareholder, namely GC, which wholly owns GCGC and have common director Mr. Boonchai Chanhawiksit.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of electricity, steam, and industrial water		GPSC and GCGC entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC, considered normal business practice.
- Revenue	696.57	
- Receivable	58.96	
Other income from pipe-rack rental		GPSC Group leased out its pipe-racks at a price and under terms and conditions considered normal business practice. Payment was made in advance and was booked as a fee for the long-term right to use the asset; however, income was gradually booked throughout the contract period.
- Revenue	0.54	
Advance income for steam sale under Minimum Take-or-Pay terms		Since the annual actual value of product purchase was lower than the minimum value specified in the contract, GPSC requested advance payment (Minimum Take-or-Pay : MTOP) from GCGC. If the purchase volume exceeds the minimum volume specified in the contract within the agreed period, GCGC can seek refund of such advance payment commensurate with the excess volume consumed. GPSC will book the remaining MTOP as the revenue for the year if GCGC is unable to consume steam over the minimum volume.
- Advance revenue	36.78	
- Receivable	4.75	



Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power		GPSC entered into an agreement with GCGC to sale power generated by solar rooftop PV with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC, considered normal business practice.
- Revenue	3.00	
- Receivable	0.27	

#### 9.2.1.19 Global Green Chemical Public Company Limited (“GGC”)

GPSC and GGC have a common major shareholder, namely GC, which holds 72.29% of GGC’s paid-up registered capital, and two common directors in Mr. Payungsak Chartsutipol and Mr. Kongkrapan Intarajang.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of electricity, steam, and industrial water		GPSC and GGC entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Revenue	340.05	
- Receivable	34.62	

#### 9.2.1.20 Thai Fatty Alcohol Company Limited (“TFA”)

GPSC and TFA have a common major shareholder, namely GC, which wholly owns TFA through GGC.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power, steam, and industrial water		GPSC and TFA entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Revenue	87.09	
- Receivable	7.55	

**9.2.1.21 Thai Ethoxylate Company Limited (“TEX”)**

GPSC and TEX have a common major shareholder, namely GC, which owns 50% of TEX's paid-up capital through GGC.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of electricity, steam, and industrial water		GPSC and TEX entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Revenue	27.79	
- Receivable	2.56	
Advance income from sale of power under Minimum Take-or-Pay terms		Since the annual actual value of product purchase was lower than the minimum value specified in the contract, GPSC requested advance payment (Minimum Take-or-Pay : MTOP) from GCGC. If the purchase volume exceeds the minimum volume specified in the contract within the agreed period, GCGC can seek refund of such advance payment commensurate with the excess volume consumed. GPSC will book the remaining MTOP as the revenue for the year if TEX is unable to consume power over the minimum volume.
- Advance revenue	1.39	
- Receivable	0.64	

**9.2.1.22 Advanced Biochemical (Thailand) Company Limited (“ABT”)**

ABT is a wholly owned subsidiary of VNT, which has the same major shareholder as GPSC, namely GC, which owns 24.98% of VNT's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power and steam		GPSC and ABT entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Revenue	264.17	
- Receivable	29.75	
Income from pipe-rack rental		GPSC leased out its pipe-racks at a price and under terms and conditions considered normal business practice. Payment was made in advance and was booked as a fee for the long-term right to use the asset; however, income was gradually booked throughout the contract period.
- Revenue	0.75	

### 9.2.1.23 Eastern Fluid Transport Company Limited (“EFT”)

GPSC and EFT have a common major shareholder, namely GC, which directly and indirectly owns 15% of EFT’s paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on the pipe-laying structural maintenance		
- Expenses	22.77	GPSC Group hired EFT to maintain its pipe-laying structures. EFT was the sole provider of such service in the industrial estate where this structure was located. Prices and terms for such work followed the service agreement, considered normal business practice.
- Payable		
Other income		
- Revenue	0.55	GPSC’s employee served as director of EFT. GPSC thus received monthly director fees and bonuses, booked as its revenue.

### 9.2.1.24 Vencorex (Thailand) Company Limited (“VCX”)

GPSC and VCX have a common major shareholder, namely GC, which indirectly owns 98.82% of VCX’s paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power, steam, and industrial water		
- Revenue	57.51	GPSC and VCX entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Receivable	2.99	
Advance income from sale of power under Minimum Take-or-Pay terms		
- Advance revenue	13.87	Since the annual actual value of product purchase was lower than the minimum value specified in the contract, GPSC requested advance payment (Minimum Take-or-Pay : MTOP) from GCGC. If the purchase volume exceeds the minimum volume specified in the contract within the agreed period, GCGC can seek refund of such advance payment commensurate with the excess volume consumed. GPSC will book the remaining MTOP as the revenue for the year if VCX is unable to consume power over the minimum volume.

**9.2.1.25 Sak Chaisidhi Company Limited (“SAKC”)**

GPSC and SAKC have a common major shareholder, namely TOP, which holds 80.52% of SAKC's paid-up registered capital through TOP SOLVENT.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from pipe-rack rental		GPSC engage in a pipe rack rental agreement with SAKC with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC, considered normal business practice.
- Revenue	1.36	
- Receivable	0.29	

**9.2.1.26 TOP SPP Company Limited (“TOP SPP”)**

GPSC and TOP SPP have a common major shareholder, namely TOP, which holds 99.99% of TOP SPP's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on reserve power supply		Expenses for backup power for Sriracha Power Plant in case of power generation interruption at mutually agreed prices and terms considered normal business practice.
- Expenses	1.88	
- Payable	0.09	

**9.2.1.27 PTT Exploration and Production Public Company Limited (“PTTEP”)**

GPSC and PTTEP have a common major shareholder, namely PTT, which holds 63.79% of PTTEP's paid-up registered capital, and have a common director in Mr. Atikom Terbsiri.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from engineering design, procurement and construction (EPC) service		GPSC entered into an agreement with PTTEP to provide EPC services with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC, considered normal business practice.
- Revenue	12.33	
- Receivable	8.71	

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on office space rental, water and electricity bills, and central utilities		GPSC rented an additional office space belonging to PTTEP in Energy Complex (EnCo) for use as headquarters to expand its Bangkok office. The rental followed the rates set under an agreement with PTTEP, considered normal business practice.
- Expenses	0.26	
- Interest on financial lease agreement	0.11	
- Deposit	3.33	
Income and expenses on business project development		PTTEP entered into an agreement with GPSC to develop business projects. The prices and terms were considered normal business practice.
- Revenue	11.51	
- Expenses	1.73	
- Payable	3.77	

#### 9.2.1.28 PTTEP Services Company Limited (“PTTEP Services”)

GPSC and PTTEP Services have a common major shareholder, namely PTT, which wholly owns PTTEP Services through PTTEP.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Consulting services for the battery plant construction project		GPSC hired an expert consultant from PTTEP Services to support the construction of the Battery Plant Project. The prices and terms specified in the agreement were considered normal business practice.
- Expenses	6.32	
- Asset cost	2.97	
- Payable	1.58	



**9.2.1.29 PTT Oil and Retail Business Public Company Limited (“PTTOR”)**

GPSC and PTTOR have a common major shareholder, namely PTT, which holds 75.00% of PTTOR’s paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power		GPSC and PTTOR entered into a power purchase agreement with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC.
- Revenue	0.64	
- Receivable	0.06	
Income from installation of solar panels on gas station canopies		PTTOR hired GPSC to install solar panels on the gas station canopies with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC, considered normal business practice.
- Revenue	16.90	
- Receivable	6.65	
Expenses on lubricants		GPSC purchased lubricants for its operation at a market price comparable to prices offered by other vendors, considered normal business practice.
- Expenses	0.57	
- Payable	0.56	
Expenses on ammonia anhydrous		GPSC Group purchased ammonia anhydrous for their processes at a price comparable to prices offered by other vendors, considered normal business practice.
- Expenses	80.34	
- Payable	11.81	
Expenses on fuels		GPSC purchased diesel for use in production at a price comparable to prices offered by other vendors, considered normal business practice.
- Expenses	629.8	

**9.2.1.30 GC Estate Company Limited (“GCEC”)**

GPSC and GCEC have a common major shareholder, namely GC, which wholly owns GCEC. Both have a common director in Mr. Boonchai Chunhawiksit.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on industrial water		GPSC bought industrial water at a price and terms followed an agreement, considered normal business practice.
- Expenses	31.39	
- Payable	2.88	

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on the right and land use fee for laying pipes for receiving and effluent drainage		Cost of the right and land use fee for laying pipes for receiving and effluent drainage in support of CUP-4 at a price and terms followed an agreement, considered normal business practice.
- Expenses	5.04	
- Interest payment on financial lease agreement	3.23	
Expenses on facilities maintenance		GPSC paid for facilities maintenance in the Asia Industrial Estate, where its CUP-4 was located.
- Expenses	1.14	Prices and terms followed an agreement, considered normal business practice.

#### 9.2.1.31 NPC S&E Security Guard Company Limited (“NPCSG”)

GPSC and NPCSG have a common major shareholder, namely GC, which wholly owns NPCSG.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on security service		GPSC Group paid NPCSG for security service at a price and under contractual conditions considered normal business practice.
- Expenses	47.30	
- Payable	15.88	

**9.2.1.32 GC-M PTA Company Limited (“GCMPTA”)**

GPSC and GCMPTA have a common major shareholder, namely GC, which holds 74.00% of GCMPTA's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power and steam		GPSC and GCMPTA entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Revenue	617.79	
- Receivable	60.91	
Other expenses for pipe-rack rental		GPSC Group rented pipe-racks from GCMPTA at a price and under terms and conditions considered normal business practice. GPSC made payment in advance and was booked as a fee for the long-term right to use the asset; however, expense was gradually booked throughout the contract period.
- Expenses	0.08	

**9.2.1.33 GC Polyols Company Limited (“GCP”)**

GPSC and GCP have a common major shareholder, namely GC, which holds 82.10% of GCP's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of electricity, steam, industrial water, and nitrogen		GPSC and GCP entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Revenue	125.96	
- Receivable	12.52	
Other income from pipe-rack rental		GPSC Group leased out its pipe-racks at a price and under terms and conditions considered normal business practice. Payment was made in advance and was booked as a fee for the long-term right to use the asset; however, income was gradually booked throughout the contract period.
- Revenue	1.41	

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Advance income from sale of power under Minimum Take-or-Pay terms		Since the annual actual value of product purchase was lower than the minimum value specified in the contract, GPSC requested advance payment (Minimum Take-or-Pay : MTOP) from GCGC.
- Advance revenue	39.10	If the purchase volume exceeds the minimum volume specified in the contract within the agreed period, GCGC can seek refund of such advance payment commensurate with the excess volume consumed. GPSC will book the remaining MTOP as the revenue for the year if GCP is unable to consume power over the minimum volume.
- Receivable	41.73	

#### 9.2.1.34 GC Oxirane Company Limited (“GCO”)

GPSC and GCO have a common major shareholder, namely GC, which wholly owns GCO.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of electricity, steam, industrial water, and nitrogen		GPSC and GCO entered into individual sales agreements of each product with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Revenue	1,259.71	
- Receivable	127.17	
Other income from pipe-rack rental		GPSC Group leased out its pipe-racks at a price and under terms and conditions considered normal business practice. Payment was made in advance and was booked as a fee for the long-term right to use the asset; however, income was gradually booked throughout the contract period.
- Revenue	0.61	

**9.2.1.35 Thai PET Resin Company Limited (“TPRC”)**

GPSC and TPRC have a common major shareholder, namely GC, which holds 74.00% of TPRC's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power		GPSC and TPRC entered into power purchase agreement of each product with price and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Revenue	79.29	
- Receivable	8.50	

**9.2.1.36 Tiger Energy Trading Pte. Ltd. (“TET”)**

GPSC and TET have a common major shareholder, namely PTT, which wholly owns TET.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on coal		GPSC and subsidiaries bought coal for their processes at prices comparable to prices offered by other vendors, considered normal business practice.
- Expenses	772.01	

**9.2.1.37 PTT MCC Biochem Company Limited (“PTTMCC”)**

GPSC and PTTMCC have a common major shareholder, namely GC, which holds 50.00% of PTTMCC's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power		GPSC and PTTMCC entered into power purchase agreement with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC considered normal business practice.
- Revenue	63.19	
- Receivable	4.02	



#### 9.2.1.38 Business Professional Solutions Company Limited (“BPS”)

GPSC and BPS have a common major shareholder, namely PTT, which wholly owns BPS through BSA.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on the staff outsourcing service		GPSC Group hired BPS to provide outsourcing services of personnel to fit GPSC's objectives with rates and terms considered normal business practice.
- Expenses	3.92	
- Payable	6.30	
- Asset cost	11.61	

#### 9.2.1.39 GC Marketing Solutions Company Limited (“GCM”)

GPSC and GCM have a common major shareholder, namely GC, which holds 99.00% of GCM's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on polymer purchase		GPSC Group bought HDPE to produce Floating Solar at a price and under contractual conditions considered normal business practice.
- Payable	1.69	
- Asset cost	3.96	
Expenses on consumables and office supplies		GPSC purchased furniture and fixtures from GCM with prices and terms considered normal business practice.
- Expenses	0.04	

#### 9.2.1.40 PTT Energy Solutions Company Limited (“PTTES”)

GPSC and PTTES have common major shareholders, namely PTT, GC, and TOP, holding 40.00%, 20.00%, and 20.00% of PTTES's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on the consultation service		GPSC hired PTTES to develop a management of change procedure at a price and under contractual conditions considered normal business practice.
- Expenses	1.35	

**9.2.1.41 Global Renewable Power Company Limited (GRP)**

GPSC and GRP have a common major shareholder, namely PTT, which holds 50.00% of GRP's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Loan		GRP received financial assistance from GPSC at an interest rate comparable to the interest rate of loans issued by commercial banks with comparable payment period and terms.
- Loan	676.30	
- Interest earned	23.05	
- Receivable	10.53	
Income from GRP secondment		GPSC seconded its employees to GRP in support of GRP's business with prices and terms considered normal business practice.
- Revenue	1.46	
- Receivable	0.73	
Income from shared service		GPSC provided shared services to GRP in support of GRP's business with prices and terms considered normal business practice.
- Revenue	0.46	
Other income		GPSC sold assets to GRP at prices and under terms considered normal business practice.
- Revenue	0.02	
- Receivable	0.52	
Other expenses		GRP was hired by GPSC as consultant at a rate and under terms considered normal business practice.
- Expenses	13.47	
- Payable	13.47	

**9.2.1.42 Global Renewable Power Operating (Thailand) Company Limited (GRPO)**

GPSC and GRPO have a common major shareholder, namely PTT, which holds 50.00% of GRPO's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expense on solar farm maintenance		GRPO entered into an agreement with GPSC to receive operation and maintenance services for the solar rooftop PV system with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC, considered normal business practice.
- Expenses	0.81	
- Payable	0.17	

#### 9.2.1.43 World Exchange Asia Company Limited (WXA)

GPSC and WXA have a common major shareholder, namely PTT, which holds 50.00% of WXA's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Loan		WXA received financial assistance from GPSC
- Interest earned	0.06	at an interest rate comparable to the interest rate of loans issued by commercial banks with comparable payment period and terms.

#### 9.2.1.44 P. P. Solar Company Limited (PPS)

GPSC and PPS have a common major shareholder, namely PTT, which holds 50.00% of PPS's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from engineering design, procurement and construction (EPC) service		GPSC entered into an agreement with PPS to provide EPC services with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC, considered normal business practice.
- Revenue	36.04	
- Receivable	0.40	

#### 9.2.1.45 N.P.S. Stargroup Company Limited (NPS)

GPSC and NPS have a common major shareholder, namely PTT, which holds 50.00% of NPS's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Loan		NPS received financial assistance from GPSC
- Interest earned	0.11	at an interest rate comparable to the interest rate of loans issued by commercial banks with comparable payment period and terms.

**9.2.1.46 Global Renewable Power Company Limited 1 (GRP1)**

GPSC and GRP1 have a common major shareholder, namely PTT, which holds 50.00% of GRP1's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Loan		GRP1 received financial assistance from GPSC
- Loan	967.80	at an interest rate comparable to the interest
- Receivable	11.45	rate of loans issued by commercial banks with
- Interest earned	11.79	comparable payment period and terms.
Income		GPSC provided consultation services to GRP1
- Revenue	74.29	at a rate and under terms considered normal
- Receivable	79.49	business practice.

**9.2.1.47 Kuraray GC Advanced Materials Company Limited (KGC)**

GPSC and KGC have a common major shareholder, namely PTT, which holds 33.40% of KGC1's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power		GPSC and KGC entered into power purchase agreements with prices and terms that
- Revenue	3.08	followed the same guidelines as those for other
- Receivable	2.46	customers, both related and unrelated to GPSC.

**9.2.1.48 ENVICCO Limited (ENVICCO)**

GPSC and ENVICCO have a common major shareholder, namely PTT, which holds 70.00% of ENVICCO's paid-up registered capital.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power and steam		GPSC and ENVICCO entered into power and steam purchase agreements with prices and
- Revenue	2.03	terms that followed the same guidelines as those
- Receivable	0.93	for other customers, both related and unrelated
- Advance revenue	1.73	to GPSC.

#### 9.2.1.49 AI and Robotics Ventures Company Limited (ARV)

GPSC and ARV have a common major shareholder, namely PTT, which wholly owns ARV.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on machinery inspection - Expenses	0.28	GPSC hired ARV to run a drone machinery inspection with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC.

#### 9.2.1.50 On-I on Solutions Company Limited (On-I On)

GPSC and On-I On have a common major shareholder, namely PTT, which wholly owns On-I On.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on EV chargers - Asset cost	0.15	GPSC purchased 7kW ECO PTT EV Chargers and installed them at a batter plant.

#### 9.2.1.51 IRPC Technology Company Limited (IRPC Technology)

GPSC and IRPC Technology have a common major shareholder, namely PTT, which wholly owns IRPC Technology.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Income from sale of power - Revenue - Receivable	0.39 0.13	GPSC and IRPC Technology entered into power purchase agreements with prices and terms that followed the same guidelines as those for other customers, both related and unrelated to GPSC.



**9.2.1.52 EVME PLUS Company Limited (EVME)**

GPSC and EVME have a common major shareholder, namely PTT, which wholly owns EVME through Arun Plus.

Transaction description	Connected transaction value for the year ended December 31, 2021 (THB million)	Justification and sensibility
Expenses on EV rentals		GPSC rented electric vehicles from EVME at a
- Payable	0.17	rate and under terms that followed the same
- Interest payment on financial lease agreement	0.02	guidelines as those for other customers, both related and unrelated to GPSC.

**9.2.2 Approval Measures And Procedures For Connected Transactions**

For connected transactions involving GPSC and/or its subsidiaries with potential parties of conflict, vested interests, or potential future conflicts of interest, the Audit Committee provides its views on the justification of transaction engagement and the price sensibility of such transactions to ensure that the terms involved follow the normal course of business, that third-party price comparison or market price comparison is made, that prices or terms of such transactions at the same level exist for third parties, or that such transaction engagement can apparently contain sensible or fair prices or terms, or all of these. If the Audit Committee cannot scrutinize potential connected transactions, GPSC may arrange for an independent expert or its own external auditor to comment on such transactions in support of decisions by the Board, the Audit Committee, or the shareholders, as seen fit. The essential guidelines for such scrutiny are as follows:

- 1. Product sales prices or service fees:** These must be normal-business transactions or those in support of normal businesses. Prices and commercial terms must at arm's-length for all customers, both related and unrelated to GPSC.
- 2. Product purchase prices or service fees:** These must be normal-business transactions or those in support of normal businesses. Prices and commercial terms must be set under compatible criteria to those charged by business partners in question to other customers. Finally, engagement in such transactions must not compromise GPSC's interests.
- 3. Asset sales/purchases transactions:** These could periodically arise as needed and as seen suitable, including acquisition of businesses to grow business under GPSC's investment plans and expansion plans. In engaging in these transactions, the management or independent experts, or both (as seen fit), assess and comment on the sensibility of prices and commercial terms involved.

As for approval of connected transactions, those potential parties of conflict or vested interests have no voting rights on transaction approval so as to ensure that such engagement does not transfer or siphon interests between GPSC or its shareholders. Rather, the transactions must be in all shareholders' best interests. GPSC will disclose connected transactions in the notes to the audited financial statements signed by the external auditor in the Annual Information Form / Annual Report (Form 56-1 One Report).

GPSC complies with the laws, regulations, and procedures of SEC, the Capital Market Supervisory Board, and SET on connected transactions, related party transactions, and acquisition or disposal of assets under applicable rules for listed companies.

## **Independent Directors' Views**

Independent directors agree with the Board of Director's views.

### **9.2.3 Policy for Connected Transactions**

1. GPSC's directors and management prepare reports on their individual vested interests with related parties and notify the company for use as reference for taking action under applicable requirements for connected transactions.
2. Avoid engagement in connected transactions of potential conflicts of interest.
3. If a connected transaction proves unavoidable, GPSC must follow the procedures and comply with applicable laws, which include those criteria set by SEC and SET.
4. Set arm's-length prices and terms for connected transactions that are fair, sensible, and in the best interests of GPSC and all shareholders. If such prices are unavailable, GPSC must compare prices or service fees with third-party sources under the same or similar terms.
5. Those with vested interests in connected transactions cannot approve or vote on them.
6. In scrutinizing connected transactions, GPSC may appoint an independent assessor to evaluate and compare prices for significant ones to ensure that such connected transactions are sensible and in the best interests of GPSC and all shareholders.

### **9.2.4 Trends For Connected Transactions With Potential Parties Of Conflict**

For future connected transactions, GPSC must comply with all laws on securities and exchanges, regulations, announcements, directives, or requirements of the Capital Market Supervisory Board, SEC, and SET. Engagement in such transactions must not result in benefit transfers or siphoning of interests between GPSC or its shareholders, or both, but rather be in the best interests of GPSC and all shareholders.

For routine transactions likely to regularly occur, GPSC must follow the criteria and approaches of general commercial practices, with price references and terms that are suitable and fair, sensible, and auditable. Such transaction engagement must follow principles on agreements with general commercial terms approved by the Board of Directors. To this end, the management must prepare a summary of connected transactions for reporting to the Audit Committee each year.

Disclosure of GPSC's connected transactions must comply with all laws and regulations set by SEC and SET.

GPSC's connected transactions in the last three years are available for shareholders and/or investors in the Annual Reports or Form 56-1 on GPSC's website [https://investor-th.gpscgroup.com/form\\_561.html](https://investor-th.gpscgroup.com/form_561.html).





ATTACHMENT



- **Attachment 1**  
Details about Directors, Executives, Chief Financial Officer, Chief Accountant, Company Secretary and Chief of Compliance
- **Attachment 2**  
Details of Director in the Subsidiary Companies, as of December 31, 2021
- **Attachment 3**  
Details about the Chief of Internal Audit
- **Attachment 4**  
Details of Operating Asset
- **Attachment 5**  
Full version of the Corporate Governance Policy and Guidelines
- **Attachment 6**  
Report of the Audit Committee



## Attachment 1

### Details about Directors, Executives, Chief Financial Officer, Chief Accountant, Company Secretary and Chief of Compliance



#### Mr. Pailin Chuchottaworn

##### Chairman of the Board / Independent Director (Non-Executive Director)

**Date Appointed:** April 2, 2021 (2<sup>nd</sup> Term)  
September 1, 2019 (1<sup>st</sup> Term)

**Age:** 65

##### Education

- Doctor of Engineering in Chemical Engineering from Tokyo Institute of Technology Japan (Japanese government scholarship), 1985
- Master of Engineering in Chemical Engineering from Tokyo Institute of Technology Japan (Japanese government scholarship), 1982
- Bachelor of Engineering in Chemical Engineering with 1<sup>st</sup> Class Honor, Chulalongkorn University, 1979

##### Training Record with Thai Institute of Directors (IOD)

- Director Certification Program (DCP 51/2004)
- Director Accreditation Program (DAP 24/2004)
- Finance for Non-Finance Directors (FND 14/2004)
- Anti-corruption for Executive Program (ACEP 4/2012)

##### Other Training Record

- Certificate in Top Executives in the Energy Education Program (Class of 1<sup>st</sup>), Thailand Energy Academy (TEA)
- Corporate Governance Program for Directors and Executives of State Enterprises and Public Organizations (Class of 7<sup>th</sup>), King Prajadhipok's Institute
- Diploma, The Joint State-Private Sector Course, National Defence College (Class of 22<sup>nd</sup>), National Defence College

- Top Executive Program (Class of 8<sup>th</sup>), Capital Market Academy (CMA)
- Top Executive Program in Commerce and Trade (TEPCoT) (Class of 1<sup>st</sup>), Commerce Academy
- PTT-GE Executive Leadership Program 2008, GE Crotonville, U.S.A.
- NIDA-Wharton Executive Leadership Program 2007, Wharton University of Pennsylvania, U.S.A.
- Industrial Liaison Program (ILP) 2005, Massachusetts Institute of Technology, U.S.A.

##### Current Position in Other Organizations

##### Listed Company-The Stock Exchange of Thailand 2 Organizations

- Independent Director/Member of the Executive Committee/Member of the Technology Committee, The Siam Commercial Bank Public Company Limited
- Independent Director (Non-Executive), /Thaioil Public Company Limited

##### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 10 Organizations

- Director of SCB 10X Co., Ltd
- Chairman of Vidyasirimedhi Institute of Science and Technology Council
- Chairman of Governing Board Kamnoetvidya Science Academy (KVIS)
- Board, National Higher Education Science Research and Innovation Policy Council
- Chairman, Committee on Economic Steering
- Advisor to the Prime Minister
- Board Member, The Board of Investment of Thailand. (BOI)
- Director of National Electric Vehicle Policy Committee Ministry of Energy
- Advisory Committee of Devawongse Varopakarn Institute of Foreign Affairs (DVIFA)
- Member of Office of the National Economic and Social Development Council

**Working Experience (5-Year Past Experience)**

2020–Apr 30, 2021	Independent Director/ Chairman of the Enterprise Risk Management Committee, PTT Public Company Limited	2017–Nov 17, 2017	Independent Committee for Education Reform
2020–Apr 14, 2021	Board Member, Oman Oil Company SAOC	2017–Nov 17, 2017	Expert Member, Board of Directors, Ministry of Digital Economy and Society
2017–Jul 15, 2019	Deputy Minister of Transport	2017–Nov 17, 2017	Expert Member, Committee on Education Management Development Collaboration with High-Potential Foreign Higher Education Institutions
Mar 11, 2019–Jul 15, 2019	Advisor to the Prime Minister	2017–Nov 17, 2017	Director, Committee National Quality Award, Office Institute for Productivity
2015–Nov 17, 2017	Director of Thai Institute of Directors	2017–Nov 17, 2017	Advisor, Chulalongkorn University Council
2015–Nov 17, 2017	Chairman of VISTEC Council, Vidyasirimedhi Institute	2017–Nov 17, 2017	Board of Commissioners, Digital Economy Promotion Agency
2015–Nov 17, 2017	Chairman of the Board of Governors, Kamnoetvidya Science Academy	2017	Member of the Committee for Special Economic Zone Development Bureau of Industrial Potential of the Nation Office of Industrial Economics Ministry of Industry
2016–Nov 17, 2017	Expert Commissioners, Public Organization Development and Promotion Committee	2015–2017	Advisor, Sasin Graduate Institute of Business Administration of Chulalongkorn University
2016–Nov 17, 2017	Expert Commissioners, The Securities and Exchange Commission	2012–Jul 31, 2017	Member, Board of Trustees, Mahidol University
2016–Nov 17, 2017	Expert commissioners, National Research Council of Thailand		
2016–Jul 31, 2017	Director, Bangkok Bank Public Company Limited		
2016–2017	Director of the Faculty of Economics, Thammasat University		
2017–Nov 17, 2017	Director, Power of Innovation and Power of Learning		
2017–Nov 17, 2017	Director of the University Council, Kasetsart University		
2017–Nov 17, 2017	Subcommittee on Personnel Development, Research and Innovation National, Research and Innovation Policy Council		

**Shareholding in GPSC (including Spouse and Minor)**

- None

**Qualified According to Related Laws and Does Not Have Prohibited Qualifications**

- Qualified

**Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries**

- None



## Mr. Kurujit Nakornthap

**Independent Director / Chairman of the Corporate Governance Committee / Member of the Audit Committee (Non-Executive Director)**

**Date Appointed:** June 4, 2020 (2<sup>nd</sup> Term)  
April 3, 2017 (1<sup>st</sup> Term)

**Age:** 66

### Education

- Ph.D. in Petroleum Engineering, University of Oklahoma, U.S.A.
- Master of Engineering in Petroleum Engineering, University of Oklahoma, U.S.A.
- Bachelor of Engineering in Petroleum Engineering, University of Oklahoma, U.S.A.

### Training Record with Thai Institute of Directors (IOD)

- Director Accreditation Program (DAP 64/2007)
- Audit Committee Program (ACP 32/2010)
- Role of Compensation Committee (RCC 12/2011)
- R-CF-Chairman Forum (R-CF 2/2013)
- Collective Action Against Corruption Conference (C-Conference 1/2014)

### Other Training Record

- The National Defence Course (Batch 51), National Defence College
- Senior Judicial Process Administrators (Baw Yaw Saw), Class 24, Judicial Training Institute
- Top Executive Program in Commerce and Trade (TEPCoT) (Batch 3),
- Commerce Academy, University of the Thai Chamber of Commerce
- Training Course on Administrative Justice for Executives, (Batch 2), Office of the Administrative Courts of Thailand

- Capital Market Academy Leader Program (Batch 13), Capital Market Academy
- Top Executives in the Energy Education Program (Batch 1), Thailand Energy Academy
- Bhumipalung Phandin Course for Executives (Batch 2), Chulalongkorn University
- Civil Service Executive Program: Visionary and Moral Leadership, (Batch 46), Office of the Civil Service Commission
- Senior Executive Program (SEP), (Batch 60), London Business School, United Kingdom
- Training Course on Leadership for Change (Batch 2), Right Livelihood Foundation & Matichon Publishing Group
- Systematic Problem Solving and Decision Making (SPSDM), Office of the Civil Service Commission in cooperation with ACI Consultants Company Limited
- Academic Seminar: "Money Laundering"
- Seminar: Anti-corruption: "Leadership Role of the Board"

### Current Position in Other Organizations

#### Listed Company–The Stock Exchange of Thailand 1 Organization

- Independent Director, Bound And Beyond Public Company Limited

#### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 3 Organizations

- Executive Director, Petroleum Institute of Thailand Foundation
- Member of the Council of State
- Co-Chairman (Thailand), Malaysia–Thailand Joint Authority

**Working Experience (5-Year Past Experience)**

Oct, 2015–Aug, 2017	Chairman of Energy Affairs Committee and Member of the National Reform Steering Assembly (NRSA)
Feb, 2016–Oct, 2016	Executive Member of the National Research Council of Thailand
Jun, 2015–Sep, 2015	Permanent Secretary, Ministry of Energy
Oct, 2014–Jun, 2015	Deputy Permanent Secretary, Ministry of Energy
Oct, 2014–Sep, 2015	Member of National Reform Steering Assembly
Jul, 2014–Sep, 2014	Director-General, Department of Mineral Fuels, Ministry of Energy
2011–2014 / 2015	Director and Chairman of the Board, Electricity Generating Authority of Thailand

**Shareholding in GPSC (including Spouse and Minor)**

- Self 57,029 shares (0.00020225%)

**Qualified According to Related Laws and Does Not Have Prohibited Qualifications**

- Qualified

**Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries**

- None

**Mr. Pakorn Apaphant****Independent Director / Member of the Risk Management (Non-Executive Director)**

**Date Appointed:** April 2, 2021 (1<sup>st</sup> Term)

**Age:** 53

**Education**

- Ph.D. (Civil Engineering), Purdue University, Indiana, USA
- M.Sc. (Civil Engineering), Purdue University, Indiana, USA
- B.Eng. (Mechanical Engineering), King Mongkut's Institute of Technology, Ladkrabang, Thailand

**Training Record with Thai Institute of Directors (IOD)**

- Director Accreditation Program (DAP 72/2008)
- Audit Committee Program (ACP 34/2011)
- Financial Statements for Directors (FSD 35/2018)
- How to Develop a Risk Management Plan (HRP 27/2020)
- Risk Management Program for Corporate Leaders (RCL 20/2020)

**Other Training Record**

- Capital Market Leader Program (Batch 30), Capital Market Academy
- Diploma Course on Corporate Governance for Directors and Senior Executives of Regulators, State Enterprises, and Public Organizations (Batch 17),
- Advanced Certificate Course in Politics and Governance in Democratic Systems for Executives (Batch 20), King Prajadhipok's Institute
- Executive Energy Program (Batch 1), The Institute of Industrial Energy, The Federation of Thai Industries
- Advanced Certificate Course in Promotion of a Peaceful Society (Batch 4), King Prajadhipok's Institute
- Course on Political Leadership in the New Era (Batch 3), King Prajadhipok's Institute



### Current Position in Other Organizations

#### Listed Company–The Stock Exchange of Thailand 1 Organization

- Chairman, One To One Contacts Public Company Limited

#### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 3 Organizations

- Executive Director, Geo-informatics and Space Technology Development Agency (Public Organization)
- Director, Dhanarak Asset Development Company Limited
- Director, DAD SPV Company Limited

### Working Experience (5–Year Past Experience)

2019–2020	Director, Electricity Generating Authority of Thailand
2017–2020	Director, Expressway Authority of Thailand
2018–2020	Director, Geo-informatics and Space Technology Development Agency (Public Organization)
2017–2019	Chairman, Nex Point Public Company Limited
2008–2018	Director, Eastern Commercial Leasing Public Company Limited
2014–2017	Director, Data Mining Company Limited

### Shareholding in GPSC (including Spouse and Minor)

- None

### Qualified According to Related Laws and Does Not Have Prohibited Qualifications

- Qualified

### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None



## Maj.Gen. Chaowalek Chayansupap

### Independent Director / Chairman of the Nomination and Remuneration Committee / Member of the Audit Committee (Non Executive Director)

**Date Appointed:** April 1, 2019 (3<sup>rd</sup> Term)  
April 4, 2016 (2<sup>nd</sup> Term)  
January 20, 2016 (1<sup>st</sup> Term)

**Age:** 65

### Education

- Bachelor of Science, Chulachomklao Royal Military Academy

### Training Record with Thai Institute of Directors (IOD)

- Director Certification Program (DCP 217/2016)
- Advanced Audit Committee Program (AACP 24/2016)

### Other Training Record

- Top Executives in the Energy Education Program (Batch 9), Thailand Energy Academy
- Officer Basic Course, Infantry School, Infantry Center
- Officer Advance Course, Infantry School, Infantry Center
- Logistics Management Course, The Royal Thai Army Logistics School
- Command and General Staff Course, Command and General Staff College
- Officer Comptroller General Course (Manager Level), Army School, Military Finance Department

### Current Position in Other Organizations

#### Listed Company–The Stock Exchange of Thailand

- None

#### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand)

- None



**Working Experience (5-Year Past Experience)**

2016– 2017	Member of the Corporate Governance Committee, Global Power Synergy Public Company Limited
2013–2016	Army Expertise, Royal Thai Army

**Shareholding in GPSC (including Spouse and Minor)**

- None

**Qualified According to Related Laws and Does Not Have Prohibited Qualifications**

- Qualified

**Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries**

- None

**Mrs. Nicha Hiranburana Thuvatham****Independent Director / Member of the Corporate Governance Committee (Non-Executive Director)**

**Date Appointed:** April 2, 2021 (2<sup>nd</sup> Term)  
April 3, 2018 (1<sup>st</sup> Term)

**Age:** 53

**Education**

- Master's Degree, International Studies, Ohio University, U.S.A. (Foreign Student Scholarship)
- Bachelor of Political Science (Second Class Honors), Chulalongkorn University

**Training Record with Thai Institute of Directors (IOD)**

- Director Accreditation Program (DAP 164/2019)

**Other Training Record**

- Senior Management Course–Visionary and Ethical Leadership, Office of the Civil Service Commission
- Advanced Certificate Course in Promotion of Peaceful Society, King Prajadhipok's Institute
- Human Resources Management for Public Sector, Office of the Civil Service Commission
- Public Sector Management Certificate

**Current Position in Other Organizations****Listed Company–The Stock Exchange of Thailand**

- None

**Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 1 Organization**

- Deputy Secretary–General to the Prime Minister for Administrative Affairs, Secretariat of the Prime Minister Office of the Prime Minister

### Working Experience (5–Year Past Experience)

March 7, 2016	Deputy Secretary–General to the Prime Minister for Administrative Affairs, Secretariat of the Prime Minister Office of the Prime Minister Deputy Director, Prime Minister Delivery Unit
April 1, 2015	Assistant Secretary–General to the Prime Minister
2010–2014	Advisor to the Prime Minister on Social, Secretariat of the Prime Minister

### Shareholding in GPSC (including Spouse and Minor)

- None

### Qualified According to Related Laws and Does Not Have Prohibited Qualifications

- Qualified

### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None



## Mrs. Saowanee Kamolbutr

### Independent Director / Chairman of the Audit Committee (Non–Executive Director)

**Date Appointed:** June 4, 2020 (1<sup>st</sup> Term)

**Age:** 69

### Education

- Master of Political Science (Public Administration) (M.Pol.Sc.), Thammasat University
- Bachelor of Arts in Political Science (Public Administration), Thammasat University

### Training Record with Thai Institute of Directors (IOD)

- Director Certification Program (DCP 69/2006)
- Role of the Compensation Committee (RCC 8/2009)
- Role of the Chairman Program (RCP 23/2010)
- Financial Institutions Governance Program (FGP 1/2010)
- Advance Audit Committee Program (AAP 17/2014)
- Boards that make a difference (BMD 9/2019)
- IT Governance and Cyber Resilience Program (ITG 15/2020)

### Other Training Record

- National Defense College of Thailand (NDC) 2548
- Capital Market Academy (CMA) Class No.7
- Senior Executive Program (Kellogg–Sasin)
- The Management Development Program (Wharton School)
- Top Executive Program in Commerce and Trade (TEPCoT), Commerce Academy in The University of the Thai Chamber of Commerce
- Advance Security Management Program (ASMP4), Thailand National Defence College
- Certificate in Public Reform University of Victoria, New Zealand

**Current Position in Other Organizations****Listed Company–The Stock Exchange of Thailand  
4 Organizations**

- Independent Director / Member of the Audit Committee, TK Public Company Limited
- Independent Director / Member of the Audit Committee / Member of the Risk Management Committee / Chairman of the Board, FN Factory Outlet Public Company Limited
- Independent Director / Chairman of the Audit Committee / Chairman of the Risk Management Committee / Vice Chairman of the Nomination and Remuneration Committee, Carabao Group Public Company Limited
- Independent Director / Member of the Risk Management Committee / Chairman of the Audit Committee, T.K.S. Technologies Public Company Limited

**Other Organizations / Companies (Not Listed in the  
Stock Exchange of Thailand) 2 Organizations**

- Honorary Director, The Council of Southeast Bangkok College
- Independent Director / Chairman, AIRA Asset Management Company Limited

**Working Experience (5-Year Past Experience)**

2016–Jan.2020	Independent Director/ Chairman of the Audit Committee / Member of Nomination / Remuneration Committee, Glow Energy Public Company Limited
2017–2019	Independent Director / Chairman / Pacific Pipe Public Company Limited
2014–2019	Advisor / The Committee on Economics / Monetary Affairs and Finance, The Committee of the National Legislative Assembly

2014–2018	Honorary Director, Rajapark Institute
2014–2017	Independent Director / Chairman of the Executive Board, Small and Medium Enterprise Development Bank of Thailand (SME Bank)
2013–2017	Independent Director / Member of the Audit Committee, Interlink Communication Public Company Limited
2009–2012	Deputy Permanent Secretary, Ministry of Finance

**Shareholding in GPSC (including Spouse and  
Minor)**

- None

**Qualified According to Related Laws and Does  
Not Have Prohibited Qualifications**

- Qualified

**Family Relation with other Directors, Executives,  
Major Shareholders of GPSC and its Subsidiaries**

- None



## Mr. Somchai Meesen

### Independent Director / Member of the Corporate Governance Committee (Non-Executive Director)

**Date Appointed:** June 4, 2020 (1<sup>st</sup> Term)

**Age:** 53

#### Education

- Master of Political Science (Politics), Thammasat University
- Bachelor of Arts (History), Chiang Mai University

#### Training Record with Thai Institute of Directors (IOD)

- Director Accreditation Program (DAP 161/2019)

#### Current Position in Other Organizations

##### Listed Company–The Stock Exchange of Thailand 1 Organization

- Director/Vice Chairman of the Executive Committee, Nation Multimedia Group Public Company Limited

##### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 2 Organizations

- Chairman of the Board, Nation Foundation
- Director, Nation Digital Content Company Limited

#### Working Experience (5–Year Past Experience)

21 Oct 2019–15 Sep 2020	Director, Nat Business Connect Company Limited
Feb 2018–Mar 2020	Chief Executive Officer, Nation Multimedia Group Public Company Limited
Jun 2016–Dec 2019	Chairman of the Board of Directors, Max Metal Corporation Public Company Limited
Mar 2018–Aug 2019	Director, Nation International Edutainment Public Company Limited

Feb 2018–Jan 2019	Vice Chairman of the Board–Nation Broadcasting Corporation Public Company Limited
Jan 2017–Jun 2018	Director, AQ Estate Public Company Limited
Jan 2017–Jun 2018	Director, AQ Village Company Limited
Jan 2017–Jun 2018	Director, Aquarius Estate Company Limited
Jan 2017–Jun 2018	Director, Baan Chid tara Company Limited
Mar 2017–Jun 2018	Director, Aquarius Hotels and Resorts Company Limited
Jan 2017–Dec 2017	Director, Spring News Corporation Company Limited
Jun 2016–Dec 2017	Managing Director, Thansettakij Multimedia Company Limited

#### Shareholding in GPSC (including Spouse and Minor)

- None

#### Qualified According to Related Laws and Does Not Have Prohibited Qualifications

- Qualified

#### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None



## Mr. Noppadol Pinsupa

**Director / Member of the Nomination and Remuneration Committee / Chairman of the Risk Management Committee  
(Non-Executive Director)**

**Date Appointed:** November 1, 2021 (1<sup>st</sup> Term)

**Age:** 57

### Education

- Master of Engineering (Electrical Engineering), Chulalongkorn University
- Bachelor of Engineering (Electrical Engineering), Chulalongkorn University

### Training Record with Thai Institute of Directors (IOD)

- Director Certification Program (DCP 146/2011)
- Financial Statements for Directors Program (FSD 12/2011)
- Briefing on International Anti-Corruption International Cases and Practices (14 October 2015)

### Other Training Record

- 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 (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 2015 Japan-U.S.A.
- Program for Senior Executive on Justice Administration Batch, Class 19/2014, Judicial Training Institute

- Leadership Development Program III, PTT Leadership and Learning Institute
- Breakthrough Program for Senior Executives International Leading Business School (IMD) Lausanne, Switzerland
- Assessor Training Program, Thailand Quality Award (TQA)

### Current Position in Other Organizations

#### Listed Company-The Stock Exchange of Thailand 2 Organization

- Director (Non-executive Director) / Director to the Nomination and Remuneration Committee, PTT Global Chemical Public Company Limited
- Chief New Business and Infrastructure officer, PTT Public Company Limited

#### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 1 Organization

- Director, Arun Plus Company Limited

### Working Experience (5-Year Past Experience)

1 Oct 2021-Present	Chief New Business and Infrastructure Officer, PTT Public Company Limited
1 Dec 2020-30 Sep 2021	Senior Executive Vice President, Innovation and Digital, PTT Public Company Limited
3 Jul 2020-30 Nov 2020	Senior Executive Vice President of Chief Operating Officer, Downstream Petroleum Business, 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
2017	Chairman, PTT LNG Company Limited
Apr 2016–Jan 2019	Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited
Oct 2015–Jan 2019	Director / and Member of the Risk Management Committee, Thai Oil Public Company Limited
2014–2018	Chairman, PTT Natural Gas Distribution Company Limited
2015–2016	Executive Vice President working on Acting Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited

#### Shareholding in GPSC (including Spouse and Minor)

- Self 137,300 shares (0.00048693%)

#### Qualified According to Related Laws and Does Not Have Prohibited Qualifications

- Qualified

#### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None



## Mr. Atikom Terbsiri

### Director / Member of the Nomination and Remuneration Committee (Non-Executive Director)

**Date Appointed:** June 4, 2020 (2<sup>nd</sup> Term)  
January 1, 2020 (1<sup>st</sup> Term)

**Age:** 59

#### Education

- Master of Business Administration (Finance & International Business), High Distinction, Armstrong University, U.S.A.
- Bachelor of Business Administration, Assumption University, Thailand

#### Training Record with Thai Institute of Directors (IOD)

- Director Certification Program (DCP 125/2009)
- Risk Management Program for Corporate Leaders (RCL 4/2016)
- Role of the Chairman Program (RCP 41/2017)

#### Other Training Record

- Executive Education Program, Harvard Business School Harvard University, USA
- Advanced Security Management Program (ASMP 1), The National Defence College Association of Thailand
- Diploma, National Defence College, the State Private Sector and Political Sectors Course (Class 5)
- Capital Market Academy Program (Class 17), Capital Market Academy
- Executive Program on Energy Literacy for a Sustainable Future (Class 6), Thailand Energy Academy (TEA)
- CRISIS Management Training, PTT Leadership and Learning Institute (PLLI)

### Current Position in Other Organizations

#### Listed Company–The Stock Exchange of Thailand 2 Organizations

- Chief Operating Officer, Upstream Petroleum and Gas Business Group, PTT Public Company Limited
- Director, PTT Exploration & Production Public Company Limited

#### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 2 Organizations

- Executive Director, Thailand Energy Academy
- Director, Board of The Federation of Thai Industries (Term 2018–2020 and Term 2020–2022)

### Working Experience (5–Year Past Experience)

1 Sep 2019–Present	Chief Operating Officer, Upstream Petroleum and Gas Business Group, PTT Public Company Limited
1 Oct 2014–31 Aug 2019	Chief Executive Officer & President, Thaioil Public Company Limited
2013–30 Sep 2014	Senior Executive Vice President, Petrochemicals & Refining Business Unit, PTT Public Company Limited
2011–2013	President, IRPC Public Company Limited

### Shareholding in GPSC (including Spouse and Minor)

- Self 137,300 shares (0.0048693%)

### Qualified According to Related Laws and Does Not Have Prohibited Qualifications

- Qualified

### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None



## Mr. Wuttikorn Stithit

### Director (Non–Executive Director)

**Date Appointed:** April 1, 2019 (1<sup>st</sup> Term)

**Age:** 56

### Education

- Master Degree Master of Business Administration (Finance and Banking), Kasetsart University
- Master Degree M.S.(Science), Ohio University, U.S.A.
- Bachelor Degree Electrical Engineering, King Mongkut's Institute of Technology Ladkrabang

### Training Record with Thai Institute of Directors (IOD)

- Director Certification Program (DCP 158/2012)

### Other Training Record

- Leadership Development Program 3 (LDP3), PLLI
- Leadership Succession Program (LSP)
- Senior Executive Education Program, SIBA 2017
- Power of the Kingdom Class 4 / 2015 (Bhumipalung Phandin), Chula Unisearch, Chulalongkorn University
- Leadership Development Program 2 (LDP2), PLLI
- Senior Executive Program, SASIN 2011

### Current Position in Other Organizations

#### Listed Company–The Stock Exchange of Thailand 1 Organization

- Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited

#### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 2 Organizations

- Chairman, PTT Global LNG Company Limited
- Chairman, PTT Natural Gas Distribution Company Limited

## Working Experience (5–Year Past Experience)

1 Feb 2018–Present	Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited
1 Nov 2015– 31 Jan 2018	Executive Vice President, Natural Gas Supply & Trading, PTT Public Company Limited
1 Nov 2015– 31 Oct 2015	Executive Vice President, Natural Gas Distribution, PTT Public Company Limited

## Shareholding in GPSC (including Spouse and Minor)

• Self	None
• Spouse	10,000 shares (0.00003546%)
• Total	10,000 shares (0.00003546%)

## Qualified According to Related Laws and Does Not Have Prohibited Qualifications

- Qualified

## Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- Mrs. Sasitorn Stithit, Mr. Wuttikorn Stithit's spouse is serving as PTT's Vice President, Organization Development Department



## Mr. Kongkrapan Intarajang

### Director / Member of the Risk Management Committee (Non-Executive Director)

**Date Appointed:** April 1, 2019 (2<sup>nd</sup> Term)  
August 15, 2017 (1<sup>st</sup> Term)

**Age:** 54

### Education

- Doctor of Philosophy (Ph.D.) in Chemical Engineering, University of Houston, U.S.A.
- Bachelor of Engineering (Chemical Engineering) (Second-class Honors), Chulalongkorn University

### Training Record with Thai Institute of Directors (IOD)

- Role of the Chairman Program (RCP 21/2009)
- Director Certification Program (DCP 119/2009)

### Other Training Record

- Executive Development Training Program, The Royal Thai Police
- Capital Market Leader Program (Class 30), Capital Market Academy
- Leadership Development Program (LDP 3) Class 4/2019 PTT Leadership and Learning Institute
- 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

### Current Position in Other Organizations

#### Listed Company–The Stock Exchange of Thailand 3 Organizations

- 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, PTT Global Chemical Public Company Limited

#### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 17 Organizations

- Chairperson of Advisory Committee in relation to its investment in Allnex, PTTGC International (Netherlands) B.V.
- Chairman, PTTGC International (Netherlands) B.V.
- Chairman, GC International Corporation
- Chairman, PTTGC America LLC
- Chairman, PTTGC America Corporation
- Chairman, PTTGC International Private Limited
- Director and Member of The Nomination Committee and Remunerating Committee, Thai Institute of Directors Association (IOD)
- Director, Association of Capital Market Academy Alumni
- Advisor of the Member Relations, the Federation of Thai Industries
- Director, The Federation of Thai Industries
- Vice President (Supporting), Thailand Swimming Association
- Honorary Member of Vidyasirimedhi Institue Council
- 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

#### Working Experience (5-Year Past Experience)

24 Aug 2020– 25 Mar 2021	Committee Member of Sustainable Energy Foundation
31 Oct 2019– 31 Aug 2020	Director, GC International Corporation
9 Sep 2008– 31 Aug 2020	Director, PTTGC International Private Limited
6 Nov 2019– 20 Oct 2020	Director, Global Green Chemicals Public Company Limited

May 2017–Jan 2020	Director, Thai Tank Terminal Limited
Apr 2017–Sep 2019	Chief Operating Officer– Upstream Petrochemical Business, PTT Global Chemical Public Company Limited
Jul 2015–Sep 2019	Director / President & CEO, PTTGC America Corporation
Apr 2015–Sep 2019	Director, PTTGC Innovation America 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.
Sep 2014–Dec 2018	Director, NatureWorks LLC
Sep 2014–Dec 2018	Director, PTTGC International (USA) Inc.
Oct 2014–Mar 2017	Executive Vice President– International Business Operations, PTT Global Chemical Public Company Limited

#### Shareholding in GPSC (including Spouse and Minor)

- None

#### Qualified According to Related Laws and Does Not Have Prohibited Qualifications

- Qualified

#### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None



## Mr. Lavaron Sangsnit

### Director / Member of the Corporate Governance Committee (Non-Executive Director)

**Date Appointed:** September 1, 2021 (1<sup>st</sup> Term)

**Age:** 54

#### Education

- M.S. (Economic Policy and Planning), Northeastern University, U.S.A.
- Bachelor of Economics Chulalongkorn University

#### Training Record with Thai Institute of Directors (IOD)

- Director Certification Program (DCP 205/2015)

#### Other Training Record

- The Executive Program in Energy Literacy for a Sustainable Future Class of 12 Thailand Energy Academy (TEA)
- Capital Market Academy Programs Class of 25, Capital Market Academy
- Thailand National Defense College Class of 58, National Defence studies Institute

#### Current Position in Other Organizations

##### Listed Company–The Stock Exchange of Thailand 1 Organization

- Director, Krungthai Public Company Limited.

##### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 2 Organization

- Chairman, the Board of the Government Lottery
- Director General of the Excise Department

#### Working Experience (5-Year Past Experience)

2020–Present	Director General of The Excise Department
2018–2020	Director General of the Fiscal Policy Office
2016–2018	Inspector General of Ministry of Finance
2013–2016	Financial Policy Advisor
2012–2013	Deputy Director General of the Fiscal Policy Office

#### Shareholding in GPSC (including Spouse and Minor)

- None

#### Qualified According to Related Laws and Does Not Have Prohibited Qualifications

- Qualified

#### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None





## Mr. Wirat Uanarumit

### Director / Member of the Risk Management Committee (Non-Executive Director)

**Date Appointed:** June 4, 2020 (2<sup>nd</sup> Term)  
September 1, 2019 (1<sup>st</sup> Term)

**Age:** 59

#### Education

- Master of Business Administration, with emphasis in Financial Management, Pennsylvania State University, Pennsylvania, USA
- Bachelor of Engineering (Electrical Engineering), Chulalongkorn University

#### Training Record with Thai Institute of Directors (IOD)

- Director Certification Program (DCP 8/2001)
- Director Certification Program Update (DCPU 5/2015)
- Audit Committee Program (ACP 38/2012)
- Ethical Leadership Program (ELP 7/2017)

#### Other Training Record

- GE Global Customer Summit Crotonville
- Member, Beta Gamma Sigma (US National Scholastic Honour Society in Business)
- Advance Management Programme, INSEAD Business School, Fontainebleau, France
- Advanced Management Program (Class 184), Harvard Business School, USA
- Capital Market Academy Leader Program, Class 4, Capital Market Academy
- Advanced Security Management Program, Class 2, The National Defence College Association of Thailand (NDCAT)
- The Programme for Senior Executives on Justice Administration, Class 16, Judicial Training Institute, National Justice Academy
- Executive Development Program (EDP), Class 1, Thai Listed Companies Association (TLCA)

- The Joint State-Private Sector Course (Class 2013), National Defence College (NDC)
- Executive Management with Business Development and Investment (Class 2), Institute of Business and Industrial Development (IBID)
- Advanced Certificate Course in Politics and Governance in Democratic Systems for Executives, Class 20, King Prajadhipok's Institute
- The Rules of Law for Democracy (Class 6), College of the Constitutional Court
- The Executive Program in Energy Literacy for a Sustainable Future, Class 13, Thailand Energy Academy
- Thailand CG Forum: Governance as a Driving Force for Business Sustainability, The Stock Exchange of Thailand

#### Current Position in Other Organizations

##### Listed Company-The Stock Exchange of Thailand 3 Organizations

- Director and Secretary to the Board of Directors / Member of the Risk Management Committee / Chief Executive Officer and President, Thai Oil Public Company Limited
- Chief Executive Officer under Chief Operating Officer, Downstream Petroleum Business Group, PTT working on a Secondment as Chief Executive Officer and President Thai Oil Public Company Limited
- Director, Ubon Bio Ethanol Public Company Limited

##### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 19 Organizations

- Director, Sapthip Company Limited
- Director, Chairman of the Board, Top Solvent Company Limited
- Director and Chairman of the Board, Labix Company Limited
- Director and Chairman of the Board, Thai Paraxylene Company Limited
- Director, The Federation of Thai Industries (FTI) (Term 2020-2022)
- Vice President-Economic and Academic Work, The Federation of Thai Industries (FTI)

<ul style="list-style-type: none"> <li>• Director, The Joint Standing Committee on Commerce, Industry and Banking (JSCCB)</li> <li>• Director, National Economic Reform Steering Committee</li> <li>• Advisory Committee, Promotion and Supporting Office of Industries, The Federation of Thai Industries (FTI)</li> <li>• Director, Power of Sustainable Future Foundation (PSF)</li> <li>• Member of Council, Vidyasirimedhi Institute of Science and Technology (VISTEC)</li> <li>• Executive Director, Thailand Swimming Association (TSA)</li> <li>• Member of Trustee (as Company representative), Petroleum Institute of Thailand (PTIT)</li> <li>• Council of Trustee, Thailand Business Council of Sustainable Development (TBCSD)</li> <li>• Executive Director, Thailand Energy Academy (TEA)</li> <li>• Advisor to the President, Association of Capital Market Academy (ACMA)</li> <li>• Director/Member of Audit Committee, Thailand Management Association (TMA)</li> <li>• Director, Thai Listed Companies Association (TLCA)</li> <li>• Advisory Committee of the Petroleum and Petrochemical College, Chulalongkorn University</li> </ul>	<p>2015–Aug 31, 2019</p> <p>November 30, 2018–2019</p> <p>October 2016–2019</p> <p>June 2017–October 2017</p> <p>2016–2017</p> <p>January–September 2016</p> <p>May 1, 2014–September 30, 2016</p>	<p>Director/Member of the Risk Management Committee, PTT Exploration and Production Public Company Limited</p> <p>Director and Chairman of the Board, PTTLNG Company Limited</p> <p>Director, Sakari Resources Limited</p> <p>Chairman, PTT Global LNG Company Limited</p> <p>Chairman, PTT Energy Resources Company Limited</p> <p>Director, Thai Oil Public Company Limited</p> <p>Chief Financial Officer, PTT Public Company Limited</p>
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### Working Experience (5–Year Past Experience)

Sep 1, 2019–Present	Chief Executive Officer and President, Thai Oil Public Company Limited
Oct 1, 2016–Aug 31, 2019	Chief Operating Officer, Upstream Petroleum and Gas Business Group, PTT Public Company Limited

### Shareholding in GPSC (including Spouse and Minor)

- None

### Qualified According to Related Laws and Does Not Have Prohibited Qualifications

- Qualified

### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None



## Mr. Jeerawat Pattanasomsit

### Director (Non-Executive Director)

**Date Appointed:** November 1, 2021 (1<sup>st</sup> Term)

**Age:** 48

### Education

- Master Degree M.S. in Petrochemical Technology, The Petroleum and Petrochemical College, Chulalongkorn University
- Bachelor Degree (First Class Honors) Engineering Program in Chemical Engineering, Kasetsart University

### Training Record with Thai Institute of Directors (IOD)

- Director Certification Program (DCP 186/2014)
- IT Governance and Cyber Resilience Program (ITG 16/2021)
- Director Refreshment Program (DRP 3/2021)

### Other Training Record

- TLCA Executive Development Program (EDP) of Thai Listed Companies Association (TLCA)
- PTT-Harvard Business School Leadership Development Program
- Entrepreneurship Program
- Leadership Development Program

### Current Position in Other Organizations

#### Listed Company-The Stock Exchange of Thailand 2 Organization

- Director / Member of the Executive Committee Meeting / Member of the Risk Management Committee, Ubon Bio Ethanol Public Company Limited
- Executive Vice President-Power, New Business and Digitalization and Acting Vice President-New S-Curve Business Development, Thai Oil Public Company Limited

#### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 8 Organizations

- Director, PTT Digital Solutions Company Limited
- Director / Chairman of Executive Board, Sapthip Co., Ltd.
- Director / Chairman of the Board, TOP Ventures Company Limited

- Director, Thaioil Treasury Center Company Limited
- Director / Chairman of the Board, TOP Ventures Hong Kong Limited
- Director / Chairman of the Board, TOP Ventures America LLC
- Director / Chairman of the Board, TOP SPP Company Limited
- Director / Chairman of the Board, Thaioil Ethanol Company Limited

### Working Experience (5-Year Past Experience)

Feb 2015–Aug 2016	Director/Managing Director, Thai Paraxylene Company Limited
Feb 2015–Aug 2016	Director/Managing Director, Thai Lube Base Public Company Limited
Mar 2015–Mar 2021	Director, Sak Chaisidhi Company Limited
Sep 2015–Jul 2016	Vice President–Petrochemical and Lube base, Thai Oil Public Company Limited
Aug 2016–Oct 2018	Vice President–Refinery, Thai Oil Public Company Limited
Oct 2018–Apr 2019	Acting Executive Vice President–Manufacturing and Vice President–Refinery, Thai Oil Public Company Limited
Nov 2018–Feb 2021	Director, Thai Oil Power Company Limited
Apr 2019–Dec 2020	Executive Vice President–Manufacturing and Acting Vice President–Refinery, Thai Oil Public Company Limited
Jan 2021–Present	Executive Vice President–Power, New Business and Digitalization and Acting Vice President–New S-Curve Business Development, Thai Oil Public Company Limited

### Shareholding in GPSC (including Spouse and Minor)

- None

### Qualified According to Related Laws and Does Not Have Prohibited Qualifications

- Qualified

### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None



## Mr. Worawat Pitayasiri

**Director / Secretary to the Board / Member of the Risk Management Committee / President and Chief Executive Officer (Executive Director)**

**Date Appointed:** April 2, 2021, (2<sup>nd</sup> Term)  
December 1, 2020 (1<sup>st</sup> Term)

**Age:** 55

### Education

- Master of Business Administration, Thammasart University
- Bachelor of Engineering (Chemical Engineering), Chulalongkorn University

### Training Record with Thai Institute of Directors (IOD)

- Director Certification Program (DCP 158/2012)

### Other Training Record

- Advanced Certificate Course Politics and Governance in Democratic Systems for Executives, Class 22<sup>nd</sup>, King Prajadhipok's Institute
- NIDA-Wharton Executive Leadership Program, Class of 2009, The Wharton School of the University of Pennsylvania, USA
- Asia Petrochemical Industry Conference (APIC), Class 2 / 2017, Japan Petrochemicals Industry Association
- Senior Executive Program (SEP), Class 26/2012, Sasin Graduate Institute of Business Administration, Chulalongkorn University
- PTT Group VP Leadership Development Program

### Current Position in Other Organizations

Listed Company-The Stock Exchange of Thailand  
1 Organization

- Senior Executive Vice President, PTT Public Company Limited

### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 12 organizations

- Director, Xayaburi Power Company Limited
- Director, Ratchaburi Power Company Limited
- Director, Glow Energy Public Company Limited
- Director, Glow Company Limited
- Director, Glow SPP 2 Company Limited
- Director, Glow SPP 3 Company Limited
- Director, Glow IPP 2 Holding Company Limited
- Director, Glow SPP 11 Company Limited
- Director, Glow IPP Company Limited
- Director, Global Renewable Power Company Limited
- Director, Avaada Energy Private Limited
- Advisory to the Board of Director, Alpha Com Company Limited

### Working Experience (5-Year Past Experience)

Jul 2015–Mar 2016	President, PTT MCC Biochem Company Limited
Mar 2016–Sep 2016	Executive Vice President, Downstream Business Group Collaboration, PTT Public Company Limited
Oct 2016–Sep 2018	Executive Vice President, Downstream Business Group Planning, PTT Public Company Limited
Sep 2018–Nov 2020	Senior Executive Vice President, Innovation and Digital, PTT Company Limited

### Shareholding in GPSC (including Spouse and Minor)

- None

### Qualified According to Related Laws and Does Not Have Prohibited Qualifications

- Qualified

### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None

## Details about Management Executives



### Mr. Sirimet Leepagorn

#### Chief Operating Officer

**Date Appointed:** November 1, 2021

**Age:** 54

#### Education

- Master of Business Administration, Burapha University
- Bachelor of Science (Chemistry), Chiang Mai University

#### Training Record with Thai Institute of Directors (IOD)

- Director Certification Program (DCP 205/2015), Thai Institute of Directors
- PTT Leadership Development Program (LDP II), Harvard Business School
- GE Leadership Development Program, New York, USA
- Senior Executive Program, Sasin Executive Education
- Authentic You, Authentic Leader
- Coaching for Leaders
- Leadership Development Program 3 (LDP 3)
- Brain 4, The Federation of Thai Industries
- Boardroom for Business Breakthrough, Director Refreshment Program (DRP1/2021), Thai Institute of Directors
- Leading Your Business through Uncertainties, Director Refreshment Program (DRP2/2021), Thai Institute of Directors
- Lessons Learnt from Financial Cases: How Board should React, Director Refreshment Program (DRP3/2021), Thai Institute of Directors

#### Current Position in Other Organizations

##### Listed Company–The Stock Exchange of Thailand 1 Organization

- Executive Vice President, PTT Public Company Limited

##### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 20 Organizations

- Chairman, IRPC Clean Power Company Limited
- Chairman, Nam Lik 1 Power Company Limited
- Chairman, GHECO–One Company Limited
- Chairman, Glow IPP 3 Company Limited
- Chairman, Global Renewable Power Operating Company Limited
- Chairman, N.P.S. Stargroup Company Limited
- Chairman, World X Change Asia Company Limited
- Chairman, P.P. Solar Company Limited
- Director, Glow Energy Public Company Limited
- Director, Glow Company Limited
- Director, Glow SPP 2 Company Limited
- Director, Glow SPP 3 Company Limited
- Director, Glow SPP 11 Company Limited
- Director, Glow IPP Company Limited
- Director, Glow IPP 2 Holding Company Limited
- Director, Global Renewable Power Company Limited
- Director, Combined Heat and Power Producing Company Limited
- Director, Nava Nakorn Electricity Generating Company Limited
- Director, Xayaburi Power Company Limited
- Director, Global Renewable Synergy Co., Ltd.

#### Working Experience (5–Year Past Experience)

Apr 2020–Oct 2021	Executive Vice President Corporate Strategy and Subsidiary Management, Global Power Synergy Public Company Limited
Oct 2018–Mar 2020	Executive Vice President, Asset Management, Global Power Synergy Public Company Limited
Jan 2018–Sept 2018	Executive Vice President, Strategic Transformation and Result Deliver, IRPC Public Company Limited



Jan 2016–Dec 2017	EVEREST Project Director, IRPC Public Company Limited
Jan 2014–Jun 2018	Acting President, IRPC Clean Power Company Limited
Sept 2014–Sept 2018	Director, IRPC Clean Power Company Limited
Oct 2014–Oct 2015	Executive Vice President, Corporate Business Planning, IRPC Public Company Limited
July 2013–Sep 2014	Acting Executive Vice President, Corporate Business Planning, IRPC Public Company Limited
Feb 2012–Sept 2018	Director, IRPC Oil Company Limited

#### **Shareholding in GPSC (including Spouse and Minor)**

- None

#### **Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries**

- None



## **Mr. Thitipong Jurapornsiridee**

### **Chief Financial Officer**

**Date Appointed:** January 1, 2021

**Age:** 52

#### **Education**

- Master of Business Administration, Thammasat University
- Bachelor of Engineering (Electrical Engineering), Chulalongkorn University

#### **Training Record**

- Director Certification Program (DCP) Class 267/2018, Thai Institute of Directors Association (IOD)

#### **Current Position in Other Organizations**

##### **Listed Company–The Stock Exchange of Thailand 1 Organization**

- Executive Vice President, PTT Public Company Limited

##### **Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 8 Organizations**

- Director, IRPC Clean Power Company Limited
- Director, Nam Lik 1 Power Company Limited
- Director, Ratchaburi Power Company Limited
- Director, GHECO–ONE Company Limited
- Director, Glow IPP 3 Company Limited
- Director, GPSC Treasury Center (GPSCTC)
- Director, Energy Recovery Unit Company Limited
- Director, Global Renewable Synergy Company Limited

**Working Experience (5-Year Past Experience)**

Oct 2020–Dec 2020	Acting Executive Vice President, Finance and Accounting, PTT Global Chemical Public Company Limited
Jun 2019–Sep 2020	Senior Vice President, Corporate Finance and Strategy, PTT Global Chemical Public Company Limited
Oct 2011–Jun 2019	Vice President–Corporate Finance & Investor Relations, PTT Global Chemical Public Company Limited
Jan 2011–Sep 2019	PTT Global Chemical Public Company Limited Director, PTTGC Innovation America Corporation

**Shareholding in GPSC (including Spouse and Minor)**

• Self	None
• Spouse	11,500 shares
• Total	11,500 shares

**Qualified According to Related Laws and Does Not Have Prohibited Qualifications**

- Qualified

**Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries**

- None

Remarks: Mr. Thitipong Jurapornsiridee was assigned the highest responsibility in accounting and finance.

**Mr. Kulapat Permbhusri****Acting Executive Vice President Corporate Strategy and Subsidiary Management**

**Date Appointed:** November 1, 2021

**Age:** 58

**Education**

- Master of Science in Electrical Engineering, Tufts University, U.S.A
- Bachelor of Science in Electrical Engineering, Boston University, U.S.A
- Bachelor of Science in Physics, Boston College, U.S.A

**Training Record**

- Director Accreditation Program (DAP)
- PTT Leadership Development Program (LDP 2)
- Successful Formulation and Execution of Strategy (SFE)

**Current Position in Other Organizations****Listed Company–The Stock Exchange of Thailand**

- None

**Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 7 Organizations**

- Executive Manager, Ichinoseki Solar Power 1 GK
- Director, Nava Nakorn Electricity Generating Company Limited
- Director, Nam Lik 1 Power Company Limited
- Director, GPSC Holding (Thailand) Company Limited
- Director, Chonburi Clean Energy Company Limited
- Director, Eastern Seaboard Clean Energy Company Limited
- Director, Global Renewable Power 1 Company Limited

## Working Experience (5–Year Past Experience)

2017–2021	Senior Vice President Subsidiary and Investment Management, Global Power Synergy Public Company Limited
2009–2017	Senior Vice President, Investment Banking Department, The Siam Commercial Bank Public Company Limited

## Shareholding in GPSC (including Spouse and Minor)

- None

## Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None



## Mrs. Rosaya Teinwan

### Executive Vice President–Business Development

**Date Appointed:** April 1, 2020

**Age:** 52

### Education

- Doctor of Business Administration, King Mongkut's University of Technology North Bangkok
- Master of Business Administration, Rangsit University
- Bachelor of Engineering, Kasetsart University

### Training Record

- Public-Private Social Peacekeeping Administration (Baw Raw Aw), Class 6, Police Collage, Police Education Bureau
- Senior Executive Program Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Management of Public Economics for Executives # 18 King Prajadhipok's Institute
- Leadership Development Program 3, PTT Leadership and Learning Institute
- MIT Entrepreneurship Online Boot Camp
- Innovation of Products and Services MIT's Approach to Design Thinking Massachusetts Institute of Technology
- NUS Executive Programme in International Management, NUS Business School
- The Emerging US LNG Export Marketplace
- Overview of the Global LNG Market
- The Emerging US LNG Export Marketplace
- Comprehending the Coal Industry The Oxford Princeton Programme
- Advanced Audit Committee Program (AACP)
- Role of the Chairman Program (RCP) 31/2013
- Director Certification Program (DCP) 169/2013
- Anti-Corruption for Executive Program (ACEP) 6/2013 The Thai Institute of Directors Association (IOD)

**Current Position in Other Organizations****Listed Company–The Stock Exchange of Thailand****1 Organization**

- Executive Vice President, PTT Public Company Limited

**Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 16 Organizations**

- Director, PTT Green Energy Private Limited
- Chairman, Combined Heat Power Producing Company Limited
- Director, IRPC Clean Power Company Limited
- Director, Global Renewable Power Company Limited
- Director, 24M Technologies Incorporated
- Director, Global Renewable Power Operating Company Limited
- Director, N.P.S.Stargroup Company Limited
- Director, World X Changa Asia Company Limited
- Director, P.P.Solar Company Limited
- Director, Global Renewable Power 1 Company Limited
- Director, Anhui Axxiva New Energy Technology Co.,Ltd
- Chairman, Global Renewable Stnergy Company Limited
- Chairman, Sheng Yang Energy Company Limited
- Director, Glow Energy Myanmar Company Limited
- Chairman, Global Renewable Synergy Taiwan Company Limited
- Director, Avaada Energy Private Limited

**Working Experience (5–Year Past Experience)**

1 Apr 2020–Present	Executive Vice President, Business Development, Global Power Synergy Public Company Limited
16 Sep 2019–31 March 2020	Executive Vice President, Business Development and Corporate Strategy, Global Power Synergy Public Company Limited
2016–2019	Acting President, PTT Energy Resources Company Limited
2015–2019	Chief Executive Officer, Sakari Resources Limited and Director in Sakari Resources Limited Groups
2013–2019	Acting Managing Director, PTT Green Energy Private Limited and Director PTT Green Energy Private Limited Groups
2012–2013	Vice President (Acting), Upstream Petroleum and Gas Business Group and Thailand Integrated Gas Supply–PMO Optimization, PTT Public Company Limited

**Shareholding in GPSC (including Spouse and Minor)**

- Self 28,228 Units

**Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries**

- None



## **Mrs. Sriprapha Sumruatruamphol**

### **Executive Vice President–Commercial and Supply Chain Management**

**Date Appointed:** November 1, 2021

**Age:** 58

#### **Education**

- Master of Business Administration, Syracuse University, New York, USA
- Bachelor Degree in Science (Chemical Engineering), Michigan Technological University, Michigan, USA

#### **Training Record**

- Top Executives in the Energy Education Program (Batch 10), Thailand Energy Academy

#### **Current Position in Other Organizations**

**Listed Company–The Stock Exchange of Thailand**

- None

**Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand) 1 Organization**

- Director, GHECO–One Company Limited

### **Working Experience (5–Year Past Experience)**

Apr 2020–Oct 2021	Executive Vice President–Commercial, Global Power Synergy Public Company Limited
2015–31 Mar 2020	Chief Commercial Officer and Executive Vice President–Human Resources, Glow Energy Public Company Limited and Glow Group
Feb 2012–Sep 2013	Chairman, Association of Private Power Producers
Feb 2012–Sep 2013	Chairman, Power Generation Club–The Federation of Thai Industries
Oct 2002–Sep 2013	Director of Eastern Fluid Transport Company Limited
2001–2015	Chief Commercial Officer and Executive Vice President, Glow Energy Public Company Limited and Glow Group

#### **Shareholding in GPSC (including Spouse and Minor)**

- None

#### **Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries**

- None





## Mr. Smornchai Khoonrak

### Executive Vice President of Chief Operating Officer

**Date Appointed:** November 1, 2021

**Age:** 60

#### Education

- Master of Business Administration, Khonkaen University
- Bachelor of Engineering, Khonkaen University

#### Training Record

- Director Certification Program (DCP 205/2015), Thai Institute of Directors (IOD)
- PTT Group Leader Development Program
- PTT-Harvard Business School (Batch 2), Shanghai, China

#### Current Position in Other Organizations

##### Listed Company-The Stock Exchange of Thailand

- None

##### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand 3 Organizations)

- Director, Bangpa-In Cogeneration Company Limited
- Director, GHECO-One Company Limited
- Director, Houay Ho Power Company Limited

### Working Experience (5-Year Past Experience)

Nov 1, 2021–Present	Executive Vice President of Chief Operating Officer
Mar 15, 2019–Present	Director, Bangpa-In Cogeneration Company Limited, GHECO-One Company Limited and Houay Ho Power Company Limited
Mar 15, 2019–May 5 2021	Director, Glow Company Limited, Glow SPP 2 Company Limited, Glow SPP 3 Company Limited, Glow SPP 11 Company Limited, Glow IPP Company Limited and Glow IPP 2 Holding Company Limited
Nov 1, 2015–Oct 31 2021	Executive Vice President–Operations, Global Power Synergy Public Company Limited
Jan 1, 2015–Oct 31 2016	Chief Asset Management Officer, Global Power Synergy Public Company Limited

### Shareholding in GPSC (including Spouse and Minor)

- Self 73,500 shares

### Family Relation with Directors, other Executives, Major Shareholders of GPSC and its Subsidiaries

- None

## Mr. Arjan van den Broek

### Executive Vice President–Operations and Maintenance

**Date Appointed:** November 1, 2021

**Age:** 50

#### Education

- Master of Science in Management, General Management PDP2, University Nyenrode, the Netherlands
- Bachelor of Electronics Engineering–Technical Computer Science, College Rijswijk the Netherlands

#### Training Record

- General Management Program Cycle 8, CEDEP

#### Current Position in Other Organizations

**Listed Company–The Stock Exchange of Thailand**

- None

**Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand)**

- Director, GHECO-one Company Limited

#### Working Experience (5–Year Past Experience)

2020–Oct 2021	Executive Vice President–Operation Center of Excellence
2016–2020	Chief Operating Officer and Executive Vice President, Glow Energy Public Company Limited, Glow Group, and Houay Ho Power Company Limited

#### Shareholding in GPSC (including Spouse and Minor)

- None

#### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None

## Mr. Wisit Srinuntawong

### Acting Executive Vice President–Operational Excellence

**Date Appointed:** November 1, 2021

**Age:** 59

#### Education

- Master Degree in Business Administration, Bangkok University
- Bachelor Degree in Industrial Electrical Technology, King Mongkut's University of Technology North Bangkok

#### Training Record

- None

#### Current Position in Other Organizations

**Listed Company–The Stock Exchange of Thailand**

- None

**Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand)**

- Director, Houay Ho Power Company Limited

#### Working Experience (5–Year Past Experience)

November 2021	Acting Executive Vice President–Operational Excellence, Global Power Synergy Public Company Limited
2020–October 2021	SVP–Project Feasibility and Engineering, Global Power Synergy Public Company Limited
2015–2019	SVP–Engineering and Maintenance Management, Glow Energy Public Company Limited

#### Shareholding in GPSC (including Spouse and Minor)

- None

#### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None

## Profile of the designated person directly responsible for accounting



### Mr. Teerasak Meepansaen

#### Acting Senior Vice President Finance & Accounting Shared Service Center

**Date Appointed:** April 1, 2021

**อายุ:** 41

#### Education

- Master of Accountancy, Chulalongkorn University
- Bachelor of Business Administration, Prince of Songkla University

#### Training Record

- Strategic CFO in Capital Markets Program 7<sup>th</sup>

#### Current Position in Other Organizations

##### Listed Company–The Stock Exchange of Thailand

- None

##### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand)

- None

#### Working Experience (5–Year Past Experience)

Feb 2018–Mar 2021	Accounting and Tax Planning and Service Division Manager
Dec 2014–Jan 2018	Senior Accountant

#### Shareholding in GPSC (including Spouse and Minor)

- None

#### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None



### Mr. Kittapong Tangsitthisilpa

#### Senior Vice President Finance & Accounting Shared Service Center

**Date Appointed:** January 1, 2022

**อายุ:** 44

#### Education

- Master of Accountancy, Chulalongkorn University
- Bachelor of Accountancy, Kasetsart University
- Bachelor of Law, Sukhothai Thammathirat University

#### Training Record

- CFO Academy Program in Advanced Level, Faculty of Commerce and Accountancy, Chulalongkorn University
- Tax Law Certificate Program, Central Tax Court
- Leadership Development Program: Michigan Ross Executive Education and SEAC

#### Current Position in Other Organizations

##### Listed Company–The Stock Exchange of Thailand

- Vice President Attached to Chief Financial Officer, PTT Public Company Limited

##### Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand)

- None

#### Working Experience (5–Year Past Experience)

Jan 2021–Dec 2021	Excise Tax Accounting Division Manager, PTT Public Company Limited
Feb 2017–Dec 2020	Tax Accounting Division Manager, PTT Public Company Limited
Jan 2016–Jan 2017	Costing Management Gas Business Division Manager, PTT Public Company Limited

#### Shareholding in GPSC (including Spouse and Minor)

- None

#### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None

## Profile of the Company Secretary and chief of Compliance



### Ms. Pallapa Achanon

#### Senior Vice President Company Secretary and Corporate Governance

**Date Appointed:** April 1, 2020

**Age:** 53

#### Education

- Master of Business Administration (Finance), Kasetsart University
- Bachelor of Science (Business Administration), Kasetsart University

#### Training Record

- The Executive Program for Young Professionals (EYP) Class 1, Fiscal Policy Research Institute Foundation
- Leadership Development Program 1, Class 2, PTT Leadership and Learning Institute (PLLI), Executive Program
- Strategy Management Program (SMP), Class 2, Fiscal Policy Research Institute Foundation
- Fundamentals for Corporate Secretaries, Thai Listed Companies Association
- Company Secretary Program (CSP) 99/2019, Thai Institute of Directors
- Director Accreditation Program (DAC) 163/2019, Thai Institute of Directors
- Board Reporting Program (BRP) 33/2020, Thai Institute of Directors
- Risk and Opportunity Management for Corporate Leaders, Thai Institute of Directors
- ASEAN CG Scorecard Coaching 2020, Thai Institute of Directors

#### Current Position in Other Organizations

Listed Company–The Stock Exchange of Thailand

- None

Other Organizations / Companies (Not Listed in the Stock Exchange of Thailand)

- None

#### Working Experience (5–Year Past Experience)

May 2019–Present	Vice President Attached to Chief Technology and Engineering Officer, PTT Public Company Limited, Secondment Global Power Synergy Public Company Limited
Aug 2019–Mar 2020	Vice President Corporate Governance and Affairs Department
May 2019–Jul 2019	Vice President Attached to President and Chief Executive Officer, GPSC Global Power Synergy Public Company Limited
2018–April 2019	Manager, Corporate Planning and Budgeting Department
2016–2018	Manager, Performance Management and Corporate Risk Department, PTT Public Company
2014–2016	Team Leader, Investment Management Department, PTT Public Company

#### Shareholding in GPSC (including Spouse and Minor)

- Self 1,000 shares

#### Family Relation with other Directors, Executives, Major Shareholders of GPSC and its Subsidiaries

- None

**Roles of the Chief of Compliance**

Since 2018, GPSC has set up a unit under the Board's vision to strictly perform compliance tasks, namely the Compliance Division under the Company Secretary and Corporate Governance Department. Compliance steered corporate compliance with laws and corporate regulations. As GPSC's Second Line of Defense, she defines policies, rules, and standards for compliance and steers compliance of matters under her responsibility, counsels, educates, and communicates defined policies, laws, and regulations.



❖ Chairman		✓ Director		o Director/Executive of GPSC										■ holding company										
Director/Executive of GPSC		Glow Energy Public Co., Ltd.		GLOW Co., Ltd.	GLOW SPP 2 Co., Ltd.	GLOW SPP 3 Co., Ltd.	GLOW SPP 11 Co., Ltd.	GLOW IPP Co., Ltd.	GLOW IPP 2 Holding Co., Ltd.	HHTC Co., Ltd.	Houay Ho Power Co., Ltd.	GHECO-One Co., Ltd.	GLOW IPP3	G.E. Myanmar	CHPP Combined Heat and Power Producing Co., Ltd.	NSC Natee Synergy Co., Ltd.	IRPC Clean Power Co., Ltd.	GPSCIH GPSC International Holdings Ltd.	ERU Energy Recovery Unit Co., Ltd.	GPSC Holding (Thailand) Co., Ltd	GPSC TC Center Co., Ltd	Global Renewable Synergy Co., Ltd.	Global Renewable Synergy Co., Ltd. Taiwan	GPSCSG Pte. Ltd.
1	Mr. Payungsak Chatsuttipol	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Mr. Veerasak Kosipaisai	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Prof. Dr. Borwornsak Uwanno	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	Mr. Jukr Boon-Long	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5	Mrs. Patareeya Benjapolchai	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	Police General Aek Angsanant	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7	Mrs. Boobpha Amornkiatkajorn	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	Assoc. Prof. Dr. Chayun Tantivasadakarn	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	Mr. Worawat Phayasiri	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	Mr. Sirimet Leepagorn	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	Mr. Thitipong Jurapornsirdee	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12	Mrs. Rosaya Teinwan	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	Mr. Smorchai Khoonrak	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
14	Mrs. Sirobon Boontaworn	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
15	Mr. Pajongwit Pongsivapai	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
16	Mr. Niphon Bundechnan	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
17	Mr. Natthapatt Tanboon-ek	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
18	Mr. Sichanh Gnabandith	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19	Mr. Bounthene Chansamay	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
20	Ms. Chansouk Thammvong	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
21	Mr. Vansheng Vannavong	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
22	Mrs. Sriprapha Sumruatruamphol	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
23	Mr. David Richard Nardone	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
24	Mr. Ariyasak Thephatri	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
25	Mr. Darunporn Kamolpus	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
26	Mr. Jaruwat Singsoondee	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
27	Mrs. Sukithee Chaiyarak	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
28	Mrs. Nidcha Jirametthanakij	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
29	Mr. Woravuth Sivapetrarant	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30	Mr. Somkiat Lertrituwadol	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
31	Ms. Dudaio Suksamran	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
32	Mr. Laksanapreecha Krutkuntode	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
33	Mr. Kulapat Permthuri	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
34	Mr. Somsak Lertcharoensersuk	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
35	Mrs. Pichaporn Wongsri	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
36	Mr. Arjan van den Broek	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
37	Mr. Wisit Srinuntawong	o	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

## Attachment 3 Details about the Chief of Internal Audit

**Ms. Attayar Sukotang****Senior Vice President, Corporate Internal Audit**

**Date Appointed:** April 1, 2020

**Age:** 48

**Education**

- Master of Science in Information Systems, The George Washington University, U.S.A.
- Bachelor of Arts in Business Administration, Eastern Washington University, U.S.A.

**Training Record Professional Certification**

- PTT Leadership Development Program I
- Certified Information Systems Auditor (CISA), U.S.A.

**Current Position in Other Organizations**

Listed Company–The Stock Exchange of Thailand

**1. Organization**

- Vice President, PTT Public Company Limited secondment in the position of Chief New Business and Infrastructure Officer

**Other Organizations/Companies**

(Not Listed in the Stock Exchange of Thailand)

- None

**Working Experience (5-Year Past Experience)**

2020–Present	Senior Vice President, Corporate Internal Audit, Global Power Synergy Public Company Limited
2017–2020	Vice President, Corporate Internal Audit, Global Power Synergy Public Company Limited
2013–2017	Team Leader, Upstream and Gas Business Group Alignment Department, PTT Public Company Limited

**Shareholding in GPSC (including Spouse and Minor)**

- None

**Family Relation with Directors, other Executives, Major Shareholders of GPSC and its Subsidiaries**

- None

## **Attachment 4**

### **Details of Operating Asset**

Details of Assets used in Business Operations and Property Evaluation are shown in 56-1 One Report in Business Operation and Performance on Assets used in Business Operations.

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## **Attachment 5**

### **Full version of the Corporate Governance Policy and Guidelines**

Good Corporate Governance Policy and Guidelines and Code of Conduct (Full version) Revealing on Company's website <https://www.gpscgroup.com/storage/download/cg/good-coporate-governance-policy/gpsc-coporate-governance-manual-and-code-of-conduct-2020-en.pdf>

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## **Attachment 6**

### **Report of the Audit Committee**

The company has disclosed report of Audit Committee in 56-1 One Report: Report the Performance of Good Corporate Governance on the Company's website <https://www.gpscgroup.com/en/management/audit-committee>





## Financial Statement





# Independent Auditor's Report

## To the Shareholders of Global Power Synergy Public Company Limited

### My opinion

In my opinion, the consolidated financial statements and the separate financial statements present fairly, in all material respects, the consolidated financial position of Global Power Synergy Public Company Limited (the Company) and its subsidiaries (the Group) and the separate financial position of the Company as at 31 December 2021, and its consolidated and separate financial performance and its consolidated and separate cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRS).

### What I have audited

The consolidated financial statements and the separate financial statements comprise:

- the consolidated and separate statements of financial position as at 31 December 2021;
- the consolidated and separate statements of income for the year then ended;
- the consolidated and separate statements of comprehensive income for the year then ended;
- the consolidated and separate statements of changes in equity for the year then ended;
- the consolidated and separate statements of cash flows for the year then end; and
- the notes to the consolidated and separate financial statements, which include significant accounting policies and other explanatory information.

### 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 issued by the Federation of Accounting Professions that are relevant to my audit of the consolidated and separate financial statements, and I have fulfilled my other ethical responsibilities in accordance with these requirements. 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 judgement, were of most significance in my audit of the consolidated and separate financial statements of the current period. I determine one key audit matter: the impairment assessment of goodwill. The matter was 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 the matter.

### Impairment assessment of goodwill

Refer to Note 23 Goodwill, as at 31 December 2021, the Group had goodwill of Baht 36,090 million, which represents 13% of the total consolidated assets. Goodwill arose from the acquisition of shareholding of Glow Energy Public Company Limited (Glow) which engages in generating and supplying electricity, steam and water for industrial use. The Group did not recognise an impairment loss in the 2021 consolidated financial statements.

Management tests the impairment of goodwill annually. The impairment test is performed at level of cash generating unit (CGU) and calculates its recoverable amount by applying the value-in-use model. This model involves significant judgements made by the management in respect to the future operating results of business, projected cash flows and the discount rate to be applied to the projected cash flows. Key assumptions applied in the value-in-use model are electricity tariffs, capacity of the power plants, growth rate, operating expenditures, capital structure and discount rate applied to the projected cash flows.

I focused on the valuation of goodwill arising from the acquisition of shareholding of Glow due to its significant value and the fact that the determination of value-in-use depends on a number of assumptions. Those assumptions involve management's significant judgements in assessing the feasibility of future business plans.

I carried out the following procedures to assess the impairment testing of goodwill arising from the acquisition of shareholding of Glow which prepared by the management.

- assessed the appropriateness of management's identification of the CGUs.
- held discussions with management to understand the basis for the assumptions applied and evaluated whether the goodwill impairment testing process and assumptions had been applied consistently across the Group.
- challenged management's significant assumptions used in the goodwill impairment testing, especially the electricity tariffs, capacity of the power plants, growth rate, operating expenditures, capital structure and discount rate. My procedures included comparing those assumptions to the underlying agreements, external sources, foreign exchange rate forecasts and the approved business plan.
- assessed reasonableness of the business plan by comparing the 2021 plan with actual results.
- assessed whether the discount rate applied by the management was within the acceptable range, taking into account independently obtained data from available public information of companies in the industry.
- tested the sensitivity analysis of key assumptions in order to assess which factors are sensitive to assumptions and the potential impacts of the range of possible outcomes.

As a result of the procedures performed, the key assumptions used by the management are within the reasonable range and consistent with supporting evidence.

## Other information

The directors are 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 do 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 the directors for the consolidated and separate financial statements

Directors are responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRS, and for such internal control as the directors determine 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, the directors are 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 the directors either intends to liquidate the Group and the Company or to cease operations, or has no realistic alternative but to do so.

The audit committee assists the directors in discharging their responsibilities 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 judgement and maintain professional scepticism 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 the directors.
- Conclude on the appropriateness of the directors' 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 audit committee 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 the audit committee 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, related safeguards.

From the matters communicated with the audit committee, 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.

PricewaterhouseCoopers ABAS Ltd.



**Amornrat Pearmpoonvatanasuk**  
 Certified Public Accountant (Thailand) No. 4599  
 Bangkok  
 11 February 2022

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

## Statement of Financial Position

As at 31 December 2021

	Notes	Consolidated financial statements		Separate financial statements	
		2021	2020	2021	2020
		Baht	Baht	Baht	Baht
<b>Assets</b>					
<b>Current assets</b>					
Cash and cash equivalents	10	13,792,539,186	20,288,891,201	3,485,599,007	10,655,182,886
Deposits at financial institutions used as collateral	11	190,199,368	261,315,153	-	-
Financial assets measured at amortised cost	12	3,597,857,342	2,273,000,000	-	-
Trade receivables, net	13	13,441,490,614	9,084,326,455	5,241,529,276	3,338,336,345
Current portion of finance lease receivable	14	1,522,214,921	1,173,972,300	917,239,812	741,395,052
Other receivables	15	1,625,806,147	769,836,005	412,178,874	271,335,191
Dividends receivable	18,38	91,000,006	59,266,673	91,000,006	251,784,237
Short-term loans to related parties	38	967,796,399	-	967,796,399	1,778,079,994
Current portion of long-term loans to related parties	38	91,744,400	-	139,504,400	47,760,000
Fuel, spare parts and supplies, net	16	6,938,279,148	6,253,429,526	649,436,709	571,478,695
Derivative assets	6	111,651,207	53,803,090	-	-
Assets held-for-sale	17	2,711,464,728	3,012,510,761	503,745,056	465,500,000
Other current assets		408,056,791	223,892,253	158,351,983	139,313,391
<b>Total current assets</b>		<b>45,490,100,257</b>	<b>43,454,243,417</b>	<b>12,566,381,522</b>	<b>18,260,165,791</b>
<b>Non-current assets</b>					
Finance lease receivable, net	14	5,115,814,884	6,071,940,010	2,729,046,576	3,313,500,088
Deposits at financial institutions used as collateral	11	-	200,000,000	-	-
Investments in associates	18	24,622,859,874	8,250,764,371	1,871,466,269	923,750,000
Investments in joint ventures	18	3,077,410,097	2,914,514,682	2,814,729,090	2,814,729,090
Investments in subsidiaries	18	-	-	161,063,058,478	146,425,171,748
Financial assets measured at fair value through other comprehensive income	7,19	5,860,171,999	2,723,464,935	5,181,386,892	2,660,964,935
Long-term loans to and interest receivables from related parties, net	38	4,099,822,772	3,487,256,243	3,911,032,220	3,346,225,691
Property, plant and equipment, net	20	95,581,005,131	99,977,536,257	17,729,750,758	17,852,645,608
Assets not used in operation, net		103,771,325	103,771,325	-	-
Intangible assets, net	22	41,526,486,831	43,983,566,614	277,158,444	203,440,319
Right-of-use assets, net	21	2,516,060,792	2,795,631,006	540,289,693	569,764,214
Goodwill	23	36,089,835,841	36,104,755,353	-	-
Deferred tax assets, net	30	3,249,781,809	3,356,568,673	-	-
Derivative assets	6	4,899,551	70,848,044	-	-
Other non-current assets, net	38	3,041,101,110	3,161,457,450	163,240,647	281,692,653
<b>Total non-current assets</b>		<b>224,889,022,016</b>	<b>213,202,074,963</b>	<b>196,281,159,067</b>	<b>178,391,884,346</b>
<b>Total assets</b>		<b>270,379,122,273</b>	<b>256,656,318,380</b>	<b>208,847,540,589</b>	<b>196,652,050,137</b>

The notes to the consolidated and separate financial statements on pages 298 to 385 are on integral part of these financial statements.



**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED**
**Statement of Financial Position**

As at 31 December 2021

	Notes	Consolidated financial statements		Separate financial statements	
		2021	2020	2021	2020
		Baht	Baht	Baht	Baht
Liabilities and equity					
Current liabilities					
Trade payables	24,38	6,407,172,735	3,951,572,600	2,156,622,442	1,441,167,241
Other payables	25,38	2,178,397,663	2,794,293,248	1,147,257,445	1,186,535,204
Payable for assets under construction		1,394,250,361	1,600,198,310	313,243,426	445,336,163
Current portion of lease liabilities, net		154,552,680	134,068,739	81,359,055	56,968,543
Current portion of long-term loans from financial institutions, net	27	7,121,428,472	2,940,149,611	668,873,999	1,106,382,393
Current portion of long-term loans from a related party, net	38	-	-	1,203,429,500	-
Current portion of debentures, net	28	1,999,177,305	9,053,168,577	1,999,177,305	3,499,092,747
Derivative liabilities	6	166,815,551	98,426,975	-	394,203
Liabilities held-for-sale	17	2,085,685,139	159,184,422	-	-
Retentions		57,015,700	-	57,015,700	-
Other current liabilities	26	1,471,644,905	1,332,070,910	348,838,795	139,405,972
Total current liabilities		23,036,140,511	22,063,133,392	7,975,817,667	7,875,282,466
Non-current liabilities					
Lease liabilities, net		2,484,807,044	2,719,537,650	498,512,073	517,396,458
Derivative liabilities	6	938,922,758	1,955,427,871	-	-
Long-term loans from financial institutions, net	27	50,140,239,226	43,812,541,992	10,919,098,957	18,217,043,277
Long-term loans from related parties, net	38	8,000,000,000		18,427,944,904	
Debentures, net	28	42,371,171,275	48,508,743,724	39,457,327,935	41,449,108,553
Provisions for employee benefits		820,193,393	755,009,621	558,460,742	512,314,651
Deferred tax liabilities, net	30	9,962,818,243	9,917,773,777	551,869,282	70,181,002
Retention		1,375,674	256,441,942	1,050,674	253,947,768
Other non-current liabilities	29,38	14,875,913,333	14,800,339,408	389,193,091	378,187,946
Total non-current liabilities		129,595,440,946	122,725,815,985	70,803,457,658	61,398,179,655
Total liabilities		152,631,581,457	144,788,949,377	78,779,275,325	69,273,462,121

The notes to the consolidated and separate financial statements on pages 298 to 385 are on integral part of these financial statements.

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

## Statement of Financial Position

As at 31 December 2021

	Note	Consolidated		Separate	
		financial statements		financial statements	
		2021	2020	2021	2020
		Baht	Baht	Baht	Baht
<b>Liabilities and equity (continued)</b>					
<b>Equity</b>					
Share capital					
Authorised share capital					
2,819,729,371 ordinary shares at par value					
of Baht 10 per share		28,197,293,710	28,197,293,710	28,197,293,710	28,197,293,710
Issued and paid-up share capital					
2,819,729,367 ordinary shares paid-up at					
Baht 10 per share		28,197,293,670	28,197,293,670	28,197,293,670	28,197,293,670
Premium on ordinary shares		70,175,900,837	70,175,900,837	70,175,900,837	70,175,900,837
Deficit from the change in the ownership interests					
in subsidiaries		(15,002,535,663)	(14,991,990,030)	-	-
Other surpluses (deficits)		(1,118,213,914)	(1,118,213,914)	78,467,400	78,467,400
Retained earnings					
Appropriated					
Legal reserve	31	2,088,252,769	1,843,125,793	2,088,252,769	1,843,125,793
Unappropriated		23,091,536,750	20,247,678,550	28,139,409,979	27,711,591,475
Other components of equity		902,045,509	(1,452,405,872)	1,388,940,609	(627,791,159)
<b>Equity attributable to owners of the parent</b>		108,334,279,958	102,901,389,034	130,068,265,264	127,378,588,016
Non-controlling interests		9,413,260,858	8,965,979,969	-	-
<b>Total equity</b>		117,747,540,816	111,867,369,003	130,068,265,264	127,378,588,016
<b>Total liabilities and equity</b>		270,379,122,273	256,656,318,380	208,847,540,589	196,652,050,137

The notes to the consolidated and separate financial statements on pages 298 to 385 are an integral part of these financial statements.

**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED**
**Statement of Income**

For the year ended 31 December 2021

	Notes	Consolidated financial statements		Separate financial statements	
		2021	2020	2021	2020
		Baht	Baht	Baht	Baht
Revenue from sales and services		74,136,639,480	68,757,430,676	22,595,565,536	17,925,313,872
Revenue from finance lease		736,894,194	820,545,859	493,173,703	534,701,388
Cost of sales and services		(63,735,952,052)	(56,448,485,031)	(19,863,224,193)	(15,518,760,161)
<b>Gross profit</b>		<b>11,137,581,622</b>	<b>13,129,491,504</b>	<b>3,225,515,046</b>	<b>2,941,255,099</b>
Dividend income	18,19	255,601,875	396,004,000	3,691,900,393	6,785,107,020
Other income	32	3,018,948,271	1,008,694,676	731,847,146	292,374,958
Currency exchange gain (loss), net		(54,945,229)	1,225,615	285,333,800	(56,273,617)
Administrative expenses		(2,962,734,798)	(1,951,068,621)	(1,097,750,961)	(1,030,330,689)
Loss from measurement of financial instruments, net		(38,280,495)	(2,315,906)	(110,565)	(3,524,539)
Finance costs	34	(3,859,830,077)	(4,023,530,944)	(1,785,464,454)	(1,627,520,360)
Share of profit from investments in associates and joint ventures, net	18	1,536,010,179	924,440,433	-	-
<b>Profit before income tax</b>		<b>9,032,351,348</b>	<b>9,482,940,757</b>	<b>5,051,270,405</b>	<b>7,301,087,872</b>
Income tax	35	(1,191,999,889)	(992,573,315)	(148,730,874)	(35,169,577)
<b>Profit for the year</b>		<b>7,840,351,459</b>	<b>8,490,367,442</b>	<b>4,902,539,531</b>	<b>7,265,918,295</b>
<b>Profit attributable to</b>					
Owners of the parent		7,318,579,227	7,508,126,424	4,902,539,531	7,265,918,295
Non-controlling interests		521,772,232	982,241,018	-	-
		<b>7,840,351,459</b>	<b>8,490,367,442</b>	<b>4,902,539,531</b>	<b>7,265,918,295</b>
<b>Earnings per share</b>					
Basic earnings per share	36	2.60	2.66	1.74	2.58

The notes to the consolidated and separate financial statements on pages 298 to 385 are an integral part of these financial statements.

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

## Statement of Comprehensive Income

For the year ended 31 December 2021

	Consolidated financial statements		Separate financial statements	
	2021 Baht	2020 Baht	2021 Baht	2020 Baht
<b>Profit for the year</b>	7,840,351,459	8,490,367,442	4,902,539,531	7,265,918,295
<b>Other comprehensive income (expense) :</b>				
Items that will be reclassified subsequently to profit or loss				
Cash flow hedges	629,237,367	(45,790,393)	325,814	(325,814)
Costs of hedging	1,536,450	(9,546,464)	68,389	(68,389)
Share of other comprehensive income (expense) from investments in associates and joint ventures	(273,218,089)	38,890,968	-	-
Exchange differences on translation of financial statements	204,299,005	23,269,576	-	-
Income tax on items that will be reclassified subsequently to profit or loss	(67,133,734)	(8,246,745)	-	-
Total items that will be reclassified subsequently to profit or loss, net of tax	494,720,999	(1,423,058)	394,203	(394,203)
Items that will not be reclassified subsequently to profit or loss				
Remeasurement of post-employment benefit obligations	-	(75,266,379)	-	(57,093,343)
Gain (Loss) from remeasurement of equity investments at fair value through other comprehensive income	2,616,585,359	(112,624,972)	2,520,421,956	(112,624,972)
Income tax on items that will not be reclassified subsequently to profit or loss	(520,432,170)	37,311,360	(504,084,391)	33,676,753
Total items that will not be reclassified subsequently to profit or loss, net of tax	2,096,153,189	(150,579,991)	2,016,337,565	(136,041,562)
<b>Other comprehensive (expense) income for the year, net of tax</b>	2,590,874,188	(152,003,049)	2,016,731,768	(136,435,765)
<b>Total comprehensive income for the year</b>	10,431,225,647	8,338,364,393	6,919,271,299	7,129,482,530
<b>Total comprehensive income attributable to</b>				
Owners of the parent	9,673,030,608	7,415,013,660	6,919,271,299	7,129,482,530
Non-controlling interests	758,195,039	923,350,733	-	-
	10,431,225,647	8,338,364,393	6,919,271,299	7,129,482,530

The notes to the consolidated and separate financial statements on pages 298 to 385 are an integral part of these financial statements.



## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

## Statement of Changes in Equity

For the year ended 31 December 2021

Attributable to owners of the parent															Consolidated financial statements			
		Retained earnings				Other components of equity												
						Other comprehensive income (expense)												



# GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

## Statement of Changes in Equity

For the year ended 31 December 2021

Separate financial statements												FINANC
Notes	Issued and paid-up share capital	Premium on share capital	Other surpluses	Retained earnings		Other components of equity						
				Appropriated-legal reserve	Unappropriated	Changes in fair value of equity investments		Cash flow hedge reserves		Costs of hedging other components of equity		
						Baht	Baht	Baht	Baht	Baht	Baht	
												Baht
	28,197,293,670	70,175,900,837	78,467,400	1,479,829,878	24,520,558,856	(537,296,978)	-	-	(537,296,978)	123,914,753,663		
Opening balance as at 1 January 2020												
Changes in equity for the year												
31	-	-	-	363,295,915	(363,295,915)	-	-	-	-	-	-	
	-	-	-	-	(3,665,648,177)	-	-	-	-	-	(3,665,648,177)	
Total comprehensive income (expense) for the year												
	-	-	-	-	7,265,918,295	-	-	-	-	-	7,265,918,295	
	-	-	-	-	(45,941,584)	(90,099,978)	(325,814)	(68,389)	(90,494,181)	(136,435,765)		
Closing balance as at 31 December 2020												
	28,197,293,670	70,175,900,837	78,467,400	1,843,125,793	27,711,591,475	(627,396,956)	(325,814)	(68,389)	(627,791,159)	127,378,588,016		
Opening balance as at 1 January 2021												
Changes in equity for the year												
31	-	-	-	245,126,976	(245,126,976)	-	-	-	-	-	-	
37	-	-	-	-	(4,229,594,051)	-	-	-	-	-	(4,229,594,051)	
Total comprehensive income for the year												
	-	-	-	-	4,902,539,531	-	-	-	-	-	4,902,539,531	
	-	-	-	-	-	2,016,337,565	325,814	68,389	2,016,731,768	2,016,731,768		
Closing balance as at 31 December 2021												
	28,197,293,670	70,175,900,837	78,467,400	2,088,252,769	28,139,409,979	(627,396,956)	(325,814)	(68,389)	(627,791,159)	128,051,533,496		

The notes to the consolidated and separate financial statements on pages 298 to 385 are on integral part of these financial statements.

**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED**
**Statement of Cash Flows**

For the year ended 31 December 2021

		Consolidated financial statements		Separate financial statements	
		2021	2020	2021	2020
	Notes	Baht	Baht	Baht	Baht
Cash flows from operating activities					
Profit before income tax for the year		9,032,351,348	9,482,940,757	5,051,270,405	7,301,087,872
Adjustments to reconcile profit before income tax to net cash from operating activities					
- Impairment loss on account receivables	13	2,272,485	-	-	-
- Depreciation and amortisation		9,231,937,120	8,706,485,623	1,596,268,617	1,502,390,637
- Interest income		(221,487,270)	(219,273,435)	(202,310,273)	(242,962,767)
- Dividend income	18, 19	(255,601,875)	(396,004,000)	(3,691,900,393)	(6,785,107,020)
- Loss on impairment of assets	20	16,815,070	45,287,190	-	-
- Loss on disposal and write-off of building and equipment, net		864,616,734	25,972,524	2,912,111	7,544,135
- Finance costs		3,823,021,585	3,986,721,614	1,785,464,454	1,627,520,360
- Recognition of advance received for long-term right to grant of assets		(38,810,922)	(41,938,208)	-	-
- Unrealised exchange loss (gain)		38,321,150	19,774,772	(300,214,151)	59,970,928
- Realised exchange loss from convertible loan to equity		-	4,642,095	-	4,642,095
- Allowance for diminution in value of inventory		10,851	-	10,851	-
- Gain on sale of investment in subsidiaries	18	(115,098,235)	-	(227,199,844)	-
- Write-off withholding tax		-	1,200	-	-
- Unrealised (gain) loss from measurement of financial instruments		10,005,872	(39,274,640)	-	-
- Share of profit from investments in associates and joint ventures, net	18	(1,536,010,179)	(924,440,433)	-	-
- Gain from business acquisition		-	(125,055,903)	-	-
- Provisions for employee benefits		74,545,643	116,275,501	49,432,251	66,484,098
Cash flows before changes in working capital		20,926,889,377	20,642,114,657	4,063,734,028	3,541,570,338
Changes in working capital					
- Trade receivables		(4,366,136,873)	1,029,023,157	(1,903,192,931)	(860,549,160)
- Other receivables		(565,730,404)	(99,708,465)	(148,517,521)	230,263,726
- Finance lease receivable		839,084,570	1,201,274,697	676,317,355	564,905,944
- Fuel, spare parts and supplies		(628,782,410)	493,303,848	(77,968,865)	(46,573,780)
- Other current assets		(127,788,460)	(2,324,696)	(5,865,904)	598,916
- Other non-current assets		(582,189,955)	(314,727,021)	(2,283,606)	74,477,765
- Trade payables		2,455,600,135	(624,239,028)	715,455,201	12,181,847
- Other payables		(273,966,588)	(196,923,629)	(15,313,858)	44,359,813
- Other current liabilities		169,516,672	(160,445,680)	225,640,945	59,771,563
- Retirement benefit paid		(18,039,790)	(234,825,014)	(6,174,697)	(4,067,750)
- Other non-current liabilities		(84,136,677)	331,734,142	(186,839,810)	6,815,734
Cash generated from operating activities		17,744,319,597	22,064,256,968	3,334,990,337	3,623,754,956
- Tax paid		(1,635,140,099)	(1,207,369,831)	(200,507,798)	(57,780,606)
Net cash generated from operating activities		16,109,179,498	20,856,887,137	3,134,482,539	3,565,974,350

The notes to the consolidated and separate financial statements on pages 298 to 385 are on integral part of these financial statements.

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

## Statement of Cash Flows

For the year ended 31 December 2021

		Consolidated financial statements		Separate financial statements	
		2021 Baht	2020 Baht	2021 Baht	2020 Baht
Notes					
<b>Cash flows from investing activities</b>					
		148,063,280	127,053,615	143,104,113	78,792,331
		997,516,173	915,356,193	3,852,684,624	18,615,507,798
		208,608,594	(12,381,069)	-	-
		(1,324,857,342)	(1,308,105,928)	-	-
	19	(498,852,990)	(72,108,256)	-	(72,108,256)
	18	(1,568,000)	(135,000,000)	-	(135,000,000)
	18	(15,466,676,849)	-	(482,216,269)	-
	18	-	-	(15,607,131,786)	(2,965,531,000)
	18	692,699,844	-	692,699,844	-
		-	(1,477,432,703)	-	-
	38	(994,706,338)	-	(1,044,706,338)	(2,264,843,982)
	38	1,694,989,934	-	1,854,989,934	486,763,988
	38	(834,040,000)	-	(3,245,646,468)	-
	38	209,297,932	35,000,000	2,668,664,400	47,760,000
		-	(1,751,692,032)	-	-
		1,567,555	38,735,769	1,214,554	8,907,668
		(4,305,222,104)	(3,624,208,724)	(1,313,537,814)	(1,901,999,374)
		(69,755,334)	(41,904,592)	(118,677,909)	(23,983,960)
		(66,959,824)	(63,775,920)	(41,204,324)	(59,287,138)
		(19,609,895,469)	(7,370,463,647)	(12,639,763,439)	11,814,978,075

The notes to the consolidated and separate financial statements on pages 298 to 385 are on integral part of these financial statements.

**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED**
**Statement of Cash Flows**

For the year ended 31 December 2021

	Notes	Consolidated financial statements		Separate financial statements	
		2021	2020	2021	2020
		Baht	Baht	Baht	Baht
<b>Cash flows from financing activities</b>					
Cash paid for liabilities under lease agreements		(207,507,310)	(189,731,625)	(72,504,972)	(73,121,776)
Cash paid for financing fees to financial institutions and a related party		(43,895,929)	(33,988,913)	(26,020,803)	(28,347,246)
Cash received from short-term loans from financial institutions		-	18,929,741,150	-	16,891,741,150
Cash received from long-term loans from financial institutions	27	34,563,772,130	21,000,000,000	3,500,000,000	18,000,000,000
Cash paid for repayments of short-term loans from related parties		-	(4,913,056,463)	-	(4,913,056,463)
Cash paid for repayments of short-term loans from financial institutions		-	(38,228,908,044)	-	(36,190,908,044)
Cash paid for repayments of long-term loans from financial institutions	27	(23,208,342,407)	(3,545,427,991)	(11,247,500,000)	(652,500,000)
Cash received from long-term loans from related parties	38	8,000,000,000	-	19,990,000,000	-
Cash paid for repayments of long-term loans from a related party	38	-	-	(340,329,500)	-
Cash paid for short-term loans to existing shareholders from the acquisition of subsidiaries		-	(1,124,546,594)	-	-
Cash received from issue of debentures	28	-	5,000,000,000	-	5,000,000,000
Cash paid for repayments of debentures	28	(13,055,000,000)	-	(3,500,000,000)	-
Cash paid from the change in non-controlling interests	18	(16,721,651)	-	-	-
Proceeds from non-controlling interests from capital increase in a subsidiary		-	136,857,000	-	-
Dividend paid	37	(4,229,594,051)	(3,665,648,177)	(4,229,594,051)	(3,665,648,177)
Dividend paid to non-controlling interests of subsidiaries		(489,705,987)	(1,377,542,376)	-	-
Interest paid		(4,037,115,845)	(3,796,648,709)	(1,761,010,690)	(1,432,481,054)
Net cash receipts from (payments in) financing activities		(2,724,111,050)	(11,808,900,742)	2,313,039,984	(7,064,321,610)

The notes to the consolidated and separate financial statements on pages 298 to 385 are on integral part of these financial statements.

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

## Statement of Cash Flows

For the year ended 31 December 2021

	Consolidated financial statements		Separate financial statements	
	2021 Baht	2020 Baht	2021 Baht	2020 Baht
<b>Net increase (decrease) in cash and cash equivalents</b>	(6,224,827,021)	1,677,522,748	(7,192,240,916)	8,316,630,815
Effect of exchange rate on cash and cash equivalents	59,314,790	29,085,367	22,657,037	10,676,836
Less cash related to assets held-for-sale	(330,839,784)	(256,403,654)	-	-
Cash and cash equivalents at beginning of year	20,288,891,201	18,838,686,740	10,655,182,886	2,327,875,235
Cash and cash equivalents at ending of year	13,792,539,186	20,288,891,201	3,485,599,007	10,655,182,886
<b>Supplementary information</b>				
Changes in payable for assets under construction	(231,673,105)	846,564,431	(149,762,604)	7,247,915
Changes in payable for intangible assets	15,847,180	-	15,847,180	-
Changes in dividend receivable from subsidiaries	-	-	(192,517,564)	(11,787,467,445)
Changes in dividend payable to non-controlling interests	(184,967,856)	(399,216,107)	-	-
Acquisitions of right to use assets under lease agreement	106,192,313	430,195,731	61,626,717	336,172,061
Change in lease liabilities	(110,561)	(50,924,763)	(110,561)	(5,263,346)

The notes to the consolidated and separate financial statements on pages 298 to 385 are on integral part of these financial statements.



## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

### Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2021

#### 1 General information

Global Power Synergy Public Company Limited (the Company) is a public limited company which listed on the Stock Exchange of Thailand. The Company is incorporated in Thailand and the address of its registered office is No.555/2, Energy Complex, Building B, 5th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900.

For reporting purposes, the Company and its subsidiaries are referred to as the Group.

The principal business of the Group is the production and distribution of electricity, steam and water for industrial use to the government and industrial customers.

These consolidated and separate financial statements were authorised for issue by the Board of Directors on 11 February 2022.

#### 2 Basis of preparation

The consolidated and separate financial statements have been prepared in accordance with Thai Financial Reporting Standards (TFRS) and the financial reporting requirements issued under the Securities and Exchange Act.

The consolidated and separate financial statements have been prepared under the historical cost convention except as disclosed in the below accounting policies.

The preparation of financial statements in conformity with TFRS requires management to use certain critical accounting estimates and to exercise its judgement in applying the Group's accounting policies. The areas involving a higher degree of judgement or complexity, or areas that are more likely to be materially adjusted due to changes in estimates and assumptions are disclosed in Note 8.

An English version of the consolidated and separate financial statements has been prepared from the statutory financial statements that are in the Thai language. In the event of a conflict or a difference in interpretation between the two languages, the Thai language statutory financial statements shall prevail.

#### 3 New and amended financial reporting standards

##### 3.1 New and amended financial reporting standards that are effective for accounting period beginning on or after 1 January 2021 and related to the Group.

- a) **Revised Conceptual Framework for Financial Reporting** added the following key principals and guidance:
- Measurement basis, including factors in considering difference measurement basis
  - Presentation and disclosure, including classification of income and expenses in other comprehensive income
  - Definition of a reporting entity, which maybe a legal entity, or a portion of an entity; and
  - Derecognition of assets and liabilities
- The amendment also includes the revision to the definition of an asset and liability in the financial statements, and clarification to the prominence of stewardship in the objective of financial reporting.
- b) **Amendment to TFRS 3, Business combinations** amended the definition of a business which requires an acquisition to include an input and a substantive process that together significantly contribute to the ability to create outputs. The definition of the term 'outputs' is amended to focus on goods and services provided to customers and to exclude returns in the form of lower costs and other economic benefits.
- c) **Amendment to TFRS 9, Financial instruments and TFRS 7, Financial instruments: disclosures** amended to provide relief from applying specific hedge accounting requirements to the uncertainty arising from interest rate benchmark reform such as IBOR. The amendment also requires disclosure of hedging relationships directly affected by the uncertainty.
- d) **Amendment to TAS 1, Presentation of financial statements and TAS 8, Accounting policies, changes in accounting estimates and errors** amended to definition of materiality. The amendment allows for a consistent definition of materiality throughout the Thai Financial Reporting Standards and the Conceptual Framework for Financial Reporting. It also clarified when information is material and incorporates some of the guidance in TAS 1 about immaterial information.

The Group has adopted the amended financial reporting standards as above since 1 January 2021. The adopted are immaterial to the Group.

**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED****Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2021

**3.2 Amended financial reporting standards that are effective for accounting periods beginning on or after 1 January 2022 and related to the Group. The Group has not yet adopted these standards.**

**Interest rate benchmark (IBOR) reform - phase 2, amendments to TFRS 9, TFRS 7, TFRS 16 and TFRS 4, and accounting guidance, financial instruments and disclosures for insurance business** provide relief measures addressing issues that might affect financial reporting during the reform, including the effects of changes to contractual cash flows or hedging relationship arising from the replacement of one benchmark with an alternative benchmark.

Key relief measures of the phase 2 amendments are as follows:

- When changing the basis for determining contractual cash flows for financial assets and financial liabilities (including lease liabilities), changes that are necessary as a direct result of the IBOR reform and which are considered economically equivalent, will not result in an immediate gain or loss in the statement of income. TFRS 16 has also been amended to require lessees to use a similar practical expedient when accounting for lease modifications that change the basis for determining future lease payments as a result of the IBOR reform.
- Hedge accounting relief measures will allow most TFRS 9 hedge relationships that are directly affected by the IBOR reform to continue. However, additional ineffectiveness might need to be recorded.

Moreover, TFRS 7 requires additional disclosure about:

- The nature and extent of risks arising from the IBOR reform to which the entity is exposed to.
- How the entity manages those risks.
- The entity's progress in transitioning from the IBOR to alternative benchmark rates and how the entity is managing this transition.

The Group's management is currently assessing the impact of adoption of these standards.

**4 Accounting Policies**

The principal accounting policies applied in the preparation of these consolidated and separate financial statements are set out belows:

**4.1 Principles of consolidation and equity accounting****4.1.1 Subsidiaries**

Subsidiaries are all entities over which the Group has control. The Group controls an entity when the Group is exposed to, or 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. Subsidiaries are consolidated from the date on which control is transferred to the Group until the date that control ceases.

In the separate financial statements, investments in subsidiaries are accounted for using cost method less impairment (if any).

**4.1.2 Associates**

Associates are all entities over which the Group has significant influence but not control or joint control. Investments in associates are accounted for using the equity method of accounting.

In the separate financial statements, investments in associates are accounted for using cost method less impairment (if any).

#### **4.1.3 Joint arrangements**

Investments in joint arrangements are classified as either joint operations or joint ventures depending on the contractual rights and obligations of each investor, rather than the legal structure of the joint arrangements.

##### *Joint operations*

A joint operation is a joint arrangement whereby the Group has rights to the assets, and obligations for the liabilities relating to the arrangement. The Group recognises its direct right to the assets, liabilities, revenues and expenses of joint operations and its share of any jointly held or incurred assets, liabilities, revenues and expenses. These have been incorporated in the Group's financial statement line items.

##### *Joint ventures*

A joint venture is a joint arrangement whereby the Group has rights to the net assets of the arrangement. Interests in joint ventures are accounted for using the equity method.

In the separate financial statements, investments in joint ventures are accounted for using cost method less impairment (if any).

#### **4.1.4 Equity method**

The investment is initially recognised at cost which is consideration paid and directly attributable costs.

The Group's subsequently recognises shares of its associates and joint ventures' profits or losses and other comprehensive income in the profit or loss and other comprehensive income, respectively. The subsequent cumulative movements are adjusted against the carrying amount of the investment.

When the Group's share of losses in associates and joint ventures equals or exceeds its interest in the associates and joint ventures, the Group does not recognise further losses, unless it has incurred obligations or made payments on behalf of the associates and joint ventures.

#### **4.1.5 Changes in ownership interests**

The Group treats transactions with non-controlling interests that do not result in a loss of control as transactions with equity owners of the Group. A difference between the amount of the adjustment to non-controlling interests to reflect their relative interest in the subsidiary and any consideration paid or received is recognised within equity.

If the ownership interest in associates and joint ventures is reduced but significant influence and joint control is retained, only a proportionate share of the amounts previously recognised in other comprehensive income is reclassified to profit or loss where appropriate. Profit or loss from reduce of the ownership interest in associates and joint ventures is recognise in profit or loss.

When the Group losses control, joint control or significant influence over investments, any retained interest in the investment is remeasured to its fair value, with the change in carrying amount recognised in profit or loss. The fair value becomes the initial carrying amount of the retained interest which is reclassified to investment in an associate, or a joint venture or a financial asset accordingly.

#### **4.1.6 Intercompany transactions on consolidation**

Intra-group transactions, balances and unrealised gains on transactions are eliminated. Unrealised gains on transactions between the Group and its associates and joint ventures are eliminated to the extent of the Group's interest in the associates and joint ventures. Unrealised losses are also eliminated in the same manner unless the transaction provides evidence of an impairment of the asset transferred.

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**4.2 Business combination**

The Group applies the acquisition method to account for business combinations with an exception on business combination under common control. The consideration transferred for the acquisition of a subsidiary comprises:

- fair value of the assets transferred,
- liabilities incurred to the former owners of the acquiree
- equity interests issued by the Group

Identifiable assets and liabilities acquired and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date.

On an acquisition-by-acquisition basis, the Group initially recognises any non-controlling interest in the acquiree either at fair value or at the non-controlling interest's proportionate share of the acquiree's net assets.

The excess of the consideration transferred, the amount of any non-controlling interest recognised and the acquisition-date fair value of any previous equity interest in the acquiree (for business combination achieved in stages) over the fair value of the identifiable net assets acquired is recorded as goodwill. In the case of a bargain purchase, the difference is recognised directly in profit or loss.

*Acquisition-related costs*

Acquisition-related costs are recognised as expenses in the consolidated financial statements.

*Step-up acquisition*

If the business combination is achieved in stages, the acquisition date carrying value of the acquirer's previously held equity interest in the acquiree is re-measured to fair value at the acquisition date; any gains or losses arising from such re-measured are recognised in profit or loss.

*Changes in fair value of contingent consideration paid/received*

Subsequent changes to the fair value of the contingent consideration that is an asset or liability is recognised in profit or loss. Contingent consideration that is classified as equity is not re-measured.

**4.3 Foreign currency translation****4.3.1 Functional and presentation currency**

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates (the functional currency). The financial statements are presented in Thai Baht, which is the functional currency of the Company and the presentation currency of the Group and the Company.

**4.3.2 Transactions and balances**

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuation where items are re-measured. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the profit or loss.

When a gain or loss on a non-monetary item is recognised in other comprehensive income, any exchange component of that gain or loss is recognised in other comprehensive income. Conversely, when a gain or loss on a non-monetary item is recognised in profit and loss, any exchange component of that gain or loss is recognised in profit and loss.

**4.3.3 Group companies**

The results and financial position of all of the Group's entities (none of which has the currency of a hyper-inflationary economy) that have a functional currency different from the presentation currency are translated into the presentation currency as follows:

- Assets and liabilities for each statement of financial position presented are translated at the closing rate at the date of that statement of financial position;
- Income and expenses for each statement of income and statement of comprehensive income are translated at average exchange rates; and
- All resulting exchange differences are recognised in other comprehensive income.

#### **4.4 Cash and cash equivalents**

In the statements of cash flows, cash and cash equivalents include cash on hand, deposits held at call, short-term highly liquid investments with maturities of three months or less from acquisition date.

#### **4.5 Trade receivables**

Trade receivables are amounts due from customers for goods sold or services performed in the ordinary course of business. They are generally due for settlement within 30 days and therefore are all classified as current.

Trade receivables are recognised initially at the amount of consideration that is unconditional unless they contain significant financing components, they are recognised at fair value. The Group holds the trade receivables with the objective to collect the contractual cash flows and therefore measures them subsequently at amortised cost.

#### **4.6 Fuel, spare parts and supplies**

Fuel, spare parts and supplies are stated at the lower of cost or net realisable value.

Cost of fuel, spare parts and supplies are determined by the moving average basis method. Spare parts and supplies are classified as spare parts and supplies used for specific equipment in power plants and spare parts and supplies used for other general equipment.

The cost of purchase comprises both the purchase price and costs directly attributable to the acquisition of the fuel, spare parts and supplies, such as import duties and transportation charges, less all attributable discounts. The allowance for obsolescence of spare parts and supplies is made on an aging analysis.

#### **4.7 Financial asset**

##### **4.7.1 Classification**

The Group classifies its debt instrument financial assets in the following measurement categories depending on i) business model for managing the asset and ii) the cash flow characteristics of the asset whether they represent solely payments of principal and interest (SPPI).

- those to be measured subsequently at fair value (either through other comprehensive income or through profit or loss); and
- those to be measured at amortised cost.

The Group reclassifies debt investments when and only when its business model for managing those assets changes.

For investments in equity instruments, the Group has an irrevocable election at the time of initial recognition to account for the equity investment at fair value through profit or loss (FVPL) or at fair value through other comprehensive income (FVOCI) except those that are held for trading, they are measured at FVPL.

##### **4.7.2 Recognition and derecognition**

Regular way purchases, acquires and sales of financial assets are recognised on trade-date, the date on which the Group commits to purchase or sell the asset. Financial assets are derecognised when the rights to receive cash flows from the financial assets have expired or have been transferred and the Group has transferred substantially all the risks and rewards of ownership.

##### **4.7.3 Measurement**

At initial recognition, the Group measures a financial asset at its fair value plus, in the case of a financial asset not at FVPL, transaction costs that are directly attributable to the acquisition of the financial asset. Transaction costs of financial assets carried at FVPL are expensed in profit or loss.

Financial assets with embedded derivatives are considered in their entirety when determining whether the cash flows are solely payment of principal and interest.



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**4.7.4 Debt instruments**

Subsequent measurement of debt instruments depends on the Group's business model for managing the asset and the cash flow characteristics of the financial assets. There are three measurement categories into which the Group classifies its debt instruments:

- Amortised cost: Financial assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortised cost. Interest income from these financial assets is included in other income using the effective interest rate method. Any gain or loss arising on derecognition and foreign exchange gains and losses are recognised directly in profit or loss and presented in other gain/ (losses) and currency exchange gain (loss), respectively. Impairment losses are presented as a separate line item in the profit or loss.
- FVOCI: Financial assets that are held for i) collection of contractual cash flows; and ii) for selling the financial assets, where the assets' cash flows represent solely payments of principal and interest, are measured at FVOCI. Movements in the carrying amount are taken through other comprehensive income (OCI), except for 1) the recognition of impairment gains or losses, 2) interest income using the effective interest method, and 3) foreign exchange gains and losses which are recognised in profit or loss. When the financial assets are derecognised, the cumulative gain or loss previously recognised in OCI is reclassified from equity to profit or loss and recognised in other gains/(losses). Interest income is included in other income. Impairment expenses are presented separately in profit or losses.
- FVPL: Financial assets that do not meet the criteria for amortised cost or FVOCI are measured at FVPL. A gain or loss on a debt investment that is subsequently measured at FVPL is recognised in profit or loss and presented net within other gain/(loss) from measurement of financial instruments in the period in which it arises.

**4.7.5 Equity instruments**

The Group measures all equity investments at fair value. Where the Group has elected to present fair value gains and losses on equity instruments in OCI, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividends from such investments continue to be recognised in profit or loss as dividend income when the right to receive payments is established.

Changes in the fair value of financial assets at FVPL are recognised in other gains/ (losses).

Impairment losses and reversal of impairment losses on equity investments are reported together with changes in fair value.

**4.7.6 Impairment**

The Group applies the TFRS 9 simplified approach and general approach in measuring the impairment of trade receivables and lease receivables under Power Purchase Agreement, which applies lifetime expected credit loss, from initial recognition, for all trade receivables and lease receivables under Power Purchase Agreement.

To measure the expected credit losses by using simplified approach, the management grouped the receivables based on shared credit risk characteristics and the days past due. The expected credit loss rates are based on payment profiles, historical credit losses as well as forward-looking information and factors that may affect the ability of the customers to settle the outstanding balances. In addition to the simplified approach, the management applies the general approach, which is to consider the individual assessments by using the discounted cashflow method. For this, management uses an estimate debtor's future cash flows based on the original effective interest rate.

For other financial assets carried at amortised cost and FVOCI, the Group applies TFRS 9 general approach in measuring the expected credit loss of those financial assets. Under the general approach, the 12-month or the lifetime expected credit loss is applied depending on whether there has been a significant increase in credit risk since the initial recognition.

The significant increase in credit risk (from initial recognition) assessment is performed every end of reporting period by comparing i) expected risk of default as of the reporting date and ii) estimated risk of default on the date of initial recognition.

The Group assesses expected credit loss by taking into consideration forward-looking information and past experiences. The expected credit loss is a probability-weighted estimate of credit losses (probability-weighted present value of estimated cash shortfall). The cash shortfall is the difference between all contractual cash flows that are due to the Group and all cash flows expected to receive, discounted at the original effective interest rate.

When measuring expected credit losses, the Group reflects the following:

- probability-weighted estimated uncollectible amounts
- time value of money; and
- supportable and reasonable information as of the reporting date about past experience, current conditions and forecasts of future situations.

Impairment and reversal of impairment losses are recognised in profit or loss and included in administrative expenses.

#### 4.8 Property, plant and equipment

Property, plant and equipment are initially stated at historical cost. All plant and equipment are subsequently stated at historical cost less accumulated depreciation and allowance for impairment (if any). Initial cost includes expenditure that is directly attributable to the acquisition of the items. These can include the initial estimate of costs of dismantling and removing the item, and restoring the site on which it is located, the obligation for which the Group incurs either when the item is acquired or as a consequence of having used the item during a particular period.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognised. All other repairs and maintenance are charged to profit or loss during the financial period in which they are incurred.

Depreciation is calculated using the straight-line method to allocate their cost to their residual values over their estimated useful lives, except land, which is considered to have an indefinite life, as follows:

	Years
Buildings and leasehold improvements	5 to 40
Power plant, machinery and equipment	3 to 40
Furniture, fixture and office equipment	3 to 28
Vehicles	5

Depreciation of power plant of Houay Ho Power Company Limited is calculated using the unit of production method.

The asset's residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period.

The asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount.

Gains or losses on disposals of property, plant and equipment are determined by comparing the proceeds with the carrying amount. The net gains or losses are recognised in profit or loss.

#### 4.9 Intangible assets

Intangible assets with limited life are initially recognised at historical cost and subsequently stated at historical cost less accumulated amortisation and allowance for impairment losses (if any). The amortisation is calculated using the straight-line method over their estimated useful lives as follows:

	Years
Right to use grid system	22 - 24
Right to operate power plant	20
Right to use transmission line	25
Deferred land leasehold right	16 - 30
Right to use pipe rack	8 - 16
Right of way	20 - 31
Right to use gas pipeline	13 - 28
Right to use dedicated berth	14
Computer software	3 - 10
Right to power purchase agreements	5 - 31

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**4.10 Goodwill**

Goodwill represents the excess of the consideration transferred over the fair value of the Group's share of the net identifiable assets, liabilities and contingent liabilities of the acquired subsidiary undertaking or associate or joint venture at the date of acquisition.

Goodwill on acquisitions of subsidiaries is separately reported in the consolidated statement of financial position. Goodwill on acquisition of joint ventures or associates is included in investments in joint ventures or associates and is tested for impairment as part of the overall balance.

Goodwill is tested annually for impairment and carried at cost less accumulated impairment losses. Impairment losses on goodwill are not reversed. Gains and losses on the disposal of an entity include the carrying amount of goodwill relating to the entity sold.

Goodwill is allocated to cash generating units for the purpose of impairment testing. The allocation is made to those cash generating units or groups of cash generating units that are expected to benefit from the business combination in which the goodwill arose, identified according to operating segment.

**4.11 Impairment of assets**

Assets that have an indefinite useful life are tested annually for impairment, or more frequently if events or changes in circumstances indicate that it might be impaired. Assets that are subject to amortisation are reviewed for impairment whenever there is an indicator of impairment. An impairment loss is recognised for the amount by which the carrying amount of the assets exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to disposal and value in use.

Where the reasons for previously recognised impairments no longer exist, the impairment losses on the assets concerned other than goodwill is reversed.

**4.12 Leases***Leases - where the Group is the lessee*

Leases are recognised as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the Group. Each lease payment is allocated between the liability and finance cost. The finance cost is charged to profit or loss over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term.

The Group allocates the consideration in the contract to the lease and non-lease components based on their relative stand-alone prices. However, for leases of real estate for which the group is a lessee, it has elected not to separate lease and non-lease components and instead accounts for these as a single lease component.

Assets and liabilities arising from a lease are initially measured on a present value basis. Lease liabilities include the net present value of the following lease payments:

- fixed payments (including in-substance fixed payments), less any lease incentives receivable
- variable lease payment that are based on an index or a rate
- amounts expected to be payable by the lessee under residual value guarantees
- the exercise price of a purchase option if the lessee is reasonably certain to exercise that option, and
- payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

Lease payments to be made under reasonably certain extension options are also included in the measurement of the liability.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the lessee's incremental borrowing rate is used, being the rate that the lessee would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of lease liability
- any lease payments made at or before the commencement date less any lease incentives received
- any initial direct costs, and
- restoration costs.

Payments associated with short-term leases and leases of low-value assets are recognised on a straight-line basis as an expense in profit or loss. Short-term leases are leases with a lease term of 12 months or less. Low-value assets comprise of office furniture.

Leases - where the Group is the lessor

When assets are leased out under a finance lease, the present value of the lease payments is recognised as a receivable. The difference between the gross receivable and the present value of the receivable is recognised as unearned finance income. Lease income is recognised over the term of the lease which reflects a constant periodic rate of return. Initial direct costs are included in initial measurement of the finance lease receivables and reduce the amount of income recognised over the lease term.

Rental income under operating leases (net of any incentives given to lessees) is recognised on a straight-line basis over the lease term. Initial direct costs incurred in obtaining an operating lease are added to the carrying amount of the underlying asset and recognised as expense over the lease term on the same basis as lease income. The respective leased assets are included in the statement of financial position based on their nature.

#### **4.13 Financial liabilities**

##### **4.13.1 Classification**

Financial instruments issued by the Group are classified as either financial liabilities or equity securities by considering contractual obligations.

- Where the Group has an unconditional contractual obligation to deliver cash or another financial asset to another entity, it is considered a financial liability unless there is a predetermined or possible settlement for a fixed amount of cash in exchange of a fixed number of the Group's own equity instruments.
- Where the Group has no contractual obligation or has an unconditional right to avoid delivering cash or another financial asset in settlement of the obligation, it is considered an equity instrument.

Borrowings are classified as current liabilities unless the Group has an unconditional right to defer settlement of the liability for at least 12 months after the reporting date.

##### **4.13.2 Measurement**

Financial liabilities are initially recognised at fair value and are subsequently measured at amortised cost.

##### **4.13.3 Derecognition and modification**

Financial liabilities are derecognised when the obligation specified in the contract is discharged, cancelled, or expired.

Where the terms of a financial liability are renegotiated/modified, the Group assesses whether the renegotiation / modification results in the derecognition of that financial liability. Where the modification results in an extinguishment, the new financial liability is recognised based on fair value of its obligation. The remaining carrying amount of financial liability is derecognised. The difference as well as proceed paid is recognised as administrative expense.

Where the modification does not result in the derecognition of the financial liability, the carrying amount of the financial liability is recalculated as the present value of the renegotiated / modified contractual cash flows discounted at its original effective interest rate. The difference is recognised in administrative expense.

#### **4.14 Borrowing costs**

General and specific borrowing costs directly attributable to the acquisition or construction of qualifying assets (assets that take several time to get ready for its intended use) are added to the cost of those assets less investment income earned from those specific borrowings. The capitalisation of borrowing costs is ceased when substantially all the activities necessary to prepare the qualifying asset for its intended use or sale are complete.

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**4.15 Current and deferred income taxes**

The tax expense for the period comprises current and deferred tax. Tax is recognised in profit or loss, except to the extent that it relates to items recognised in other comprehensive income or directly in equity.

**Current tax**

The current income tax is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. The Group establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

**Deferred income tax**

Deferred income tax is recognised on temporary differences arising from differences between the tax base of assets and liabilities and their carrying amounts in the financial statements. However, deferred income tax is not recognised for temporary differences arise from:

- initial recognition of an asset or liability in a transaction other than a business combination that affects neither accounting nor taxable profit or loss is not recognised.
- investments in subsidiaries, associates and joint arrangements where the timing of the reversal of the temporary difference is controlled by the Group and it is probable that the temporary difference will not reverse in the foreseeable future.

Deferred income tax is measured using tax rates of the period in which temporary difference is expected to be reversed, based on tax rates and laws that have been enacted or substantially enacted by the end of the reporting period.

Deferred tax assets are recognised only to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets and liabilities and when the deferred tax balances relate to the same taxation authority. Current tax assets and tax liabilities are offset where the entity has a legally enforceable right to offset and intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously.

**4.16 Employee benefits**

The Group operates various post-employment benefits schemes which comprised defined benefit, defined contribution plans and other long-term benefits

**4.16.1 Defined contribution**

The Group provides provident fund, which is contributed by the employees and the Group, and managed by an external fund manager in accordance with the Provident Fund Act. B.E. 2530. The Group has no legal or constructive obligations to pay further contributions once the contributions have been paid even if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service in the current and prior periods. The contributions are recognised as employee benefit expense when they are due.

**4.16.2 Retirement benefits**

The Group provides for post-employment benefits, payable to employees under the labour laws applicable in Thailand and other countries in which the Group has its operations, or when the term of service is terminated according to the agreement between the Group and employees. Typically, defined benefit plans define an amount of retirement benefit that an employee will receive on retirement, usually depends on many factors such as age, years of service and compensation.

The liability in respect of employee benefits is the present value of the defined benefit obligation at the end of the reporting date which is calculated by an independent actuary using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting estimated future cash flows using yields on government bonds that matches the terms and currency of the expected cash outflows.

Remeasurement gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to equity in other comprehensive income in the period in which they arise.

Past-service costs are recognised immediately in profit or loss.



**4.16.3 Other long-term benefits**

The Group gives gold rewards to employees when they have worked for the Group for 10, 15, 20, 25 and 30 years.

These obligations are measured similar to defined benefit plans except remeasurement gains and losses that are charged to profit or loss.

**4.17 Provisions**

**4.17.1 General provisions**

Provisions are recognised when the Group has a present legal or constructive obligation as a result of past events; it is probable that an outflow of resources will be required to settle the obligation; and the amount has been reliably estimated.

**4.17.2 Provisions for decommissioning cost**

The Group recognises provision for decommissioning costs, which are provided at the onset of completion of the project, for the estimate of the eventual costs that relate to the removal of the assets. The recognised provision for decommissioning costs is based on future removal cost estimates and incorporate many assumptions such as abandonment times and future inflation rate and discounted to present value at the discount rate estimated by the management. Those costs are included as part of the assets.

**4.18 Revenue recognition**

Revenue are recorded net of value added tax. They are recognised in accordance with the provision of goods or services, provided that collectability of the consideration is probable.

Multiple element arrangements involving delivery or provision of multiple products or services are separated into distinct performance obligations. Total transaction price of the bundled contract is allocated to each performance obligation based on their relative standalone selling prices or estimated standalone selling prices. Each performance obligation is recognised as revenue on fulfilment of the obligation to the customer as details below.

**Revenue under the Power Purchase Agreements (PPA)**

**(a) Revenue under the PPA which are not classified as lease**

- The Group recognises Capacity Payments or Availability Payments which are the revenue for maintaining availabilities of power plants as agreed with EGAT and industrial customers in accordance with terms of PPA. The Group recognises this revenue in profit or loss when rendering services to customer according to the agreements. If the Group receives consideration above the services rendered, the Group recognises the excess consideration as a contract liability. On the other hand, if the Group receives consideration less than the services rendered, the Group recognises the consideration as a contract asset.
- Energy Payments are recognised at a point in time when the controls over the products are transferred to the customers at destinations as stated in the agreements. The revenue from Energy Payments are recognised based on transaction price net of output tax, rebates and discounts.

**(b) Revenue under the Power Purchase Agreements which are classified as lease**

- Finance lease income under the power purchase agreements is recognised on an effective interest method over the period of the agreements. Rental income from operating lease under the power purchase agreements is recognised on a straight-line basis over the period of the agreements.
- Service income under finance and operating lease agreements related to power purchase agreements, which comprises revenue for maintaining availabilities of power plants, other service income and Energy Payments received from financial lease receivables and operating lease receivables with respect to the leased assets, is recognised when the services are rendered. If the Group receives consideration above the services rendered, the Group recognises the excess consideration as a contract liability. On the other hand, if the Group receives consideration less than the services rendered, the Group recognises the consideration as a contract asset.
- Contingent rents are recognised in profit or loss in the period in which they are incurred. Contingent rent is that portion of lease payments that is not fixed in amount but varies based on a future factor, such as the amount of use or production.

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**Revenue under the steam and water purchase agreements**

Revenue under the steam and water purchase agreements are recognised at a point in time when the controls over the products are transferred to customers at destinations as stated in the agreements. The revenue is recognised based on transaction price net of output tax, rebates and discounts.

**Dividend income**

Dividend income is recognised when the right to receive payment is established.

**Interest income**

Interest income are recognised by the effective interest rate method.

**4.19 Dividend distribution**

Dividend distribution to the Company's shareholders is recognised as a liability in the financial statements in the period in which the dividends are approved by the Company's shareholders, and interim dividend are approved by the Board of Directors.

**4.20 Derivatives and hedging activities****4.20.1 Embedded derivative and derivatives that do not qualify for hedge accounting**

Embedded derivative that is separately accounted for and derivatives that do not qualify for hedge accounting is initially recognised at fair value. Changes in the fair value are included in gains (losses) from measurement of financial instruments, net.

Fair value of derivative is classified as a current or non-current following its remaining maturity.

**4.20.2 Hedge accounting**

Derivatives are initially recognised at fair value on the date a derivative contract is entered into and are subsequently remeasured to their fair value at the end of each reporting period. The Group designates certain derivatives as either:

- hedges of the fair value of i) recognised assets or liabilities or ii) unrecognised firm commitments (fair value hedges); or
- hedges of a particular risk associated with the cash flows of i) recognised assets and liabilities and ii) highly probable forecast transactions (cash flow hedges).

At inception of the hedge relationship, the Group documents i) the economic relationship between hedging instruments and hedged items including whether changes in the cash flows of the hedging instruments are expected to offset changes in the cash flows of hedged items and ii) its risk management objective and strategy for undertaking its hedge transactions.

The full fair value of a hedging derivative is classified as a current or non-current asset or liability following the maturity of related hedged item.

**Cash flow hedges that qualify for hedge accounting**

The effective portion of changes in the fair value of derivatives that are designated and qualified as cash flow hedges is recognised in the cash flow hedge reserve within equity. The gain or loss relating to the ineffective portion is recognised immediately in profit or loss from measurement of financial instruments, net.

The Group has entered into foreign currency forward contracts, interest rate swap contracts, cross currency and interest rate swap contracts and commodity swap agreement to hedge forecast transactions. The Group generally designates only the change in fair value related to the spot component as the hedging instrument. Gains or losses relating to the effective portion of the change in the spot component are recognised as the cash flow hedge reserve in the other comprehensive income within equity. The change in the forward element that relates to the hedged item ('aligned forward element') is recognised as the cost of hedging reserve in other comprehensive income within equity.

In some cases, the Group may designate the full change in fair value of the derivatives (including forward points) as the hedging instrument. In such cases, the gains or losses relating to the effective portion of the change in fair value of the entire contract are recognised as the cash flow hedge reserve in the other comprehensive income within equity.

Amounts accumulated in equity are reclassified in the periods when the hedged item affects profit or loss

When a hedging instrument expires, or is sold or terminated, or when a hedge no longer meets the criteria for hedge accounting, any cumulative deferred gain or loss and deferred costs of hedging in equity at that time remains in equity until the forecast transaction occurs. When the forecast transaction is no longer expected to occur, the cumulative gain or loss and deferred costs of hedging that were reported in equity are immediately reclassified to profit or loss.

#### **4.21 Financial guarantee contracts**

Financial guarantee contracts are recognised as a financial liability at the time the guarantee is issued. The liability is initially measured at fair value and subsequently at the higher of:

- The amount determined in accordance with the expected credit loss model under TFRS 9; and
- The amount initially recognised less the cumulative amount of income recognised in accordance with the principles of TFRS 15.

The fair value of financial guarantees is determined based on the present value of the difference in cash flows between a) the contractual payments required under the debt instrument; and b) the payments that would be required without the guarantee, or the estimated amount that would be payable to a third party for assuming the obligations.

Where guarantees in relation to loans or other payables are provided for no compensation, the fair values are accounted for as contributions and recognised as part of the cost of the investment.

#### **4.22 Segment reporting**

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision-maker. The Steering Committee has been identified as the chief operating decision-maker, who is responsible for allocating resources and assessing performance of the operating segments that makes strategic decisions.

## **5 Financial risk management**

### **5.1 Financial risk**

The Group exposes to a variety of financial risk: market risk (including foreign exchange risk, interest rate risk and price risk), credit risk and liquidity risk. The Group's overall risk management programme focuses on the unpredictability of financial markets and seeks to minimise potential adverse effects on the Group's financial performance. The Group uses derivative financial instruments to hedge certain exposures.

Financial risk management is carried out by the Group treasury management division. The Group's policy includes areas such as foreign exchange risk, interest rate risk, price risk, credit risk and liquidity risk. The framework parameters are approved by the Board of Directors and used as the key communication and control tools for Treasury team.

The Group's risk management is controlled by a treasury management division under policies approved by the Board of Directors. The treasury management division, evaluates and manages financial risks in close co-operation with the Group's operating units. The board provides written principles for overall risk management, as well as policies covering specific areas, such as foreign exchange risk, interest rate risk, credit risk, use of derivative and other financial instruments as well as investment of excess liquidity.

The use of derivative contracts that are speculative in nature is prohibited. All derivative contracts must be approved by the Board of Directors of each company within the Group.

Where all relevant criteria are met, hedge accounting is applied to remove the accounting mismatch between the hedging instrument and the hedged item.

**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED****Notes to the Consolidated and Separate Financial Statements**For the year ended 31 December 2021

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**5.1.1 Market risk****a) Foreign exchange risk**

The Group are exposed to foreign exchange risk from future commercial transactions and net monetary assets and liabilities that are denominated in a currency that is not the entity's functional currency.

**Financial instruments using for risk management**

The Group uses a combination of foreign currency forwards and cross currency and interest rate swap to hedge its exposure to foreign currency risk. Under the Group's policy, the critical terms of the forwards and options must align with the hedged items. In respect of foreign currency risk arising from the generation and sale of electricity to EGAT, the formula for the calculation of the Availability Payment and Energy Payment charged to EGAT allows for the minimisation of the impact of foreign currency risk.

***Exposure***

The Group's exposure to foreign currency risk at the end of the reporting period, expressed in Baht are as follows:

# GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

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	Consolidated financial statements					
	As at 31 December 2021			As at 31 December 2020		
	US Dollar Million Baht	Euro Million Baht	Swedish Krona Million Baht	US Dollar Million Baht	Euro Million Baht	Swedish Krona Million Baht
Financial assets	10,043	-	-	7,413	130	-
Financial liabilities	8,766	309	290	8,408	968	-
Derivatives not qualifying as hedge accounting						
- Foreign currency forwards	242	380	-	-	463	-
Derivatives qualifying as hedge accounting						
- Foreign currency forwards	599	-	1,088	726	-	1,438
- Cross currency and interest rate swaps	2,878	-	-	2,588	-	-

	Separate financial statements					
	As at 31 December 2021			As at 31 December 2020		
	US Dollar Million Baht	Euro Million Baht	Swedish Krona Million Baht	US Dollar Million Baht	Euro Million Baht	Swedish Krona Million Baht
Financial assets	7,335	-	-	5,198	130	-
Financial liabilities	52	3	-	94	135	-
Derivatives qualifying as hedge accounting						
- Foreign currency forwards	-	-	-	9	-	-



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*Effects of hedge accounting on the financial position and performance*

The effects of the foreign currency-related hedging instruments on the Group and the Company's financial position and performance are as follows:

*Foreign currency forward contracts*

	Consolidated financial statements	
	Power plant construction service contract US Dollar Million Baht	Power plant construction service contract Swedish Krona Million Baht
<b>As at 31 December 2021</b>		
Carrying amount (liability)	39	73
Notional amount	US Dollar 18 Million	Swedish Krona 291 Million
Maturity date	10 January 2022 - 30 January 2023	10 January 2022 - 15 December 2022
Change in discounted spot value of outstanding hedging instruments since inception of the hedge	61	(61)
Change in value of hedged item used to determine hedge effectiveness	(61)	61
Weighted average hedged rate for outstanding hedging instruments (including forward points)	Baht 29.89 - 33.58 to US Dollar 1	Baht 3.33 - 3.83 to Swedish Krona 1

**As at 31 December 2020**  
Carrying amount (liability)  
Notional amount  
Maturity date

Change in discounted spot value of outstanding hedging instruments since inception of the hedge  
Change in value of hedged item used to determine hedge effectiveness  
Weighted average hedged rate for outstanding hedging instruments (including forward points)

	Consolidated financial statements	
	Power plant construction service contract US Dollar Million Baht	Power plant construction service contract Swedish Krona Million Baht
<b>Purchase of machinery</b>		
Japanese Yen Million Baht		
Japanese Yen 63 Million	(0.4)	125
29 January 2021 - 31 March 2021	US Dollar 0.3 Million 29 January 2021 - 25 February 2021	Swedish Krona 387 Million 15 January 2021 - 15 December 2022
Baht 29.06 - 29.11 to Japanese Yen 100	-	130
	Baht 31.44 - 31.45 to US Dollar 1	(130)
	Baht 29.89 - 31.45 to US Dollar 1	Baht 3.33 - 3.43 to Swedish Krona 1

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*Foreign currency forward contracts*

	<b>Separate financial statements</b>	
	<b>Purchase of Machinery Japanese Yen Million Baht</b>	<b>Purchase of Machinery US Dollar Million Baht</b>
<b>As at 31 December 2020</b>		
Carrying amount (liability)	-	(0.4)
Notional amount	Japanese Yen 63 Million	US Dollar 0.3 Million
Maturity date	29 January 2021 - 31 March 2021	29 January 2021 - 25 February 2021
Weighted average hedged rate for outstanding hedging instruments (including forward points)	Baht 29.06 - 29.11 to Japanese Yen 100	Baht 31.44 - 31.45 to US Dollar 1

*Cross currency and interest rate swap contract*

	<b>Consolidated financial statements</b>	
	<b>Long-term loan US Dollar Million Baht</b>	<b>Long-term loan US Dollar Million Baht</b>
<b>As at 31 December</b>	<b>2021</b>	<b>2020</b>
Carrying amount (liability)	(136)	(477)
Notional amount	US Dollar 86.5 Million	US Dollar 86.5 Million
Maturity date	22 February 2022	22 February 2022
Change in intrinsic value of outstanding hedge instruments since inception of the hedge	353	3
Change in value of hedged item used to determine hedge effectiveness	(353)	(3)
Weighted average hedged rate for outstanding hedging instruments (including forward points)	Baht 35.02 to US Dollar 1	Baht 35.02 to US Dollar 1
SWAP rate	2.79 %	2.79 %

*Sensitivity*

As shown in the table above, the Group is primarily exposed to changes in Baht and US Dollar, Baht and Euro and Baht and Swedish Krona exchange rates. The sensitivity of profit or loss to changes in the exchange rates arises mainly from financial assets and financial liabilities denominated in US Dollar, Euro and Swedish Krona and the impact on other components of equity.

	<b>Consolidated financial statements</b>			
	<b>Impact to net profit</b>		<b>Impact to other components of equity</b>	
	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>
US Dollar to Baht exchange rate				
- increase 10%*	(10)	(38)	588	250
- decrease 10%*	10	38	(588)	(250)
Euro to Baht exchange rate				
- increase 10%*	8	(40)	-	-
- decrease 10%*	(8)	40	-	-
Swedish Krona to Baht exchange rate				
- increase 10%*	-	-	107	142
- decrease 10%*	-	-	(107)	(142)

\* Holding all other variables constant

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	Separate financial statements			
	Impact to net profit		Impact to other components of equity	
	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
US Dollar to Baht exchange rate				
- increase 10%*	333	362	395	149
- decrease 10%*	(333)	(362)	(395)	(149)

\* Holding all other variables constant

**b) Interest rate risk**

The Group's main interest rate risk arises from long-term borrowings with variable rates, which expose the Group to cash flow interest rate risk. Group policy is to maintain at fixed rate, using floating-to-fixed interest rate swaps to achieve this when necessary. Generally, the Group enters into long-term borrowings at floating rates and swaps them into fixed rates that are lower than those available if the Group borrowed at fixed rates directly. As at 31 December 2021, the Group's borrowings at variable rate were mainly denominated in Baht and US Dollars (As at 31 December 2020, the Group's borrowings at variable rate were mainly denominated in Baht, US Dollars and Japanese Yen).

Following interest rate benchmark reform, there are cessation in several benchmark interest rates including LIBOR, which is applied by the Group as part of the variable rate calculation. The management is in the process of discussing with the financial institutions to use another benchmark interest rate for the loan agreements and related financial instruments. However, as at 31 December 2021, the impact of such change is immaterial to the Group.

The exposure of the Group's borrowings to interest rate changes at the end of the reporting period are as follows:

	Consolidated financial statements		Separate financial statements	
	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
Long-term loans from financial institutions, net				
Fixed rate borrowing	15,204	16,171	8,093	8,691
Variable rate borrowing	42,058	30,582	3,495	10,632
Total Long-term loans from financial institutions, net	57,262	46,753	11,588	19,323
Long-term loans from related parties, net				
Fixed rate borrowing	8,000	-	8,000	-
Variable rate borrowing	-	-	11,631	-
Total Long-term loans from related parties, net	8,000	-	19,631	-
Debentures, net				
Fixed rate debentures	44,370	57,562	41,457	44,948
Total debentures, net	44,370	57,562	41,457	44,948

An analysis by maturities is provided in note 5.1.2

**Instruments used by the Group**

The Group entered into interest rate swaps covering approximately 29% (2020: 95% and 100%) of the variable loan principal outstanding. The fixed interest rates of the interest rate swap contracts range between 1.96% and 4.49% (2020: 1.89% and 4.49%), and the variable rates of the loans from the market reference rate are as disclosed in Note 27.

The interest rate swap contracts require settlement of net interest receivable or payable between 3 months and 6 months. The settlement dates coincide with the dates on which interest is payable on the underlying debt.

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### Effect of hedge accounting on the financial position and performance

The effects of the interest rate-related hedging instruments on the Group financial position and performance are as follows:

#### Interest rate swap contracts

	Consolidated financial statements	
	Long-term loan Baht Million Baht	Long-term loan US Dollar Million Baht
<b>As at 31 December 2021</b>		
Carrying amount (liability)	(277)	(592)
Notional amount	Baht 3,253 Million	US Dollar 179 Million
Maturity date	31 January 2027	15 December 2023 - 31 October 2028
Change in fair value of outstanding hedge instruments since inception of hedge	215	350
Change in value of hedged item used to determine hedge effectiveness	(215)	(350)
Weighted average strike rate for outstanding hedging instruments for the year	3.60% - 3.63%	1.96% - 4.49%
	Consolidated financial statements	
	Long-term loan Baht Million Baht	Long-term loan US Dollar Million Baht
<b>As at 31 December 2020</b>		
Carrying amount (liability)	(494)	(942)
Notional amount	Baht 3,616 Million	US Dollar 207 Million
Maturity date	29 October 2021 - 31 January 2027	15 December 2023 - 31 October 2028
Change in fair value of outstanding hedge instruments since inception of hedge	30	(220)
Change in value of hedged item used to determine hedge effectiveness	(30)	220
Weighted average strike rate for outstanding hedging instruments	3.60% - 4.44%	1.96% - 4.49%

In addition, the Group has entered into a cross currency and interest rate swap contract to hedge its floating interest rate risk on foreign currency borrowings which are not in its functional currencies. The impact of these interest rate hedging instruments on the Group's financial position and operational results is disclosed together with the hedging foreign exchange rate risk in Note 5.1.1 (a).

### Sensitivity

Profit or loss is sensitive to higher or lower interest income from loan to related parties, and interest expenses from borrowings as a result of changes in interest rates. Other components of equity changes as a result of an increase or decrease in the fair value of the cash flow hedges of borrowings and the fair value of interest rate swap contract through other comprehensive income.

	Consolidated financial statements			
	Impact to net profit		Impact to other components of equity	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Interest rate - increase 1.0%*	(272)	(6)	200	301
Interest rate - decrease 1.0%*	272	6	(200)	(301)

\* Holding all other variables constant

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	Separate financial statements			
	Impact to net profit		Impact to other components of equity	
	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
Interest rate - increase 1.0%*	(125)	(79)	-	-
Interest rate - decrease 1.0%*	125	79	-	-

\* Holding all other variables constant

**c) Price risk**

The Group exposures to the fluctuations in coal price from Global Coal Newcastle Index which is partly consumed as fuel in electricity generation by the Group. The Group monitors coal price index in order to plan a purchase of coal at appropriate quantity. As at 31 December 2021 and 2020, the Group did not entered into the commodity swap agreement to exposure the fluctuation in coal price.

**5.1.2 Credit risk**

Credit risk arises from cash and cash equivalents, contractual cash flows of debt investments carried at amortised cost, derivative financial instruments as well as credit exposures to customers, including outstanding receivables.

**a) Risk management**

The Group has no material credit risks for cash and short-term investments. This is because the Group uses quality financial institutions for cash and short-term investments. The Group manages credit risk by categorising the risks. To reduce potential risks for deposits with banks and financial institutions, the Group has laid down a policy to limit the transactions to be made with a particular financial institution and to invest surplus only in low-risk investments. In its experience, the Group has never suffered any losses from cash and investments.

For trade receivables, the Group's sales are made to state-owned enterprises and industrial users under the terms and conditions of the long-term Power Purchase Agreements and the long-term Electricity and Steam Sales and Purchase Agreements. There are no significant concentrations of credit risk for the Group's customers. However, the Group regularly monitors credit term compliance granted to each customer.

**b) Impairment of financial assets**

The Group and the Company have following financial assets that are subject to the expected credit loss model:

- Cash and cash equivalents
- Trade and other receivables
- Finance lease receivables
- Investment in debt instruments measured at amortised cost
- Loan to related parties

Management considered the amount of those expected credit losses on financial assets are immaterial.

**5.1.3 Liquidity risk**

Prudent liquidity risk management implies maintaining sufficient cash and marketable securities and the availability of funding through an adequate amount of committed credit facilities to meet obligations when due and to close out market positions. Due to the dynamic nature of the underlying businesses, the Group Treasury maintains flexibility in funding by maintaining availability under committed credit lines.

The tables below analyse the Group's financial liabilities into relevant maturity groupings based on their contractual maturities for:

- all non-derivative financial liabilities; and
- net and gross settled derivative financial instruments for which the contractual maturities are essential for an understanding of the timing of the cash flows.



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The amounts disclosed in the table are the contractual undiscounted cash flows.

	Consolidated financial statements				
	Within 1 year Million Baht	1 - 5 years Million Baht	Over 5 years Million Baht	Total Million Baht	Carrying amount Million Baht
<b>The maturity of financial liabilities as at 31 December 2021</b>					
Trade and other payables	8,251	-	-	8,251	8,251
Payable for assets under construction	1,394	-	-	1,394	1,394
Lease liabilities	213	710	2,632	3,555	2,639
Long-term loans from financial institutions	7,152	29,326	21,814	57,292	57,262
Long-term loans from a related party	-	8,000	-	8,000	8,000
Debentures	2,000	17,000	25,500	44,500	44,370
Interest payables of long-term loans from financial institutions and debentures	2,389	7,124	5,241	14,754	333
Interest payables of long-term loans from a related party	210	319	-	529	1
Retentions	57	1	-	58	58
Other financial liabilities	587	-	-	587	587
<b>Total financial liabilities that are not derivatives</b>	<b>22,253</b>	<b>61,480</b>	<b>55,187</b>	<b>138,920</b>	<b>122,895</b>
Derivative contracts					
- Foreign currency forwards	31	72	-	103	101
- Interest rate swaps	325	853	60	1,238	869
- Cross currency and interest rate swaps	136	-	-	136	136
<b>Total derivatives</b>	<b>492</b>	<b>925</b>	<b>60</b>	<b>1,477</b>	<b>1,106</b>
<b>Total</b>	<b>22,745</b>	<b>62,405</b>	<b>55,247</b>	<b>140,397</b>	<b>124,001</b>
	Consolidated financial statements				
	Within 1 year Million Baht	1 - 5 years Million Baht	Over 5 years Million Baht	Total Million Baht	Carrying amount Million Baht
<b>The maturity of financial liabilities as at 31 December 2020</b>					
Trade and other payables	6,240	-	-	6,240	6,240
Payable for assets under construction	1,600	-	-	1,600	1,600
Lease liabilities	197	796	2,824	3,817	2,854
Long-term loans from financial institutions	2,989	27,729	16,021	46,739	46,753
Debentures	9,055	14,000	34,500	57,555	57,562
Interest payables of long-term loans and debentures	2,680	7,826	6,161	16,667	524
Retentions	-	256	-	256	256
Other financial liabilities	593	-	-	593	593
<b>Total financial liabilities that are not derivatives</b>	<b>23,354</b>	<b>50,607</b>	<b>59,506</b>	<b>133,467</b>	<b>116,382</b>
Derivative contracts					
- Foreign currency forwards	27	80	-	107	98
- Interest rate swaps	356	957	232	1,545	1,477
- Cross currency and interest rate swaps	56	427	-	483	477
<b>Total derivatives</b>	<b>439</b>	<b>1,464</b>	<b>232</b>	<b>2,135</b>	<b>2,052</b>
<b>Total</b>	<b>23,793</b>	<b>52,071</b>	<b>59,738</b>	<b>135,602</b>	<b>118,454</b>

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	Separate financial statements				
	Within 1 year Million Baht	1 - 5 years Million Baht	Over 5 years Million Baht	Total Million Baht	Carrying amount Million Baht
<b>The maturity of financial liabilities as at 31 December 2021</b>					
Trade and other payables	3,055	-	-	3,055	3,055
Payable for assets under construction	313	-	-	313	313
Lease liabilities	97	270	342	709	580
Long-term loans from financial institutions	670	6,170	4,760	11,600	11,588
Long-term loans from related parties	1,203	12,841	5,606	19,650	19,631
Debentures	2,000	14,000	25,500	41,500	41,456
Interest payables of long-term loans from financial institutions and debentures	1,436	4,737	4,516	10,689	247
Interest payables of long-term loans from related parties	428	958	302	1,688	3
Retentions	57	1	-	58	58
<b>Total financial liabilities that is not derivatives</b>	<b>9,259</b>	<b>38,977</b>	<b>41,026</b>	<b>89,262</b>	<b>76,931</b>
<b>Separate financial statements</b>					
	Within 1 year Million Baht	1 - 5 years Million Baht	Over 5 years Million Baht	Total Million Baht	Carrying amount Million Baht
<b>The maturity of financial liabilities as at 31 December 2020</b>					
Trade and other payables	2,356	-	-	2,356	2,356
Payable for assets under construction	445	-	-	445	445
Lease liabilities	72	309	302	683	574
Long-term loans from financial institutions	1,110	10,262	7,975	19,347	19,323
Debentures	3,500	10,000	31,500	45,000	44,948
Interest payables of long-term loans from financial institutions and debentures	1,933	5,578	5,730	13,241	271
Retentions	-	254	-	254	254
Other financial liabilities	16	-	-	16	16
<b>Total financial liabilities that is not derivatives</b>	<b>9,432</b>	<b>26,403</b>	<b>45,507</b>	<b>81,342</b>	<b>68,187</b>

## 5.2 Capital management

## Risk management

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern in order to provide returns for shareholders and benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

As at 31 December, net debt to equity ratios of the Group are as follows:

	Consolidated financial statements		Separate financial statements	
	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
Net debt	92,051	81,491	69,190	53,616
Equity (including non-controlling interests)	117,748	111,867	130,068	127,379
<b>Net debt to equity ratio</b>	<b>0.78</b>	<b>0.73</b>	<b>0.53</b>	<b>0.42</b>

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**6 Derivatives and hedging activities**

As at 31 December, the Group had following derivative contracts.

	<b>Consolidated financial statements</b>	
	<b>2021</b>	<b>2020</b>
	<b>Million Baht</b>	<b>Million Baht</b>
<b>Current derivative assets</b>		
Derivative contracts qualifying as hedge accounting		
- Foreign currency forwards	112	54
<b>Total current derivative assets</b>	<b>112</b>	<b>54</b>
<b>Non-current derivative assets</b>		
Derivative contracts qualifying as hedge accounting		
- Foreign currency forwards	5	71
<b>Total non-current derivative assets</b>	<b>5</b>	<b>71</b>
<b>Current derivative liabilities</b>		
Derivative contracts not qualifying as hedge accounting		
- Foreign currency forwards	(27)	(16)
Derivative contracts qualifying as hedge accounting		
- Foreign currency forwards	(4)	(12)
- Cross currency and interest rate swap	(136)	(70)
<b>Total current derivative liabilities</b>	<b>(167)</b>	<b>(98)</b>
<b>Non-current derivative liabilities</b>		
Derivative contracts not qualifying as hedge accounting		
- Foreign currency forwards	(70)	(56)
- Interest rate swap	-	(43)
Derivative contracts qualifying as hedges accounting		
- Foreign currency forwards	-	(13)
- Cross currency and interest rate swaps	-	(477)
- Interest rate swaps	(869)	(1,366)
<b>Total non-current derivative liabilities</b>	<b>(939)</b>	<b>(1,955)</b>

**6.1 Classification of derivatives**

Derivatives are for the purpose of hedging against economic risks, not for investment for profit. The Group applies hedge accounting for some derivatives. This qualifies as a cash flow hedge instrument with a hedge ratio of 1:1 based on the relationship of the underlying risk variables between the hedged item and the hedging instrument. However, if a derivative contract doesn't meet the criteria for hedge accounting, it's classified as trading and measured at fair value through profit or loss.

The Group presents fair value of derivative contracts as current and non-current based on each maturity of hedged items.

**6.2 Hedge effectiveness**

Hedge effectiveness is determined at the inception of the hedge relationship, and through periodic prospective effectiveness assessments, to ensure that an economic relationship exists between the hedged item and hedging instrument.

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Exchange rate risk

For hedges of foreign currency purchases, the Group enters into hedge relationships where the critical terms of the hedging instrument match exactly with the terms of the hedged item. The Group therefore performs a qualitative assessment of effectiveness. If changes in circumstances affect the terms of the hedged item such that the critical terms no longer match exactly with the critical terms of the hedging instrument, the Group uses the hypothetical derivative method to assess effectiveness.

In hedges of foreign currency purchases, ineffectiveness may arise if the timing of the forecast transaction changes from what was originally estimated, or if there are changes in the credit risk of the derivative counterparty.

Interest rate risk

The Group enters into interest rate swaps that have similar critical terms as the hedged item, such as reference rate, reset dates, payment dates, maturities and notional amount. The Group does not hedge 100% of its loans, therefore the hedged item is identified as a proportion of the outstanding loans up to the notional amount of the swaps. As all critical terms matched during the year, there is an economic relationship.

Hedge ineffectiveness for interest rate swaps is assessed using the same principles as for hedges of foreign currency purchases. It may occur due to the credit value/debit value adjustment on the interest rate swaps which is not matched by the loan and differences in critical terms between the interest rate swaps and loans.

**6.3 Hedging reserves**

Hedging reserves comprise hedging costs and cash flow hedge reserves. The cash flow hedge reserve is used to recognise gain/loss relating to the effective portion of the change in fair value of the derivatives for which hedge accounting is applied.

Hedging reserves are listed in other components of equity, which consists of the following hedging instruments.

	Consolidated financial statements			
	Cash flow hedging reserves			
	Cost of hedging reserve	Spot component of currency forwards	Interest rate swaps	Total cash flow hedge reserves
	Million Baht	Million Baht	Million Baht	Million Baht
Opening balance 1 January 2021	9	24	(807)	(783)
Add: Change in fair value of hedging instruments recognised in OCI	-	74	134	208
Add: Costs of hedging deferred and recognised in OCI	1	-	-	-
Less: Reclassification from OCI to profit or loss included in				
- Finance costs	-	56	235	291
- Currency exchange gain	-	(28)	-	(28)
- Property, plant and equipment, net	-	(39)	-	(39)
Less: Deferred tax	-	(13)	(35)	(48)
Closing balance 31 December 2021	10	74	(473)	(399)

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	<b>Consolidated financial statements</b>			
	<b>Cash flow hedging reserves</b>			
	<b>Cost of hedging reserve</b>	<b>Spot component of currency forwards</b>	<b>Interest rate swaps</b>	<b>Total cash flow hedge reserves</b>
	<b>Million Baht</b>	<b>Million Baht</b>	<b>Million Baht</b>	<b>Million Baht</b>
Opening balance 1 January 2020	17	(76)	(705)	(781)
Add: Change in fair value of hedging instruments recognised in OCI	-	108	(443)	(335)
Add: Costs of hedging deferred and recognised in OCI	(10)	-	-	-
Less: Reclassification from OCI to profit or loss included in				
- Finance costs	-	37	331	368
- Currency exchange gain	-	(3)	-	(3)
- Property, plant and equipment, net	-	(21)	-	(21)
- Fuel	-	4	-	4
Less: Deferred tax	2	(25)	10	(15)
Closing balance 31 December 2020	9	24	(807)	(783)

**Note**

- 1) Derivatives consist of foreign currency forward, cross currency and interest rate swap.
- 2) Cost of hedges consists of cost of hedges of foreign currency forward and cross currency and interest rate swap.

**6.4 Amounts recognised in profit or loss**

In addition to the amounts disclosed in the reconciliation of hedging reserves above, the following amounts were recognised in profit or loss in relation to derivatives presented in note 6.3.

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	<b>2021</b>	<b>2020</b>	<b>2021</b>	<b>2020</b>
	<b>Million Baht</b>	<b>Million Baht</b>	<b>Million Baht</b>	<b>Million Baht</b>
Closing balance 31 December				
Net gain/(loss) on derivatives not qualifying as hedges included in net gains/(losses) from measurement of financial instruments, net	(38)	(2)	-	3



## 7 Fair value

The following table presented financial assets and liabilities that are measured at fair value in each level including fair value of financial assets and financial liabilities. The table exclude financial assets and liabilities measured at amortised cost where their carrying value approximated fair value.

		Consolidated financial statements				
		Fair value through profit or loss (FVPL) Million Baht	Fair value through other comprehensive income (FVOCI) Million Baht	Amortised cost Million Baht	Total carrying value Million Baht	Fair value Million Baht
Fair value level						
As at 31 December 2021						
Assets						
Financial assets						
3	- Other long-term investments	-	5,860	-	5,860	5,860
2	Long-term loans to a related party (fixed rate portion)	-	-	676	676	707
Derivatives that qualifying as hedge accounting						
2	- Foreign currency forwards	116	-	-	116	116
Total assets		116	5,860	676	6,652	6,683
Liabilities						
2	Long-term loans from financial institutions (fixed rate portion)	-	-	15,204	15,204	15,404
2	Long-term loans from a related party (fixed rate portion)	-	-	8,000	8,000	7,805
2	Debentures	-	-	44,370	44,370	45,665
Derivatives not qualifying as hedge accounting						
2	- Foreign currency forwards	97	-	-	97	97
Derivatives qualifying as hedge accounting						
2	- Foreign currency forwards	4	-	-	4	4
2	- Interest rate swap	869	-	-	869	869
2	- Cross currency and interest rate swap	136	-	-	136	136
Total liabilities		1,106	-	67,574	68,680	69,980



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		Separate financial statements				
		Fair value through profit or loss (FVPL)	Fair value through other comprehensive income (FVOCI)	Amortised cost	Total carrying value	Total fair value
		Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
<b>As at 31 December 2021</b>						
<b>Assets</b>						
Financial assets						
- Other long-term investments	3	-	5,181	-	5,181	5,181
Long-term loans to a related party (fixed rate portion)	2	-	-	676	676	707
<b>Total assets</b>		-	<b>5,181</b>	<b>676</b>	<b>5,857</b>	<b>5,888</b>
<b>Liabilities</b>						
Long-term loans from financial institutions (fixed rate portion)	2	-	-	8,093	8,093	8,326
Long-term loans to a related party (fixed rate portion)	2	-	-	8,000	8,000	7,805
Debentures	2	-	-	41,457	41,457	42,834
<b>Total liabilities</b>		-	-	<b>57,550</b>	<b>57,550</b>	<b>58,965</b>

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		Consolidated financial statements				
Fair value level		Fair value through profit or loss (FVPL)	Fair value through other comprehensive income (FVOCI)	Amortised cost	Total carrying value	Fair value
		Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
As at 31 December 2020						
Assets						
	Financial assets					
3	- Other long-term investments	-	2,724	-	2,724	2,724
2	Derivatives that qualifying as hedge accounting					
	- Foreign currency forwards	125	-	-	125	125
Total assets		125	2,724	-	2,849	2,849
Liabilities						
2	Long-term loans from financial institutions (fixed rate portion)	-	-	15,884	15,884	16,345
2	Debentures	-	-	57,562	57,562	58,982
2	Derivatives not qualifying as hedge accounting					
2	- Foreign currency forwards	72	-	-	72	72
2	- Interest rate swap	43	-	-	43	43
2	Derivatives qualifying as hedge accounting					
2	- Foreign currency forwards	25	-	-	25	25
2	- Interest rate swap	1,436	-	-	1,436	1,436
2	- Cross currency and interest rate swap	477	-	-	477	477
Total liabilities		2,053	-	73,446	75,499	77,380

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		Separate financial statements				
		Fair value through profit or loss (FVPL)		Fair value through other comprehensive income (FVOCI)		Total fair value
		Million Baht	Million Baht	Million Baht	Million Baht	
As at 31 December 2020		Fair value level		Amortised cost		Total fair value
				Million Baht	Million Baht	Million Baht
<b>Assets</b>						
Financial assets						
- Other long-term investments		3	-	2,661	-	2,661
<b>Total assets</b>			-	<b>2,661</b>	<b>-</b>	<b>2,661</b>
<b>Liabilities</b>						
Long-term loans from financial institutions (fixed rate portion)		2	-	8,691	-	8,691
Debentures		2	-	44,948	-	44,948
<b>Total liabilities</b>			-	<b>53,639</b>	<b>-</b>	<b>53,639</b>
						<b>55,309</b>

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Fair value of following financial assets and financial liabilities measured at amortised cost where their carrying value approximated fair value are as follows:

<b>Consolidated financial statements</b>	<b>Separate financial statements</b>
<b>Financial assets</b>	<b>Financial assets</b>
<ul style="list-style-type: none"> <li>- Cash and cash equivalents</li> <li>- Deposits at financial institutions used as collateral</li> <li>- Financial assets measured at amortised cost</li> <li>- Trade receivables</li> <li>- Financial lease receivables</li> <li>- Other receivables</li> <li>- Dividend receivables</li> <li>- Assets held for sale</li> <li>- Short-term loans to related parties</li> <li>- Long-term loans to and interest receivables from related parties (float rate portion)</li> </ul>	<ul style="list-style-type: none"> <li>- Cash and cash equivalents</li> <li>- Trade receivables</li> <li>- Financial lease receivables</li> <li>- Other receivables</li> <li>- Dividend receivables</li> <li>- Assets held for sale</li> <li>- Short-term loans to related parties</li> <li>- Long-term loans to and interest receivables from related parties (float rate portion)</li> </ul>
<b>Financial liabilities</b>	<b>Financial liabilities</b>
<ul style="list-style-type: none"> <li>- Trade payables</li> <li>- Other payables</li> <li>- Payable for assets under construction</li> <li>- Lease liabilities</li> <li>- Liabilities held for sale</li> <li>- Retentions</li> <li>- Other current liabilities</li> <li>- Long-term loans from financial institutions (float rate portion)</li> <li>- Other non-current liabilities</li> </ul>	<ul style="list-style-type: none"> <li>- Trade payables</li> <li>- Other payables</li> <li>- Payable for assets under construction</li> <li>- Lease liabilities</li> <li>- Retentions</li> <li>- Other current liabilities</li> <li>- Long-term loans from financial institutions (float rate portion)</li> <li>- Long-term loans from a related party (float rate portion)</li> <li>- Other non-current liabilities</li> </ul>

**7.1 Valuation techniques used to measure fair value level 2**

Valuation techniques used to measure fair value level 2 for derivatives are as follows:

- Fair values of foreign currency forward contracts are determined using forward exchange rates that are quoted in an active market.
- Fair values of interest rate swap contracts are determined using forward interests extracted from observable yield curves.
- Fair values of cross currency and interest rate swap contracts are determined using forward interests extracted from observable yield curves and using forward exchange rates that are quoted in an active market.
- Fair value of commodity swap agreement is calculated by using forward price of coal.

Fair value of debt instruments is determined from discounted contractual cash flows where discount rate extracted from price of counterparty's debt instruments.

**7.2 Valuation techniques used to measure fair value level 3**

Changes in level 3 financial assets measured at fair value through other comprehensive income for year ended 31 December 2021 are as follows:

	<b>Consolidated financial statements</b>
	<b>Financial assets measured at fair value through other comprehensive income</b>
	<b>Million Baht</b>
Opening balance as at 1 January 2021	2,724
Increase in investment	499
Share of other comprehensive income	
- Gain recognised in other comprehensive income	2,616
- Exchange difference on translation of the financial information	21
Closing balance as at 31 December 2021	5,860



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	<b>Separate financial statements</b>
	<b>Financial assets measured at fair value through other comprehensive income</b>
	<b>Million Baht</b>
Opening balance as at 1 January 2021	2,661
Share of other comprehensive income	
- Gain recognised in other comprehensive income	2,520
Closing balance as at 31 December 2021	5,181

The following table summarises the quantitative information about the significant unobservable inputs used in level 3 fair value measurements.

	<b>Consolidated financial statements</b>				
	<b>Fair value</b>			<b>Range of inputs</b>	
	<b>31 December 2021</b>	<b>31 December 2020</b>		<b>31 December 2021</b>	<b>31 December 2020</b>
	<b>Million Baht</b>	<b>Million Baht</b>	<b>Unobservable inputs</b>		
Financial assets measured at fair value through other comprehensive income	5,860	2,724	Growth rate of cash flows	0% - 3%	0% - 3%
			Risk-adjusted discount rate	6% - 17%	5% - 17%

	<b>Separate financial statements</b>				
	<b>Fair value</b>			<b>Range of inputs</b>	
	<b>31 December 2021</b>	<b>31 December 2020</b>		<b>31 December 2021</b>	<b>31 December 2020</b>
	<b>Million Baht</b>	<b>Million Baht</b>	<b>Unobservable inputs</b>		
Financial assets measured at fair value through other comprehensive income	5,181	2,661	Growth rate of cash flows	0% - 3%	0% - 3%
			Risk-adjusted discount rate	6% - 17%	5% - 17%

Relationship of unobservable inputs to fair value are shown as follows:

	<b>Consolidated financial statements</b>			
	<b>Change in fair value</b>			
	<b>Increase in assumptions</b>		<b>Decrease in assumptions</b>	
	<b>31 December 2021</b>	<b>31 December 2021</b>	<b>31 December 2021</b>	<b>31 December 2021</b>
	<b>Unobservable inputs</b>	<b>Movement</b>	<b>Million Baht</b>	<b>Million Baht</b>
Financial assets measured at fair value through other comprehensive income	Growth rate of cash flows	1%	Increase by 114	Decrease by 98
	Risk-adjusted discount rate	1%	Decrease by 318	Increase by 362

	<b>Consolidated financial statements</b>			
	<b>Change in fair value</b>			
	<b>Increase in assumptions</b>		<b>Decrease in assumptions</b>	
	<b>31 December 2020</b>	<b>31 December 2020</b>	<b>31 December 2020</b>	<b>31 December 2020</b>
	<b>Unobservable inputs</b>	<b>Movement</b>	<b>Million Baht</b>	<b>Million Baht</b>
Financial assets measured at fair value through other comprehensive income	Growth rate of cash flows	1%	Increase by 52	Decrease by 44
	Risk-adjusted discount rate	1%	Decrease by 172	Increase by 196

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			Separate financial statements	
			Change in fair value	
			Increase in assumptions	Decrease in assumptions
			31 December 2021	31 December 2021
			Million Baht	Million Baht
	Unobservable inputs	Movement		
Financial assets measured at fair value through other comprehensive income	Growth rate of cash flows	1%	Increase by 105	Decrease by 90
	Risk-adjusted discount rate	1%	Decrease by 271	Increase by 310

			Separate financial statements	
			Change in fair value	
			Increase in assumptions	Decrease in assumptions
			31 December 2020	31 December 2020
			Million Baht	Million Baht
	Unobservable inputs	Movement		
Financial assets measured at fair value through other comprehensive income	Growth rate of cash flows	1%	Increase by 42	Decrease by 37
	Risk-adjusted discount rate	1%	Decrease by 165	Increase by 187

**The Group's valuation processes**

The Company regularly discuss valuation processes and results.

Significant unobservable input of fair value hierarchy level 3 is risk adjusted discount rate. It is estimated based on public companies' weighted average cost of capital and cost of equity that, are in opinion of the Group, in a comparable financial position with the counterparty in the contract.

**8 Critical accounting estimates and judgements**

Estimates, assumptions and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

During the year 2021, the Group makes estimates and assumptions concerning the future. The resulting accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are outlined below.

**Impairment of goodwill**

The Group annually tests for impairment of goodwill in accordance with the accounting policy stated in Note 4.10. The recoverable amounts of cash-generating units have been determined based on value-in-use calculations. These calculations use cash flow projections based on financial budgets covering the remaining period of the long-term power purchase agreements of the Group and assumed electricity tariffs and capacity of the power plants stated in the agreements. Discount rates used are based on pre-tax weighted average cost of capital (see in Note 23). If the discount rate used in the calculation increases by 1% per annum, no impairment of goodwill is recognised in the consolidated financial statements for the year ended 31 December 2021.

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**9 Segment information - consolidated financial statements**

The Group has three segment reports, which comprise Independent Power Producer (IPP), Small Power Producer (SPP) and others, as follows:

<b>Consolidated financial statements</b>				
<b>For the year ended 31 December 2021</b>				
	<b>IPP</b>	<b>SPP</b>	<b>Others</b>	<b>Total</b>
	<b>Million Baht</b>	<b>Million Baht</b>	<b>Million Baht</b>	<b>Million Baht</b>
Revenue from sales and services				
- External revenue	17,558	55,889	689	74,136
Revenue from finance leases	737	-	-	737
Cost of sales and services	(14,966)	(48,176)	(594)	(63,736)
Segment results	3,329	7,713	95	11,137
Dividend income	-	256	-	256
Other income	38	2,892	89	3,019
Currency exchange gain (loss)	(102)	50	(3)	(55)
Administrative expenses	(45)	(2,785)	(133)	(2,963)
Gain/(loss) from remeasurement of financial instruments, net	(44)	-	6	(38)
Finance costs	(1,353)	(2,212)	(295)	(3,860)
Share of profit from investments in associates and joint ventures, net	943	334	259	1,536
Profit before income tax	2,766	6,248	18	9,032
Income tax	(45)	(1,139)	(8)	(1,192)
Profit for the year	2,721	5,109	10	7,840
<b>Attributable to:</b>				
Owners of the parent	2,717	4,591	10	7,318
Non-controlling interests	4	518	-	522
<b>Timing of revenue recognition</b>				
Point in time	12,458	52,512	689	65,659
Over time	5,100	3,377	-	8,477
Total revenue from sales and services	17,558	55,889	689	74,136

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Consolidated financial statements				
For the year ended 31 December 2020				
	IPP Million Baht	SPP Million Baht	Others Million Baht	Total Million Baht
Revenue from sales and services				
- External revenue	15,112	52,794	851	68,757
Revenue from finance leases	821	-	-	821
Cost of sales and services	(14,029)	(41,925)	(494)	(56,448)
Segment results	1,904	10,869	357	13,130
Dividend income	59	337	-	396
Other income	49	831	129	1,009
Currency exchange gain	-	1	-	1
Administrative expenses	(413)	(1,475)	(63)	(1,951)
Gain/(loss) from remeasurement of financial instruments, net	16	(3)	(15)	(2)
Finance costs	(1,506)	(2,495)	(23)	(4,024)
Share of profit from investments in associates and joint ventures, net	242	350	332	924
Profit before income tax	351	8,415	717	9,483
Income tax	64	(1,035)	(22)	(993)
Profit for the year	415	7,380	695	8,490
<b>Attributable to:</b>				
Owners of the parent	76	6,737	694	7,507
Non-controlling interests	339	643	1	983
<b>Timing of revenue recognition</b>				
Point in time	9,622	49,158	851	59,631
Over time	5,490	3,636	-	9,126
Total revenue from sales and services	15,112	52,794	851	68,757

**Geographical information**

The Group is managed and operates principally in Thailand. There are no material revenues derived from, or assets located in, foreign countries.

**Major customers**

For the year ended 31 December 2021, the Group earned revenue from a single customer from both SPP and IPP businesses, totalling approximately Baht 32,474 million of the Group's total revenue (2020: Baht 30,938 million).

**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED****Notes to the Consolidated and Separate Financial Statements**

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**10 Cash and cash equivalents**

As at 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Cash on hand and deposits at financial institutions				
- maturities within three months	13,619	16,286	3,486	6,652
Promissory notes				
- maturities within three months	174	4,003	-	4,003
Total cash and cash equivalents	13,793	20,289	3,486	10,655

As at 31 December 2021, the interest rates on deposits at financial institutions with maturities within three months were 0.05 % to 0.50 % per annum (as at 31 December 2020: 0.05% to 1.05% per annum). The interest rates on short-term investments in promissory notes with maturities within three months were 0.30% to 0.60% per annum (as at 31 December 2020: 0.70% per annum).

As at 31 December 2021, the Group's deposits at financial institutions of Baht 3,243 million were used as collateral to secure credit facilities obtained from financial institutions. However, the pledged deposits at financial institutions can be withdrawn according to the objectives and conditions stipulated in the loan agreements for use as working capital required in the normal course of their business (Note 27).

**11 Deposits at financial institutions used as collateral**

As at 31 December 2021, deposits at financial institutions used as short-term collateral represented deposits in savings accounts of the Group which have been pledged as collateral for its long-term loans from financial institutions as described in Note 27. The deposits were for the purpose of principal repayment due in the next period.

On 23 August 2021, the Group released the deposit with a financial institution of Baht 200 million which was pledged as long-term collateral for the Group's forward foreign exchange contracts with a financial institution (as at 31 December 2020: Baht 200 million).

**12 Financial assets measured at amortised cost**

As at 31 December 2021, financial assets measured at amortised cost represented fixed deposits with maturities over three months but not longer than one year. The financial assets of the Group bear interest rates at 0.45% to 0.70% per annum (as at 31 December 2020: the Group's financial assets bear interest at 0.60% to 0.90% per annum) which the particular financial assets of Baht 484 million (as at 31 December 2020: Baht 480 million) were pledged as collateral for long-term loans from financial institutions as described in Note 27.

**13 Trade receivables, net**

Trade receivables comprise:

As at 31 December	Note	Consolidated financial statements		Separate financial statements	
		2021	2020	2021	2020
		Million Baht	Million Baht	Million Baht	Million Baht
Trade receivables - related parties	38.2	2,458	2,270	1,344	2,120
Trade receivables - third parties		10,985	6,814	3,898	1,218
Less Loss allowance		(2)	-	-	-
Total trade receivables, net		13,441	9,084	5,242	3,338



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Trade receivables as at 31 December can be analysed by aging as follows:

	Consolidated financial statements		Separate financial statements	
	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
<b>Trade receivables - related parties</b>				
Not overdue	2,447	2,140	1,310	1,990
Overdue less than 1 month	2	3	5	3
Overdue 1 - 2 months	-	2	7	2
Overdue 2 - 3 months	7	5	20	5
Overdue over 3 months	2	120	2	120
<b>Total trade receivables - related parties</b>	<b>2,458</b>	<b>2,270</b>	<b>1,344</b>	<b>2,120</b>
<b>Trade receivables - third parties</b>				
Not overdue	10,929	6,647	3,897	1,216
Overdue less than 1 months	1	18	-	1
Overdue 1 - 2 months	1	19	-	-
Overdue 2 - 3 months	1	19	-	-
Overdue over 3 months	53 <sup>(1)</sup>	111 <sup>(1)</sup>	1	1
<u>Less</u> Loss allowance	(2)	-	-	-
<b>Total trade receivables - third parties</b>	<b>10,983</b>	<b>6,814</b>	<b>3,898</b>	<b>1,218</b>
<b>Total trade receivables</b>	<b>13,441</b>	<b>9,084</b>	<b>5,242</b>	<b>3,338</b>

<sup>(1)</sup> The outstanding of trade receivables which are overdue more than 3 months, amounting to Baht 37 million, is due from EGAT, which resulted from an expiration date dispute of the Power Purchase Agreement entered into by the subsidiary (Project 1). The subsidiary submitted a dispute to the Thai Arbitration Institute (TAI) and on 21 November 2019, the TAI ruled that the expiration date of Project 1's Power Purchase Agreement was 31 March 2017, which gave the subsidiary the right to receive outstanding balance due from EGAT. Subsequently, on 18 February 2020, EGAT petitioned the Central Administrative Court to revoke the award of the TAI. Currently, the case remains in process at the Central Administrative Court.

## 14 Finance lease receivables, net

As at 31 December	Consolidated financial statements			
	Minimum payment		Present value of minimum payment	
	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
Finance lease receivables				
- Less than one year	2,204	1,992	1,522	1,174
- Later than one year and not later than five years	5,896	6,969	4,765	5,277
- Later than five years	351	828	351	795
	8,451	9,789	6,638	7,246
<u>Less</u> Deferred financial revenue	(1,813)	(2,543)		
<b>Present value of minimum payment</b>	<b>6,638</b>	<b>7,246</b>		
Finance lease receivables can be analysed as follows:				
- Current portion of finance lease receivables			1,522	1,174
- Non-current portion of finance lease receivables			5,116	6,072
			6,638	7,246

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As at 31 December	Separate financial statements			
	Minimum payment		Present value of minimum payment	
	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
Finance lease receivables				
- Less than one year	1,307	1,235	917	741
- Later than one year and not later than five years	3,080	4,054	2,613	3,198
- Later than five years	116	116	116	116
	4,503	5,405	3,646	4,055
<u>Less</u> Deferred financial revenue	(857)	(1,350)		
Present value of minimum payment	3,646	4,055		
Finance lease receivables can be analysed as follows:				
- Current portion of finance lease receivables			917	741
- Non-current portion of finance lease receivables			2,729	3,314
			3,646	4,055

As at 31 December 2021 and 2020, the Group and the Company had no overdue balances of finance lease receivables.

**15 Other receivables**

As at 31 December	Note	Consolidated financial statements		Separate financial statements	
		2021	2020	2021	2020
		Million Baht	Million Baht	Million Baht	Million Baht
Other receivables - related parties	38.2	149	72	144	101
Other receivables - third parties		917	314	101	66
Prepaid expenses		560	384	167	104
Total other receivables		1,626	770	412	271

**16 Fuel, spare parts and supplies, net**

As at 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Coal	989	699	-	-
Diesel fuel	307	187	29	18
Spare parts and supplies	5,908	5,633	620	553
	7,204	6,519	649	571
<u>Less</u> allowance for obsolescence of spare parts and supplies	(266)	(266)	-	-
Fuel, spare parts and supplies, net	6,938	6,253	649	571

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

## Notes to the Consolidated and Separate Financial Statements

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## 17 Assets and liabilities held-for-sale

The following assets and liabilities were reclassified as held-for-sale as at 31 December.

	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Cash and cash equivalents	331	256	-	-
Deposits at financial institutions used as collateral	82	-	-	-
Trade receivables	10	42	-	-
Other receivables	13	-	-	-
Other current assets	36	-	-	-
Property, plant and equipment, net	1,621	1,715	-	-
Right-of-use assets, net	183	-	-	-
Intangible assets, net	407	995	-	-
Goodwill	15	-	-	-
Deferred tax asset	-	4	-	-
Other non-current assets	13	-	-	-
Investment in subsidiaries	-	-	504	465
<b>Total assets</b>	<b>2,711</b>	<b>3,012</b>	<b>504</b>	<b>465</b>
Trade payables	-	(7)	-	-
Other payables	(16)	(11)	-	-
Current portion of lease liabilities, net	(10)	-	-	-
Current portion of long-term loans from financial institutions, net	(119)	-	-	-
Other current liabilities	(50)	(2)	-	-
Lease liabilities, net	(177)	-	-	-
Derivative liabilities	(29)	-	-	-
Long-term loans from financial institutions, net	(1,605)	-	-	-
Deferred tax liability	(80)	(96)	-	-
Other non-current liabilities	-	(43)	-	-
<b>Total liabilities</b>	<b>(2,086)</b>	<b>(159)</b>	<b>-</b>	<b>-</b>

At the Board of Directors' meeting of the Company held on 15 December 2021, the Board approved the Company to enter into a share purchase agreement with CES Iwate Taiyoko Hatsudensho GK which subsequently signed on 7 February 2022 to sell the shares in Ichinoseki Solar Power 1 GK, a company that invests in solar power plants. The consideration amount is JPY 3,860 million which is equivalent to Baht 1,119 million. The shares represent 100% of the total registered and paid-up capital. The transaction will be completed in the first quarter of 2022. As at 31 December 2021, the assets and liabilities (which are excluded related party transactions with the Company) of Ichinoseki Solar Power 1 GK was classified as the assets and liabilities held-for-sale in the consolidated statement of financial position. Also, the investment in the subsidiary of Baht 504 million was classified as the asset held-for-sale in the separate statement of financial position.

On 23 December 2020, the Company entered into a Share Purchase Agreement with PTT Global Management Company Limited which is a subsidiary of PTT Public Company Limited to sell of shares in Global Renewable Power Company Limited, a company that invests in solar power plants. The consideration amount is Baht 693 million. The shares represent 50% of the total registered and paid-up capital. The transaction was completed on 4 January 2021. As at 31 December 2020, the assets and liabilities (which are at the sale proportion excluded related party transactions with the Company) of Global Renewable Power Company Limited and its subsidiaries were classified as the assets and liabilities held-for-sale in the consolidated statement of financial position. Also, some part of investment in a subsidiary of Baht 465 million was classified as the asset held-for-sale in the separate statement of financial position.

**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED****Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2021

**18 Investments in subsidiaries, associates and joint ventures**

As at 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Investments in subsidiaries (Note 18.1)	-	-	161,063	146,425
Investments in associates (Note 18.2)	24,623	8,251	1,871	924
Investments in joint ventures (Note 18.3)	3,077	2,914	2,814	2,814
Total investments in subsidiaries, associates and joint ventures	27,700	11,165	165,748	150,163

**18.1 Investments in subsidiaries**

Movements of investments in subsidiaries for the years ended 31 December are as follows:

	Separate financial statements	
	2021	2020
	Million Baht	Million Baht
Opening net book value	146,425	143,925
Reclassification to asset held-for-sale <sup>(d)</sup>	(504)	(465)
Reclassification to investments in associates <sup>(a)</sup>	(465)	-
Additional investments <sup>(b), (c), (d)</sup>	15,607	2,965
Closing net book value	161,063	146,425

Significant changes in investments in subsidiaries for the year ended 31 December 2021 are as follows:

**(a) Global Renewable Power Company Limited**

During the year 2021, the Company entered into a share purchase agreement with PTT Global Management Company Limited (a subsidiary of PTT Public Company Limited) in order to sell 4,655,000 shares of Global Renewable Power Company Limited or represented the 50% of its total registered and paid-up share capital (as describe in note 17). On 4 January 2021, shares were completely transferred and the Company recognised gain on sales of the investment amounting to Baht 115 million and Baht 227 million as other income in the consolidated and separate statements of income for the year ended 31 December 2021 respectively. Therefore, this resulted in a change of the Company's shareholding interest which decreased from 100% to 50%. The investment in Global Renewable Power Company Limited is reclassified from the investment in a subsidiary to be the investment in an associate.

**(b) GPSC Singapore Pte. Ltd.**

At the Company's Board of Directors' meeting No.1/2021 held on 20 January 2021, the Board approved the establishment of GPSC Singapore Pte Ltd., which was incorporated on 19 February 2021 with registered share capital of US Dollar 100. The Company owns 100% ownership interests.

During the year ended 31 December 2021, GPSC Singapore Pte. Ltd. increased its registered capital by issuing 16,020,000 ordinary shares at a par value of US Dollar 1, totalling US Dollar 16 million. GPSC Singapore Pte. Ltd. called for the first payment for 15,720,100 ordinary shares. The Company paid US Dollar 15.7 million for the additional paid-up share capital, which is equivalent to Baht 493 million.

**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED****Notes to the Consolidated and Separate Financial Statements**

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**(c) Global Renewable Synergy Company Limited**

On 11 June 2021, the Company established Global Renewable Synergy Company Limited which was incorporated in Thailand with registered capital of 10,000 ordinary shares at a par value of Baht 100, totalling Baht 1 million. The Company owns 100% of the shareholding interests. Global Renewable Synergy Company Limited called for the first payment at Baht 25 per share, totalling Baht 250,000 which already paid on 11 June 2021.

During the year ended 31 December 2021, Global Renewable Synergy Company Limited called for the remaining paid-up share capital of 10,000 shares at Baht 75, totalling Baht 750,000 to the Company. The subsidiary also increased its registered capital by issuing 164,990,000 ordinary shares at a par value of Baht 100, totalling Baht 16,500 million. The subsidiary called an additional paid-up for the first payment at Baht 91.50 per share, totalling Baht 15,097 million. The Company paid for the remaining and additional paid-up on the same date.

**(d) Ichinoseki Solar Power 1 GK**

On 5 August 2021, the Company entered into a share purchase agreement with an existing shareholder of Ichinoseki Solar Power 1 GK to acquire the shareholding interest, totalling Baht 16 million. This acquisition increased the shareholding interests in Ichinoseki Solar Power 1 GK from 99% of the registered and paid-up share capital to 100% of the registered and paid-up share capital. The Company made a full payment to the existing shareholder on 6 September 2021.

The effect of changes in the ownership interest in Ichinoseki Solar Power 1 GK on the equity attributable to owner of the Company during the year ended 31 December 2021 is summarised as follows:

	<b>Consolidated financial statements Million Baht</b>
Carrying amount of non-controlling interests acquired	6
Consideration paid to non-controlling interests	16
Deficit from the change in the ownership interests in the subsidiary	10

As at 31 December 2021, the investment in Ichinoseki Solar Power 1 GK was reclassified to asset held-for-sale as disclosed in Note 17.





# GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

## Notes to the Consolidated and Separate Financial Statements

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The detail of investments in direct subsidiaries are as follows:

Company	Business	Separate financial statements					
		Portion of ordinary shares held by the Company		Cost method		Dividend income during the year	
		2021 %	2020 %	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
<b><u>Direct subsidiaries established in Thailand</u></b>							
Combined Heat and Power Producing Company Limited	Generate and supply electricity and cold water, construction and installation of electricity system services	100	100	266	266	-	-
Natee Synergy Company Limited	Invest in other companies	100	100	7,062	7,062	57	-
IRPC Clean Power Company Limited	Generate and supply electricity and steam for industrial use	51	51	1,965	1,965	117	438
Global Renewable Power Company Limited <sup>(a)</sup>	Invest in other companies	-	100	-	465	-	-
Glow Energy Public Company Limited and its subsidiaries	Generate and supply electricity	45.67	45.67	60,924	60,924	1,233	2,511
GPSC Holding (Thailand) Company Limited (formally as ENGIE Holding (Thailand) Company Limited)	Invest in other companies	100	100	72,883	72,883	1,459	2,977
Energy Recovery Unit Company Limited	Generate and supply electricity	100	100	2,350	2,350	-	-
GPSC Treasury Center Company Limited	Financial services	100	100	20	20	-	-
Global Renewable Synergy Company Limited <sup>(c)</sup>	Invest in other companies	100	-	15,097	-	-	-
<b><u>Direct subsidiary established in Japan</u></b>							
Ichinoseki Solar Power 1 GK <sup>(a)</sup>	Generate and supply electricity	100	99	-	487	-	-
<b><u>Direct subsidiary established in Hong Kong</u></b>							
GPSC International Holdings Limited	Invest in other companies	100	100	3	3	-	-
<b><u>Direct subsidiary established in Singapore</u></b>							
GPSC Singapore Pte. Ltd. <sup>(b)</sup>	Invest in other companies	100	-	493	-	-	-
Total investments in subsidiaries				161,063	146,425	2,866	5,926

# GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

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The detail of investments in indirect subsidiaries are as follow:

Company	Business	Separate financial statements					
		Portion of ordinary shares held by the Group		Cost method		Dividend income during the year	
		2021	2020	2021	2020	2021	2020
		%	%	Million Baht	Million Baht	Million Baht	Million Baht
<b>Indirect subsidiaries established in Thailand</b>							
Glow Energy Public Company Limited	Generate and supply electricity	54.16	54.16	-	-	-	-
Glow Company Limited	Provide management services, consultant services and management advisory for related companies	100	100	-	-	-	-
Glow IPP Company Limited	Generate and supply electricity to EGAT	95	95	-	-	-	-
Glow SPP 2 Company Limited	Generate and supply electricity and steam for industrial use	100	100	-	-	-	-
Glow SPP 3 Company Limited	Generate and supply electricity, steam and water for industrial use	100	100	-	-	-	-
Glow IPP 2 Holding Company Ltd	Invest in other companies	100	100	-	-	-	-
GHECO-One Company Limited*	Generate and supply electricity to EGAT	65	65	-	-	-	-
Glow IPP 3 Company Limited	Develop power generation projects	100	100	-	-	-	-
Glow SPP 11 Company Limited	Generate and supply electricity and water for industrial use	100	100	-	-	-	-
Houay Ho Thai Company Limited	Invest in other companies	49	49	-	-	-	-
Global Renewable Power One Company Limited <sup>(a)</sup>	Invest in other companies	-	100	-	-	-	-
Global Renewable Power Operating Company Limited <sup>(a)</sup>	Provide management and consultancy services for solar farm sector	-	100	-	-	-	-
World X Change Asia Company Limited <sup>(a)</sup>	Generate and supply electricity	-	100	-	-	-	-
P.P. Solar Company Limited <sup>(a)</sup>	Generate and supply electricity	-	100	-	-	-	-
N.P.S. Stargroup Company Limited <sup>(a)</sup>	Generate and supply electricity	-	100	-	-	-	-
<b>Indirect subsidiary established in Laos</b>							
Houay Ho Power Company Limited*	Generate and supply electricity to EGAT and Electricity du Laos (EDL)	67.25	67.25	-	-	-	-



## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

### Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2021

Company	Business	Separate financial statements					
		Portion of ordinary shares held by the Group		Cost method		Dividend income during the year	
		2021 %	2020 %	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
<b>Indirect subsidiary established in Myanmar</b> Glow Energy Myanmar Company Limited	Provide technical and consultancy services for power sector	100	100	-	-	-	-
Indirect subsidiary established in Taiwan Global Renewable Synergy Company Limited Taiwan **	Invest in other companies	100	-	-	-	-	-

\* As at 31 December 2021, the Group pledged the common shares of GHECO-One Company Limited and Houay Ho Power Company Limited as collateral for their long-term loans from financial institutions (Note 27).

#### \*\* Global Renewable Synergy Company Limited Taiwan

At the Board of Directors' meeting No. 3/2021 of a subsidiary, held on 14 July 2021, the Board approved the establishment of Global Renewable Synergy Company Limited Taiwan. It was incorporated on 21 October 2021 with registered share capital of TWD 500,000. The subsidiary owns 100% ownership interests and has fully paid-up shares totalling TWD 500,000 which is equivalent to Baht 604,150 on the same day.

### Summarised financial information for subsidiaries with material non-controlling interests

Set out below are the summarised financial information of each subsidiary that has non-controlling interests that are material to the Group. The amounts disclosed for each subsidiary are the amounts before inter-company elimination.

#### Summarised statement of financial position

	IRPC Clean Power Company Limited		GHECO-One Company Limited				Total	
	Company Limited		2020		2021		2021	
	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
Current assets	2,919	2,684	7,092	6,432	10,011	9,116		
Current liabilities	(1,505)	(1,631)	(2,419)	(1,866)	(3,924)	(3,497)		
Total current net assets	1,414	1,053	4,673	4,566	6,087	5,619		
Non-current assets	10,373	10,789	31,679	32,818	42,052	43,607		
Non-current liabilities	(4,561)	(5,405)	(22,553)	(23,624)	(27,114)	(29,029)		
Total non-current net assets	5,812	5,384	9,126	9,194	14,938	14,578		
Net assets	7,226	6,437	13,799	13,760	21,025	20,197		
Non-controlling interests	3,541	3,154	4,863	4,863	8,404	8,017		

#### As at 31 December

# GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

## Notes to the Consolidated and Separate Financial Statements

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### Summarised statement of comprehensive income

#### For the years ended 31 December

	GHECO-One Company Limited			Total	
	2021	2020	2021	2020	2020
	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
Revenue	6,299	6,170	8,855	10,398	16,568
Profit (Loss)	1,019	1,155	(149)	970	2,125
Other comprehensive income (expense)	-	(7)	489	(134)	(141)
Total comprehensive income	1,019	1,148	340	836	1,984
Income attributable to non-controlling interests	499	563	105	292	855
Dividend paid to non-controlling interests	113	420	105	419	839

### Summarised of statement of cash flows

#### For the years ended 31 December

	GHECO-One Company Limited			Total	
	2021	2020	2021	2020	2020
	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
Net cash generated from operating activities	1,553	2,392	1,897	3,387	5,779
Net cash generated from (used in) investing activities	(209)	470	(32)	(89)	381
Net cash used in financing activities	(1,424)	(2,246)	(1,733)	(4,378)	(6,624)
<b>Net increase (decrease) in cash and cash equivalents</b>	(80)	616	132	(1,080)	(464)
Cash and cash equivalents at the beginning of the year	792	176	2,188	3,269	3,445
Exchange gain (losses) on cash and cash equivalents	-	-	1	(1)	(1)
Cash and cash equivalents at the ending of the year	712	792	2,321	2,188	2,980

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

### Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2021

#### 18.2 Investments in associates

Movements of investments in associates for the years ended 31 December are as follows:

	<b>Consolidated financial statements</b>	
	<b>Investment at equity method</b>	
	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>
Opening net book value	8,251	7,927
Reclassification from investments in subsidiaries to investments in associates <sup>(a)</sup> (Note 18.1)	577	-
Additional investments <sup>(a), (b)</sup>	15,466	-
Share of profit	1,018	429
Share of other comprehensive income (expense)		
- Cash flow hedges	(528)	44
- Exchange difference on translation of the financial statements	183	-
Dividend income	(344)	(149)
Closing net book value	24,623	8,251

	<b>Separate financial statements</b>	
	<b>Investment at cost method</b>	
	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>
Open net book value	924	924
Reclassification from investments in subsidiaries to investments in associates <sup>(a)</sup> (Note 18.1)	465	-
Additional investments <sup>(a)</sup>	482	-
Closing net book value	1,871	924

Significant changes in investments in associates during the year ended 31 December 2021 are as follows:

#### (a) Global Renewable Power Company Limited

##### Reclassification of investment

As discussed in Note 18.1, the investment in Global Renewable Power Company Limited was reclassified from being an investment in a subsidiary to being an investment in an associate. The impact of the change of shareholding interest in Global Renewable Power Company Limited as at the loss of control date is summarised as follows:

	<b>Consolidated financial statements Million Baht</b>
Cash received from the disposal of the investment	693
Fair value of the investment in the associate after decreasing the shareholding in the subsidiary	577
	1,270
<u>Less</u> fair value of the subsidiary's net assets before decreasing the shareholding	(1,155)
Gain on decrease in the shareholding in the subsidiary	115



**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED****Notes to the Consolidated and Separate Financial Statements**

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Details of the fair value of the associate's net assets as at the date of loss of control over the subsidiary are as follow:

	<b>Consolidated financial statements Million Baht</b>
Cash and cash equivalents	256
Trade receivables	42
Intangible assets	995
Property, plant and equipment	1,715
Deferred tax assets	4
Trade payables	(7)
Other payables	(41)
Short-term loans	(1,668)
Other current liabilities	(2)
Deferred tax liabilities	(96)
Other non-current liabilities	(43)
<b>Net assets</b>	<b>1,155</b>
Investment proportion in the associate	50%
Fair value of the associate's net assets as at the loss of control date	<b>577</b>

Call for additional paid-up share capital

During the year ended 31 December 2021, Global renewable Power Company Limited called for the additional paid-up share capital which the Company paid in the same proportion as its original investment, totalling Baht 482 million.

**(b) Avaada Energy Private Limited**

On 13 July 2021, Global Renewable Synergy Company Limited, a subsidiary of the Company has completed the acquisition by the way of subscription of new shares in Avaada Energy Private Limited (Avaada) to acquire 508,217,550 shares, a company that operates a large portfolio of solar power plants in India. The share acquisition represents 41.6% of the total registered and paid-up capital with total investment of Baht 14,984 million. The subsidiary made a full payment to Avaada Energy Private Limited (Avaada) on the same day.

Details of the consideration paid at the acquisition date is as follows:

	<b>Million Baht</b>
Cash	14,984
Total purchase consideration	14,984

Details of fair value of the acquired net assets recognised at the acquisition date is as follows:

	<b>Consolidated financial information Million Baht</b>
Estimated fair value of identifiable net assets acquired	5,984
Purchase price over the estimated fair value of net assets acquired (Includes in investments in associates)	9,000
Purchase consideration	14,984

The Group has been under the process of determining fair value of the net assets acquired from the business acquisition. The above estimated fair value needs to be further adjusted to the fair value of the net assets acquired which must be completed within 12 months from the acquisition date.



## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

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For the year ended 31 December 2021

The details of the investments in associates are as follows:

Company	Business	Consolidated financial statements							
		Portion of ordinary shares held by the Group		Cost Method		Equity Method		Dividend income during the year	
		2021 %	2020 %	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
<b>Direct associate established in Thailand</b> Bangpa-in Cogeneration Company Limited Global Renewable Power Company Limited and its subsidiaries	Generate and supply electricity Invest in other companies, generate and supply electricity and provide management services	25 50	25 -	924 947	924 -	846 1,102	872 -	148 -	142 -
<b>Indirect associate established in Laos</b> Xayaburi Power Company Limited	Generate and supply electricity	25	25	6,994	6,994	7,254	7,014	175	-
<b>Indirect associate established in Thailand</b> Eastern Seaboard Clean Energy Company Limited and its subsidiaries	Studying, generating and supply electricity for industrial use, including generating electricity from renewable energy	33	33	339	339	372	365	21	7
<b>Indirect associate established in India</b> Avaada Energy Private Limited	Generate and supply electricity	41.62	-	14,984	-	15,049	-	-	-
Total investments in associates				24,188	8,257	24,623	8,251	344	149

The details of an investment in an associate are as follows:

Company	Business	Separate financial statements							
		Portion of ordinary shares held by the Company		Cost Method		Dividend income during the year		Dividend income during the year	
		2021 %	2020 %	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
<b>Associate established in Thailand</b> Bangpa-in Cogeneration Company Limited Global Renewable Power Company Limited and its subsidiaries	Generate and supply electricity Invest in other companies, generate and supply electricity and provide management services	25 50	25 -	924 947	924 -	148 -	142 -	148 -	142 -
Total investments in associates				1,871	924	148	142	148	142

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

## Notes to the Consolidated and Separate Financial Statements

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*Summarised financial information for associates*

The table below is the summarised financial information for an associate that is material to the Group. The financial information is included in its own financial statements which has been adjusted with adjustments for the equity method, including fair value adjustments and modifications for differences in accounting policies.

*Summarised statement of financial position*

As at 31 December	Xayaburi Power Company Limited		Avaada Energy Private Limited		Total	
	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
<b>Total current assets</b>	5,510	5,409	10,665	-	16,175	5,409
<b>Total non-current assets</b>	128,970	126,055	38,100	-	167,070	126,055
<b>Total current liabilities</b>	(5,064)	(3,704)	(5,708)	-	(10,772)	(3,704)
<b>Total non-current liabilities</b>	(100,538)	(99,845)	(28,524)	-	(129,062)	(99,845)
<b>Net assets</b>	28,878	27,915	14,533	-	43,411	27,915

*Summarised statement of comprehensive income*

For the years ended 31 December	Xayaburi Power Company Limited		Avaada Energy Private Limited		Total	
	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
Revenue	14,245	12,080	1,388	-	15,633	12,080
Profit (loss) from continuing operations	3,783	968	(135)	-	3,648	968
Other comprehensive income (expense)	(2,122)	175	291	-	(1,831)	175
Gain on comprehensive income	1,661	1,143	156	-	1,817	1,143
Dividend received from an associate	175	-	-	-	175	-
<b>Reconciliation to carrying amounts:</b>						
Opening net assets at 1 January	27,915	26,772	-	-	27,915	26,772
Net assets at acquisition date	-	-	14,377	-	14,377	-
Profit (loss) for the year	3,783	968	(135)	-	3,648	968
Other comprehensive income (expense)	(2,122)	175	291	-	(1,831)	175
Dividends paid	(698)	-	-	-	(698)	-
<b>Closing net assets</b>	<b>28,878</b>	<b>27,915</b>	<b>14,533</b>	<b>-</b>	<b>43,411</b>	<b>27,915</b>
Group's share in associates (%)	25%	25%	41.62%	-		
Group's share in associates	7,219	6,979	6,049	-	13,268	6,979
Goodwill	35	35	9,000	-	9,035	35
<b>Associate carrying amount</b>	<b>7,254</b>	<b>7,014</b>	<b>15,049</b>	<b>-</b>	<b>22,303</b>	<b>7,014</b>

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*Individually immaterial associates*

In addition to the interests in the associate disclosed above, the Group also has interests in a number of individually immaterial associates that are accounted for using the equity method as follows:

	<b>Consolidated financial statements</b>	
	<b>2021</b>	<b>2020</b>
	<b>Million Baht</b>	<b>Million Baht</b>
<b>Aggregate carrying amount of individually immaterial associates</b>	2,320	1,237
<b>The Group's share of:</b>		
Profit from continuing operations	131	187
Total comprehensive income	131	187

**18.3 Investments in joint ventures**

Movements of investments in joint ventures for the years ended 31 December are as follows:

	<b>Consolidated financial statements</b>	
	<b>2021</b>	<b>2020</b>
	<b>Million Baht</b>	<b>Million Baht</b>
Opening net book value	2,914	2,616
Additional investments <sup>(a)</sup>	2	135
Share of profit	518	495
Share of other comprehensive expense		
- Exchange difference on translation of financial statements	73	(5)
Dividend income	(430)	(327)
Closing net book value	3,077	2,914

	<b>Separate financial statements</b>	
	<b>2021</b>	<b>2020</b>
	<b>Million Baht</b>	<b>Million Baht</b>
Open net book value	2,814	2,679
Additional investments <sup>(a)</sup>	-	135
Closing net book value	2,814	2,814

The significant movement of investments in joint ventures for the year ended 31 December 2021 is as follows:

**(a) Chaibadan Community Power Plant 1 Company Limited and Chaibadan Community Power Plant 2 Company Limited**

At the Extraordinary General Meeting of Shareholders of a subsidiary on 7 April 2021, the shareholders approved a subsidiary to enter into a share purchase agreement with Sapthip Company Limited to acquire shareholding interests in Chaibadan Community Power Plant 1 Co., Ltd. and Chaibadan Community Power Plant 2 Co., Ltd., which engage in generation and supply of electricity. Subsequently on 16 April 2021, the subsidiary paid for the acquisition of 313,600 shares of each company, totalling Baht 2 million or 49% of total issued and paid-up share capital of each company.

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The details of investments in joint ventures are as follows:

Company	Business	Consolidated financial statements					
		Portion of ordinary shares held by the Group		Cost Method		Equity Method	
		2021	2020	2021	2020	2021	2020
		%	%	Million Baht	Million Baht	Million Baht	Million Baht
<b>Joint ventures established in Thailand</b>							
Thai Solar Renewable Company Limited and its subsidiary	Invest in other companies	40	40	1,697	1,697	1,528	1,584
Navanakorn Electricity Generating Company Limited	Generate and supply electricity	30	30	623	623	788	711
Chaibadan Community Power Plant 1 Company Limited	Generate and supply electricity	49	-	1	-	1	-
Chaibadan Community Power Plant 2 Company Limited	Generate and supply electricity	49	-	1	-	1	-
<b>Joint venture established in Laos</b>							
Nam Lik 1 Power Company Limited	Generate and supply electricity	40	40	494	494	759	619
Total investments in joint ventures				2,816	2,814	3,077	2,914
						430	327

The detail of investments in joint ventures are as follows:

Company	Business	Separate financial statements					
		Portion of ordinary shares held by the Company		Cost Method		Dividend income during the year	
		2021	2020	2021	2020	2021	2020
		%	%	Million Baht	Million Baht	Million Baht	Million Baht
<b>Joint ventures established in Thailand</b>							
Thai Solar Renewable Company Limited and its subsidiary	Invest in other companies	40	40	1,697	1,697	391	327
Navanakorn Electricity Generating Company Limited	Generate and supply electricity	30	30	623	623	39	-
<b>Joint venture established in Laos</b>							
Nam Lik 1 Power Company Limited	Generate and supply electricity	40	40	494	494	-	-
Total investments in joint ventures				2,814	2,814	430	327



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*Summarised financial information for joint ventures*

The table below summarises the financial information for a joint venture that is material to the Group. The financial information is included in its own financial statements which has been adjusted with necessary adjustments for the equity method, including fair value adjustments and modifications for differences in accounting policies.

*Summarised statement of financial position*
**As at 31 December**
**Current assets**

Cash and cash equivalents  
Other current assets (excluding cash)  
Total current assets

**Non-current assets**
**Current liabilities**

Current financial liabilities (excluding trade payables)  
Other current liabilities (including trade payables)

Total current liabilities

**Non-current liabilities**

Non-current financial liabilities  
Other non-current liabilities  
Total non-current liabilities

Total net assets

<b>Thai Solar Renewable Company Limited</b>	
<b>2021</b>	<b>2020</b>
<b>Million Baht</b>	<b>Million Baht</b>
1	1
559	506
560	507
4,973	4,730
(376)	(700)
(273)	(191)
(649)	(891)
(1,105)	(1,162)
(46)	-
(1,151)	(1,162)
3,733	3,184

*Summarised statement of comprehensive income*
**For the years ended 31 December**

Revenue  
Depreciation and amortisation  
Interest expenses  
**Profit from continuing operations**  
Income tax expenses

**Post-tax profit from discontinued operations**  
**Gain (loss) on comprehensive income**

**Total comprehensive income**

**Dividend received from joint ventures**

**Reconciliation to carrying amounts:**

Opening net assets at 1 January  
Profit for the year  
Other comprehensive income (expense)  
Dividends paid

Closing net assets

Group's share in joint ventures (%)  
Group's share in joint ventures  
Goodwill

Joint venture's carrying amount

<b>Thai Solar Renewable Company Limited</b>	
<b>2021</b>	<b>2020</b>
<b>Million Baht</b>	<b>Million Baht</b>
1,547	1,498
(245)	(237)
(59)	(86)
847	830
(9)	-
838	830
-	-
838	830
391	327
3,872	3,859
838	830
-	-
(977)	(817)
3,733	3,872
40%	40%
1,493	1,549
35	35
1,528	1,584

**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED****Notes to the Consolidated and Separate Financial Statements**

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	<b>Consolidated financial statements</b>	
	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>
<b>Aggregate carrying amount of individually immaterial joint ventures</b>	1,549	1,330
<b>The Group's share of:</b>		
Profit from continuing operations	183	121
Other comprehensive income (expense)	-	-
<b>Total comprehensive income</b>	183	121

**18.4 Dividend receivables from subsidiaries, associates and joint ventures**

The movements of dividend receivables for the years ended 31 December can be analysed as follows:

	<b>Consolidated financial statements</b>	
	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>
<b>For the years ended 31 December</b>		
Opening balance	59	102
Dividends declared by associates and joint ventures	774	469
Dividends received from associates and joint ventures	(742)	(512)
<b>Closing balance</b>	91	59

	<b>Separate financial statements</b>	
	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>
<b>For the years ended 31 December</b>		
Opening balance	252	12,082
Dividends declared by subsidiaries, associates and joint ventures	3,444	6,395
Dividends received from subsidiaries, associates and joint ventures	(3,605)	(18,225)
<b>Closing balance</b>	91	252

**19 Financial assets measured at fair value through other comprehensive income**

Movements of financial assets measured at fair value through other comprehensive income for the years ended 31 December are as follows:

	<b>Consolidated financial statements</b>	
	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>
Opening book value	2,724	2,666
Additional investments	499	170
Share of other comprehensive income (expense)		
- Change in fair value through other comprehensive income (expense)	2,616	(112)
- Exchange difference on translation of the financial information	21	-
<b>Closing book value</b>	5,860	2,724

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	<b>Separate financial statements</b>	
	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>
Opening book value	2,661	2,603
Additional investments	-	170
Change in fair value through other comprehensive income (expense)	2,520	(112)
Closing book value	5,181	2,661

The significant movement of the financial assets measured at fair value through other comprehensive income for the year ended 31 December 2021 is as follows:

**Anhui Axxiva New Energy Technology Co., Ltd.**

On 8 February 2021, the Company entered into a share agreement to authorise GPSC Singapore Pte. Ltd., which is the Company's subsidiary to invest in additional shares of Anhui Axxiva New Energy Technology Co., Ltd. (AXXIVA) which is operates in a battery manufacturing business in China. The investment value is US Dollar 16 million which is equivalent to Baht 499 million or 11.1% of registered and paid-up share capital. The subsidiary made a full payment to Anhui Axxiva New Energy Technology Co., Ltd. on 28 May 2021.

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The details of financial assets measured at fair value through other comprehensive income are as follows:

Company	Business	Consolidated financial statements					
		Measured at fair value				Dividend income	
		Portion of shares held by the Group		comprehensive income through other method		during the year	
		2021 %	2020 %	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
<b>Other non-marketable equity securities</b>							
Ordinary shares							
- Ratchaburi Power Company Limited	Generate and supply electricity	15	15	1,229	1,173	248	390
- San Palung Social Enterprise Company Limited	Social enterprise	10	10	1	1	-	-
- Eastern Fluid Transport Co Ltd	Service	15	15	63	63	8	6
- Anhui Axxiva New Energy Technology Co., Ltd	Battery manufacturing	11	-	616	-	-	-
Preferred shares							
- Business Services Alliance Company Limited	Human resource management	25	25	-	-	-	-
- 24M Technologies, Inc. <sup>(1)</sup>	Research and development in battery	14.17	26.02	3,951	1,487	-	-
Total financial assets measured at fair value through other comprehensive income				5,860	2,724	256	396

<sup>(1)</sup> **24M Technologies, Inc.**

The Company's shareholding interests in 24M Technologies, Inc was decreased from 26.02% to 14.17 since 24M Technologies, Inc issued the additional shares capital and the Company waived its rights to subscribe to any additional shares in proportion to its respective shareholding.



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The details of financial assets measured at fair value through other comprehensive income are as follows:

Separate financial statements								
Measured at fair value								
Company	Business	Portion of shares held by the Company		Measured at fair value through other comprehensive income method			Dividend income during the period	
		2021 %	2020 %	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht	
<b><u>Other non-marketable equity securities</u></b>								
Ordinary shares								
- Ratchaburi Power Company Limited	Generate and supply electricity	15	15	1,229	1,173	248	390	
- San Palung Social Enterprise Company Limited	Social enterprise	10	10	1	1	-	-	
Preferred shares								
- Business Services Alliance Company Limited	Human resource management	25	25	-	-	-	-	
- 24M Technologies, Inc. <sup>(1)</sup>	Research and development in battery	14.17	26.02	3,951	1,487	-	-	
Total financial assets measured at fair value through other comprehensive income				5,181	2,661	248	390	

<sup>(1)</sup> **24M Technologies, Inc.**

The Company's shareholding interests in 24M Technologies, Inc was decreased from 26.02% to 14.17 since 24M Technologies, Inc issued the additional shares capital and the Company waived its rights to subscribe to any additional shares in proportion to its respective shareholding.



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### 20 Property, plant and equipment, net

	Consolidated financial statements					
	Land Million Baht	Buildings and building improvements Million Baht	Power plant, machinery and equipment Million Baht	Furniture, fixtures and office equipment Million Baht	Vehicles Million Baht	Construction in progress Million Baht
<b>As at 1 January 2020</b>						
Cost	1,838	2,395	160,380	518	55	1,917
Less Accumulated depreciation	-	(700)	(64,499)	(393)	(44)	-
Less Allowance for impairment	-	-	(195)	-	-	-
Net book value	1,838	1,695	95,686	125	11	1,917
<b>For the year ended 31 December 2020</b>						
Opening net book value	1,838	1,695	95,686	125	11	1,917
Additions	6	9	90	26	15	4,380
Disposals, net	-	(6)	(191)	-	(9)	-
Increases from business acquisition	205	816	752	-	-	-
Transfers in (out)	-	182	687	13	-	(897)
Reclassification to asset held for sale, net	(205)	(786)	(724)	-	-	-
Reclassification to asset not used, net	-	-	(40)	-	-	-
Provision for decommissioning expense	-	-	327	-	-	-
Depreciation	-	(128)	(5,949)	(39)	(4)	-
Loss on impairment	-	-	(45)	-	-	-
Reversal of loss on impairment	-	-	129	-	-	-
Exchange difference on translation	-	-	92	-	-	-
Closing net book value	1,844	1,782	90,814	125	13	5,400
<b>As at 31 December 2020</b>						
Cost	1,844	2,571	159,349	557	46	5,400
Less Accumulated depreciation	-	(789)	(68,490)	(432)	(33)	-
Less Allowance for impairment	-	-	(45)	-	-	-
Net book value	1,844	1,782	90,814	125	13	5,400

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For the year ended 31 December 2021

	Consolidated financial statements						
	Land Million Baht	Buildings and building improvements Million Baht	Power plant, machinery and equipment Million Baht	Furniture, fixtures and office equipment Million Baht	Vehicles Million Baht	Construction in progress Million Baht	Total Million Baht
<b>For the year ended 31 December 2021</b>							
Opening net book value	1,844	1,782	90,814	125	13	5,400	99,978
Additions	-	13	226	24	8	3,876	4,147
Disposals and write-off, net	-	-	(864)	(2)	-	-	(866)
Transfers in (out)	-	330	4,163	1	-	(4,556)	(62)
Reclassification to asset held for sale, net (Note 17)	-	-	(1,621)	-	-	-	(1,621)
Depreciation	-	(103)	(6,066)	(35)	(4)	-	(6,208)
Loss on impairment	-	-	(17)	-	-	-	(17)
Exchange difference on translation	-	1	228	-	1	-	230
Closing net book value	1,844	2,023	86,863	113	18	4,720	95,581
<b>As at 31 December 2021</b>							
Cost	1,844	2,916	161,141	555	56	4,720	171,232
Less Accumulated depreciation	-	(893)	(74,216)	(442)	(38)	-	(75,589)
Less Allowance for impairment	-	-	(62)	-	-	-	(62)
Net book value	1,844	2,023	86,863	113	18	4,720	95,581

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		Separate financial statements						
		Land	Buildings and building improvements	Power plant, machinery and equipment	Furniture, fixtures and office equipment	Vehicles	Construction in progress	Total
		Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
<b>As at 1 January 2020</b>								
Cost		575	757	25,456	147	17	1,452	28,404
Less Accumulated depreciation		-	(303)	(10,859)	(91)	(8)	-	(11,261)
Net book value		575	454	14,597	56	9	1,452	17,143
<b>For the year ended 31 December 2020</b>								
Opening net book value		575	454	14,597	56	9	1,452	17,143
Additions		6	8	23	12	6	1,914	1,969
Disposals, net		-	-	(8)	-	(8)	-	(16)
Transfers in (out)		-	163	303	2	-	(468)	-
Depreciation		-	(40)	(1,188)	(14)	(1)	-	(1,243)
Closing net book value		581	585	13,727	56	6	2,898	17,853
<b>As at 31 December 2020</b>								
Cost		581	928	25,756	161	7	2,898	30,331
Less Accumulated depreciation		-	(343)	(12,029)	(105)	(1)	-	(12,478)
Net book value		581	585	13,727	56	6	2,898	17,853

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For the year ended 31 December 2021

	Separate financial statements						
	Land Million Baht	Buildings and building improvements Million Baht	Power plant, machinery and equipment Million Baht	Furniture, fixtures and office equipment Million Baht	Vehicles Million Baht	Construction in progress Million Baht	Total Million Baht
<b>For the year ended 31 December 2021</b>							
Opening net book value	581	585	13,727	56	6	2,898	17,853
Additions	-	18	161	46	8	976	1,209
Disposals, net	-	-	(3)	(1)	-	-	(4)
Transfers in (out)	-	328	2,053	2	-	(2,387)	(4)
Depreciation	-	(47)	(1,253)	(22)	(2)	-	(1,324)
Closing net book value	581	884	14,685	81	12	1,487	17,730
<b>As at 31 December 2021</b>							
Cost	581	1,274	27,961	203	15	1,487	31,521
Less: Accumulated depreciation	-	(390)	(13,276)	(122)	(3)	-	(13,791)
Net book value	581	884	14,685	81	12	1,487	17,730

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

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During the year ended 31 December 2021, the Group wrote-off damaged parts of power plant phase 5 with a net book value of Baht 858 million. A loss from write-off of Baht 858 million was recognised in the consolidated statement of comprehensive income. However, the Group received a partial insurance claim from the insurer which was recognised as other income in the consolidated statement of comprehensive income (Note 32).

Moreover, during the year ended 31 December 2021, the Group recognised a Baht 17 million impairment loss for the power plant's discontinued machine in the consolidated and separate statements of comprehensive income. Management determined the recoverable amount using value in use.

## Security

As at 31 December 2021, the Group's property, plant and equipment with a net book value of Baht 38,231 million were mortgaged and pledged as collateral for the long-term loans, as described in Note 27 (as at 31 December 2020: Baht 41,318 million).

## Borrowing costs

The Group capitalised borrowing costs of Baht 67 million (2020: Baht 69 million) which arose from financing for the construction of new power plants. The capitalisation rates were from 2.48% to 2.65% per annum (2020: capitalisation rates from 2.48% to 2.72% per annum).

## 21 Right-of-use assets, net

	Consolidated financial statements				
	Land Million Baht	Office Space Million Baht	Machinery Million Baht	Vehicles Million Baht	Total Million Baht
Balance as at 1 January 2020	2,374	63	2	98	2,537
Additions	278	-	-	40	318
Lease termination	-	-	-	(5)	(5)
Lease modification	112	-	-	-	112
Depreciation	(129)	(12)	(1)	(35)	(177)
Exchange difference on translation	11	-	-	-	11
Balance as at 31 December 2020	2,646	51	1	98	2,796
Balance as at 1 January 2021	2,646	51	1	98	2,796
Additions	69	-	4	28	101
Lease termination	-	-	-	-	-
Lease modification	8	-	-	(4)	4
Reclassification to asset held for sale, net (Note 17)	(183)	-	-	-	(183)
Depreciation	(152)	(12)	(1)	(37)	(202)
Balance as at 31 December 2021	2,388	39	4	85	2,516

	Separate financial statements			
	Land Million Baht	Office Space Million Baht	Vehicles Million Baht	Total Million Baht
Balance as at 1 January 2020	200	54	54	308
Additions	267	-	23	290
Lease transfer	-	-	46	46
Lease termination	-	-	(5)	(5)
Depreciation	(29)	(11)	(29)	(69)
Balance as at 31 December 2020	438	43	89	570
Balance as at 1 January 2021	438	43	89	570
Additions	13	-	19	32
Lease modification	33	-	(4)	29
Depreciation	(46)	(12)	(33)	(91)
Balance as at 31 December 2021	438	31	71	540



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Expenses relating to leases that are not included in the measurement of lease liabilities and right-of-use are as follows:

For the years ended 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Expense relating to short-term leases	30	46	18	20
Expense relating to leases of low-value assets	20	14	19	13
Total cash outflow for leases	208	196	73	79

**22 Intangible assets, net**

	Consolidated financial statements			
	Right to power purchase agreement/ to operate Million Baht	Computer software Million Baht	Right to use of assets Million Baht	Total Million Baht
<b>At 1 January 2020</b>				
Cost	44,877	441	3,912	49,230
<u>Less</u> Accumulated amortisation	(1,541)	(287)	(1,340)	(3,168)
Net book value	43,336	154	2,572	46,062
<b>For the year ended 31 December 2020</b>				
Opening net book value	43,336	154	2,572	46,062
Additions	-	48	3	51
Increases from business acquisition	1,031	-	-	1,031
Reclassification to asset held-for-sale	(993)	(2)	-	(995)
Amortisation	(1,952)	(34)	(203)	(2,189)
Exchange difference on translation	19	-	4	23
Closing net book value	41,441	166	2,376	43,983
<b>At 31 December 2020</b>				
Cost	44,889	487	3,882	49,258
<u>Less</u> Accumulated amortisation	(3,448)	(321)	(1,506)	(5,275)
Net book value	41,441	166	2,376	43,983
<b>For the year ended 31 December 2021</b>				
Opening net book value	41,441	166	2,376	43,983
Additions	-	80	4	84
Reclassification to asset held-for-sale, net (Note 17)	(340)	-	(67)	(407)
Amortisation	(1,914)	(38)	(182)	(2,134)
Closing net book value	39,187	208	2,131	41,526
<b>At 31 December 2021</b>				
Cost	44,480	567	3,800	48,847
<u>Less</u> Accumulated amortisation	(5,293)	(359)	(1,669)	(7,321)
Net book value	39,187	208	2,131	41,526

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2021

	Separate financial statements			
	Right to power purchase agreement/ to operate Million Baht	Computer Software Million Baht	Right to use of assets Million Baht	Total Million Baht
<b>At 1 January 2020</b>				
Cost	-	159	338	497
<u>Less</u> Accumulated amortisation	-	(84)	(200)	(284)
Net book value	-	75	138	213
<b>For the year ended 31 December 2020</b>				
Opening net book value	-	75	138	213
Additions	-	34	-	34
Amortisation	-	(17)	(27)	(44)
Closing net book value	-	92	111	203
<b>At 31 December 2020</b>				
Cost	-	193	338	531
<u>Less</u> Accumulated amortisation	-	(101)	(227)	(328)
Net book value	-	92	111	203
<b>For the year ended 31 December 2021</b>				
Opening net book value	-	92	111	203
Additions	-	135	-	135
Amortisation	-	(35)	(26)	(61)
Closing net book value	-	192	85	277
<b>At 31 December 2021</b>				
Cost	-	328	338	666
<u>Less</u> Accumulated amortisation	-	(136)	(253)	(389)
Net book value	-	192	85	277

The Group's right-to-use assets consisted of the right to use the grid system, the right of power plant operation, the right to use the transmission line, right to use the gas pipeline, right of way, right to use the pipe rack and right to use the dedicated berth.

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**23 Goodwill**

	<b>Consolidated financial statements</b>	
	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>
<b>As at 1 January</b>		
Cost	36,105	36,104
Reclassification to asset held-for-sale, net (Note 17)	(15)	-
<u>Less</u> Provision for impairment	-	-
Net book value	36,090	36,104
<b>For the years ended 31 December</b>		
Opening net book value	36,090	36,104
Exchange difference on translation	-	1
Closing net book value	36,090	36,105
<b>As at 31 December</b>		
Cost	36,090	36,105
<u>Less</u> Provision for impairment	-	-
Net book value	36,090	36,105

Goodwill of Baht 36,090 million arose from the acquisition of the small power producer segment of Glow Energy Public Company Limited (GLOW), a company that produces and distributes electricity, steam and water for industrial use in Thailand.

Goodwill arising from the small power producer segment is tested annually for impairment by comparing the carrying amount to the recoverable amount, based on value-in-use. The value-in-use was calculated by using a cash flow projection, approved by the management, covering the remaining periods of the power purchase agreements (PPAs) and estimates for electricity tariffs and the power plant's capacity as specified in the PPAs. The inflation rate of 2.00% per annum and discount rates of 6.11% per annum were applied (as at 31 December 2020: inflation rate of 1.90% per annum and discount rates of 5.97% per annum). Based on value-in-use, the recoverable amount was greater than the carrying amount. Even if the discount rate increases by 1% per annum, the recoverable amount is still higher than the carrying amount.

**24 Trade payables**

	<b>Note</b>	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
		<b>2021 Million Baht</b>	<b>2020 Million Baht</b>	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>
<b>As at 31 December</b>					
Trade payables - related parties	38.7	4,659	3,099	2,101	1,386
Trade payables - third parties		1,748	853	56	55
Total trade payables		6,407	3,952	2,157	1,441

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2021

## 25 Other payables

As at 31 December	Note	Consolidated financial statements		Separate financial statements	
		2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
Other payables - related parties	38.7	462	237	288	69
Other payables - third parties		448	303	310	117
Advances received		145	528	50	183
Interest payables		334	525	246	271
Accrued expenses		789	1,201	253	546
Total other payables		2,178	2,794	1,147	1,186

## 26 Other current liabilities

As at 31 December 2021, other current liabilities of the Group consisted of income tax payable, undue value added tax, and short-term provision totalling Baht 586 million, Baht 585 million and Baht 267 million, respectively.

## 27 Long-term loans from financial institutions, net

## 27.1 The long-term loans from financial institutions are as follows:

As at 31 December	Consolidated financial statements		Separate financial statements	
	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
Long-term Thai Baht loans	48,391	36,023	11,600	19,347
<u>Add</u> Fair value adjustment from business acquisition - net	135	240	-	-
Total long-term Thai Baht loans	48,526	36,263	11,600	19,347
Long-term US Dollar loans	8,902	8,843	-	-
Long-term Japanese Yen loans	-	1,873	-	-
<u>Less</u> Deferred financing fees	(166)	(226)	(12)	(24)
	57,262	46,753	11,588	19,323
<u>Less</u> Current portion of long-term loans from financial institutions	(7,122)	(2,940)	(669)	(1,106)
Total long-term loans from financial institutions, net	50,140	43,813	10,919	18,217

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**Long-term loans from financial institutions of the Company**

Details of long-term loans from financial institutions of the Company which are all Thai Baht loans and unsecured are as follows:

<b>Number</b>	<b>Outstanding balance As at 31 December 2021 (Million Baht)</b>	<b>Outstanding balance As at 31 December 2020 (Million Baht)</b>	<b>Interest rate</b>	<b>Principal repayment term</b>	<b>Interest payment period</b>
1	- <sup>(1)</sup>	3,342	THBFIX six-months plus a certain margin per annum	Repayment every six months from October 2020	Payment every months
2	- <sup>(1)</sup>	883	BIBOR three-months plus a certain margin per annum	Repayment every six months from May 2020	Payment every three months
3	- <sup>(1)</sup>	422	BIBOR three-months plus a certain margin per annum	Repayment every six months from June 2020	Payment every three months
4	- <sup>(1)</sup>	6,000	THBFIX six-months plus a certain margin per annum	Repayment every six months from February 2022	Payment every month
5	5,100	5,700	Fixed interest rate	Repayment every six months from September 2020	Payment every six months
6	3,000	3,000	Fixed interest rate	Repayment on July 2023	Payment every six months
7	3,500	-	THOR one-month plus a certain margin per annum	Repayment every six months from September 2022	Payment every month
<b>Total</b>	<b>11,600</b>	<b>19,437</b>			

<sup>(1)</sup> During the year ended 31 December 2021, the Company made the early repayments amounting to Baht 10,490 million to various financial institutions and the Company entered into new long-term loan agreements with a subsidiary for the same amount which were guaranteed by the Company.



## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

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**Long-term loans from financial institutions of subsidiaries**

Details of long-term loans from financial institutions of subsidiaries which are guaranteed by the Company and a subsidiary are as follows

Thai Baht loans

Number	Outstanding balance As at 31 December 2021 (Million Baht)	Outstanding balance As at 31 December 2020 (Million Baht)	Interest rate	Principal repayment term	Interest payment period
1	5,277	5,937	FDR six-months plus a certain margin per annum	Repayment every six months from June 2018	Payment every six months
2	111	123	Fixed interest rate per annum	Repayment every six months from June 2017	Payment every six months
3	- <sup>(2)</sup>	4,000	Fixed interest rate per annum	Repayment in May 2023	Payment every six months
4	3,253	3,616	THBFIX plus a certain margin per annum	Repayment every six months from October 2012	Payment every three months
5	- <sup>(2)</sup>	3,000	Fixed interest rate per annum	Repayment in January 2025	Payment every six months
6	766	-	BIBOR three-months plus a certain margin per annum	Repayment every six months from May 2021	Payment every three months
7	356	-	BIBOR three-months plus a certain margin per annum	Repayment every six months from June 2021	Payment every three months
8	3,028	-	THBFIX six-months plus a certain margin per annum	Repayment every six months from October 2021	Payment every month
9	6,000	-	THBFIX six-months plus a certain margin per annum	Repayment every six months from February 2022	Payment every month
10	1,500	-	THBFIX six-months plus a certain margin per annum	Repayment every six months from January 2024	Payment every six months
11	3,000	-	BIBOR six-months plus a certain margin per annum	Repayment every six months from February 2024	Payment every six months
12	6,500	-	THOR one-month plus a certain margin per annum	Repayment every six months from March 2022	Payment every months
13	3,000	-	Fixed interest rate per annum	Payment in January 2025	Payment every six months
14	4,000	-	Fixed interest rate per annum	Payment in May 2023	Payment every six months
Total	36,791	16,676			

# GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

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### US Dollar loans

Number	Outstanding balance As at 31 December 2021 (Million US Dollar)	Outstanding balance As at 31 December 2020 (Million US Dollar)	Interest rate	Principal repayment term	Interest payment period
1	86 <sup>(2)</sup>	86	USD-LIBOR plus a certain margin per annum	Repayment in February 2022	Payment every three months
2	158	176	USD-LIBOR plus a certain margin per annum	Repayment every six months from October 2012	Payment every three months
3	21	31	USD-LIBOR plus a certain margin per annum	Repayment every six months from June 2015	Payment every six months
Total	265	293			

<sup>(2)</sup> During the year ended 31 December 2021, three subsidiaries made early long-term loan repayments amounting to US Dollar 86 million which is equivalent to Baht 2,574 million and Baht 7,000 million to financial institutions and redeemed the guarantee obligations according to the original loan agreement and entered into a new loan agreement with a subsidiary for the same amount, which is guaranteed by another subsidiary.

During the year ended 31 December 2021, a subsidiary entered into a long-term loan agreement with a financial institution for loan facility of Baht 2,000 million. The loan is due in five years and bears interest at 3M BIBOR plus a certain fixed margin per annum. As at 31 December 2021, such loan has not yet been drawdown.

Moreover, during the year ended 31 December 2021, the Company entered into seven loan guarantee agreements with various financial institutions to guarantee a subsidiary's Baht 21,490 million and US dollar 86 million credit facilities. The maximum guarantee obligation for these was Baht 24,347 million and US dollar 86 million. In addition, a subsidiary entered into two loan guarantee agreements with a financial institution to guarantee another subsidiary's Baht 7,000 million loan with a maximum guarantee obligation of Baht 8,750 million.

As at 31 December 2021, long-term loans of US Dollar 179 million or equivalent to Baht 6,024 million and the long-term loans of Baht 3,253 million are the secured loans of two subsidiaries, by mortgaging buildings, pledging all machinery and equipment and deposits at financial institutions (Notes 10, 11 and 20). All rights and obligations under various agreements relating to the subsidiaries' power plant projects have been assigned as collateral in accordance with the conditions under the loan agreements. (as at 31 December 2020: US Dollar 207 million or equivalent to Baht 6,255 million and Baht 3,616 million).

According to the aforementioned loan agreements, the Group must comply with certain financial requirements such as the timing of future capital increases, dividend payments, reduction of share capital, merger and acquisition and maintaining financial ratios e.g. debt to equity ratio, debt service coverage ratio and maintaining coal stockpile.

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2021

**27.2 The movement of long-term loans from financial institutions can be analysed as follows:**

For the years ended 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Opening net book value	46,753	29,230	19,323	1,992
<b>Cash flows</b>				
Cash received during the year	34,563	21,000	3,500	18,000
Cash repayments during the year	(23,208)	(3,545)	(11,247)	(653)
Deferred financing fee	(37)	(22)	(5)	(19)
<b>Other non-cash movement</b>				
Amortisation of fair value from business acquisition	(105)	(43)	-	-
Amortisation of deferred financing fee	71	60	17	3
Unrealised exchange (gain) loss	859	(33)	-	-
Exchange difference on translation	90	106	-	-
Reclassification to asset held-for-sale, net (Note 17)	(1,724)	-	-	-
Closing book value	57,262	46,753	11,588	19,323

**27.3 Maturity of long-term loans from financial institutions are as follows:**

	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Within 1 year	7,121	2,940	669	1,106
Later than 1 year but not later than 5 years	28,336	27,803	6,163	10,251
Later than 5 years	21,805	16,010	4,756	7,966
Total long-term loans from financial institution, net	57,262	46,753	11,588	19,323

**28 Debentures, net**

As at 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Debentures in Thai Baht	44,500	57,555	41,500	45,000
Fair value adjustment from business acquisition	(85)	66	-	-
Less Deferred financing fee	(45)	(59)	(44)	(52)
	44,370	57,562	41,456	44,948
Less Current portion of debentures	(1,999)	(9,053)	(1,999)	(3,499)
Total debentures, net	42,371	48,509	39,457	41,449

**Debentures of the Company**

As at 31 December 2021, the Company had unsubordinated and unsecured debentures of Baht 41,456 million. The Company must comply with the certain requirements and conditions, such as maintaining the net debt to equity ratio (2020: Baht 44,948 million).

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**Debentures of a subsidiary**

During the year ended 31 December 2021, a subsidiary sent a notification to debenture holders' representative for early redemption of debentures totalling Baht 4,000 million which is pursuant to the Terms and Conditions of the debentures. The debenture was redeemed on 3 September 2021, while the original maturity date is 10 years from issuing date or within 3 September 2025.

As at 31 December 2021, a subsidiary' debentures of Baht 2,914 million were unsubordinated and guaranteed debentures which guaranteed by three subsidiaries until 31 August 2021. The Group has to comply with certain requirements and conditions such as maintaining of tangible net worth, net debt to equity ratio and debt service coverage ratio, etc (as at 31 December 2020: Baht 12,614 million).

Maturities of the debentures are as follows:

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	<b>2021</b>	<b>2020</b>	<b>2021</b>	<b>2020</b>
	<b>Million Baht</b>	<b>Million Baht</b>	<b>Million Baht</b>	<b>Million Baht</b>
Within 1 year	1,999	9,053	1,999	3,499
Later than 1 year but not later than 5 years	16,901	14,038	13,987	9,968
Later than 5 years	25,470	34,471	25,470	31,481
Total debentures, net	44,370	57,562	41,456	44,948

The debentures' movement can be analysed as follows:

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	<b>2021</b>	<b>2020</b>	<b>2021</b>	<b>2020</b>
	<b>Million Baht</b>	<b>Million Baht</b>	<b>Million Baht</b>	<b>Million Baht</b>
<b>For the years ended 31 December</b>				
Opening net book value	57,562	52,707	44,948	39,948
<b>Cash flows</b>				
Cash received during the year	-	5,000	-	5,000
Cash repayment during the year	(13,055)	-	(3,500)	-
Deferred front-end fee	-	(8)	-	(8)
<b>Other non-cash movement</b>				
Fair value adjustments from business acquisition	(150)	(148)	-	-
Amortisation of deferred financing fee	13	11	8	8
Closing net book value	44,370	57,562	41,456	44,948

**29 Other non-current liabilities**

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	<b>2021</b>	<b>2020</b>	<b>2021</b>	<b>2020</b>
	<b>Million Baht</b>	<b>Million Baht</b>	<b>Million Baht</b>	<b>Million Baht</b>
Contract liabilities <sup>(1)</sup>	14,167	14,095	231	222
Others	709	705	158	156
Total other non-current liabilities	14,876	14,800	389	378

<sup>(1)</sup> These are advance receipts of availability payments in relation to the availabilities of a subsidiary's power plant, as agreed with EGAT and in accordance with the terms of PPA.

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

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For the year ended 31 December 2021

**30 Deferred income taxes, net**

The analysis of deferred tax assets and deferred tax liabilities is as follows:

	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Deferred tax assets	4,347	4,525	532	804
Deferred tax liabilities	(11,060)	(11,086)	(1,084)	(874)
<b>Total deferred income taxes, net</b>	<b>(6,713)</b>	<b>(6,561)</b>	<b>(552)</b>	<b>(70)</b>

The movements of the deferred income tax account are as follows:

	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
<b>As at 1 January</b>	(6,561)	(6,906)	(70)	(143)
Increases from business acquisition	-	(94)	-	-
(Charged) /credited to profit or loss	356	321	22	39
(Charged) /credited to other comprehensive income	(588)	29	(504)	34
Exchange difference on translation	-	(3)	-	-
Reclassification to liabilities held for sale (Note 17)	80	92	-	-
<b>As at 31 December</b>	<b>(6,713)</b>	<b>(6,561)</b>	<b>(552)</b>	<b>(70)</b>



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The movements of deferred tax assets and liabilities are as follows:

Consolidated financial statements											
Financial assets measured at fair value through other comprehensive income											
	Property, plant and equipment	Provision for employee benefits	Investment expenses	Provisions	Deferred income	Finance lease receivables	Assets under finance lease	Derivative contracts	Finance lease liabilities	Loss carried forward	Total
Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
198	636	98	85	252	2,708	363	4	166	15	-	4,525
-	57	11	6	6	19	(35)	(1)	5	20	1	89
(198)	-	-	-	-	-	-	-	(69)	-	-	(267)
-	693	109	91	258	2,727	328	3	102	35	1	4,347
176	582	146	74	144	2,643	362	5	158	-	-	4,290
-	-	-	-	2	-	-	-	-	-	-	2
-	-	-	-	(3)	-	-	-	-	-	-	(3)
-	54	(63)	11	109	65	1	(1)	(9)	15	-	182
22	-	15	-	-	-	-	-	17	-	-	54
198	636	98	85	252	2,708	363	4	166	15	-	4,525

**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED**  
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	Consolidated financial statements						
	Financial assets measured at fair value through other comprehensive income			Fair value from business acquisition		Deferred expense	
	Finance lease receivables	Property, plant and equipment	Deferred expense	Derivative contracts	Total	Million Baht	Million Baht
	(811)	(12)	(1,619)	(8,598)	(21)	(25)	(11,086)
	82	-	(51)	302	(66)	-	267
	-	(323)	-	-	-	2	(321)
	-	-	-	80	-	-	80
	(729)	(335)	(1,670)	(8,216)	(87)	(23)	(11,060)
<b>Deferred tax liabilities</b>							
As at 1 January 2021							
(Charged) / credited to profit or loss							
Reclassify to liabilities held for sale (Note 17)							
As at 31 December 2021							
As at 1 January 2020							
Increases from business acquisition							
Reclassify to liabilities held for sale							
(Charged) / credited to profit or loss							
(Charged) / credited to other comprehensive income							
Exchange difference on translation							
As at 31 December 2020							
	(811)	(12)	(1,619)	(8,598)	(21)	(25)	(11,086)

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	Separate financial statements						
	Financial assets measured at fair value through other comprehensive income	Property, plant and equipment	Provisions for employee benefits	Investment expenses	Finance lease liabilities	Provisions	Total
	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
<b>Deferred tax assets</b>							
As at 1 January 2021	199	431	56	86	1	31	804
Charged/(credited) to profit or loss	-	(94)	9	5	7	-	(73)
Charged/(credited) to other comprehensive income	(199)	-	-	-	-	-	(199)
As at 31 December 2021	-	337	65	91	8	31	532
<b>As at 1 January 2020</b>	176	482	32	75	-	-	765
Charged/(credited) to profit or loss	-	(51)	13	11	1	31	5
Charged/(credited) to other comprehensive income	23	-	11	-	-	-	34
As at 31 December 2020	199	431	56	86	1	31	804

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

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	Separate financial statements				
	Finance lease receivables Million Baht	Property, plant and equipment Million Baht	Financial assets measured at fair value through other comprehensive income Million Baht	Deferred expense Million Baht	Total Million Baht
<b>Deferred tax liabilities</b>					
As at 1 January 2021	(811)	(63)	-	-	(874)
(Charged) /credited to profit or loss	82	21	-	(7)	96
(Charged) /credited to other comprehensive income	-	-	(306)	-	(306)
As at 31 December 2021	(729)	(42)	(306)	(7)	(1,084)
As at 1 January 2020	(908)	-	-	-	(908)
(Charged) /credited to profit or loss	97	(63)	-	-	34
As at 31 December 2020	(811)	(63)	-	-	(874)

Deferred tax assets are recognised for tax loss and carried forward only to the extent that realisation of the related tax benefit through future taxable profits is probable. The Group did not recognise the deferred tax asset of Baht 48 million (2020: Baht 32 million) from losses of Baht 405 million (2020: Baht 161 million) that can be carried forward against future taxable income. Losses of Baht 405 million will be expired in 2026 (2020: losses of Baht 161 million will be expired in 2025).

## 31 Legal reserve

	Consolidated and Separate financial statements	
	2021 Million Baht	2020 Million Baht
Opening book value	1,843	1,480
Appropriation during the year	245	363
Closing book value	2,088	1,843

Under the Public Companies Act BE 2535, the Company must set aside as a legal reserve at least 5% of its net profit after accumulated deficit brought forward (if any) until the reserve is not less than 10% of the registered capital. The legal reserve is non-distributable.

## 32 Other income

During the year 2021, a subsidiary received confirmation letters from the insurers regarding compensation for damage from the unplanned shutdown of power plant phase 5 incurred during the years 2020 and 2021. Total compensation was Baht 1,934 million. A subsidiary has already received Baht 1,383 million for such claims, while the remaining amount will be received in the year 2022. The Group accordingly recognised insurance claims of Baht 1,934 million in the consolidated statement of comprehensive income for the year ended 31 December 2021.

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**33 Expense by nature**

The following expenditure items have been charged in arriving at net profit:

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>
<b>For the years ended 31 December</b>				
Fuel cost and expenses for supplies used	49,422	42,884	16,129	12,214
Manufacturing overhead	821	588	185	169
Depreciation and amortisation expenses	9,232	8,498	1,596	1,502
Employee benefit expenses and salary for outsourcing	3,076	3,153	1,961	1,974
Repair and maintenance expenses	2,145	2,553	485	426

**34 Finance costs**

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>
<b>For the years ended 31 December</b>				
Interest expenses	3,121	3,180	1,739	1,531
Amortised deferred finance costs	85	109	26	49
Other finance costs	654	735	20	48
<b>Total finance costs</b>	<b>3,860</b>	<b>4,024</b>	<b>1,785</b>	<b>1,628</b>

**35 Income tax expense**

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>	<b>2021 Million Baht</b>	<b>2020 Million Baht</b>
<b>For the years ended 31 December</b>				
Current tax:				
Current tax on profits for the year	1,548	1,314	172	74
<b>Total current tax</b>	<b>1,548</b>	<b>1,314</b>	<b>172</b>	<b>74</b>
Deferred tax:				
Decrease (increase) in deferred tax assets (Note 30)	(89)	(182)	73	(5)
Increase (decrease) in deferred tax liabilities (Note 30)	(267)	(139)	(96)	(34)
<b>Total deferred tax</b>	<b>(356)</b>	<b>(321)</b>	<b>(23)</b>	<b>(39)</b>
<b>Income tax expense</b>	<b>1,192</b>	<b>993</b>	<b>149</b>	<b>35</b>



## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

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The tax on the Group's profit before tax differs from the theoretical amount that would arise using the basic tax rate of the Parent's home country as follows:

For the years ended 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Profit before tax	9,032	9,483	5,051	7,301
Tax rate	20%	20%	20%	20%
Result of accounting profit multiplied by the income tax rate	1,806	1,897	1,010	1,460
Tax effect of:				
Expenses not deductible for tax purposes	78	97	6	75
Deemed income	-	44	-	-
Revenues that are granted income tax exemption or expenses that are deductible at a greater amount	(746)	(882)	(866)	(1,496)
Utilisation of previously unrecognised tax losses	(5)	(14)	-	(4)
Tax losses for the year for which no deferred income tax asset was recognised	60	38	-	-
Share of profit of investments accounted for using the equity method	(5)	(185)	-	-
Adjustment in respect of the prior year	7	7	(1)	-
Difference on tax rate in which country the Group operates	(3)	(9)	-	-
Income tax	1,192	993	149	35

The weighted average applicable tax rate for the Group and the Company were 13.20% and 2.94%, respectively (2020: 10.47% and 0.48%, respectively).

The tax charged /(credited) relating to component of other comprehensive income are as follows:

For the years ended 31 December	Consolidated financial statements					
	2021			2020		
	Before tax Million Baht	Tax charge (credit) Million Baht	After tax Million Baht	Before tax Million Baht	Tax credit Million Baht	After tax Million Baht
Loss from remeasurement of employee benefits obligation	-	-	-	75	(15)	60
Cash flow hedges	(629)	67	(562)	45	10	55
Costs of hedging	(1)	-	(1)	10	(2)	8
Loss (Gain) from remeasurement of equity investments at fair value through other comprehensive income	(2,616)	520	(2,096)	112	(22)	90

For the years ended 31 December	Separate financial statements					
	2021			2020		
	Before tax Million Baht	Tax credit Million Baht	After tax Million Baht	Before tax Million Baht	Tax credit Million Baht	After tax Million Baht
Loss from remeasurement of employee benefits obligation	-	-	-	57	(11)	46
Loss (Gain) from remeasurement of equity investments at fair value through other comprehensive income	(2,520)	504	(2,016)	112	(22)	90

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

### Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2021

#### 36 Earnings per share

Basic earnings per share is calculated by dividing the net profit attributable to the Company's shareholders by the weighted average number of ordinary shares.

	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
Net profit attributable to the Company's ordinary shareholders (million Baht)	7,319	7,508	4,903	7,266
Weighted average number of ordinary shares outstanding (million shares)	2,819	2,819	2,819	2,819
Basic earnings per share (Baht per share)	2.60	2.66	1.74	2.58

The Group has no potential dilutive ordinary shares in issue during the year presented. Therefore, diluted earnings per share are not presented.

#### 37 Dividends

At the Annual General Meeting of Shareholders of the Company held on 2 April 2021, the shareholders approved to distribute an annual dividend for the year 2020 at Baht 1.50 per share, totalling Baht 4,230 million. The dividend consists of interim dividend of Baht 0.50 per share which were paid to the Company's shareholders in September 2020, the remaining dividends at Baht 1.00 per share, totalling Baht 2,820 million, were paid to shareholders on 21 April 2021.

At the Board of Directors' meeting of the Company held on 25 August 2021, the Board approved the payment of interim dividends for the first half of 2021 performance at Baht 0.50 per share, totalling Baht 1,410 million. These dividends were paid to shareholders on 22 September 2021.

#### 38 Related party transactions

Major shareholders during the year are PTT Public Company Limited (holding 42.53 of shares), Thai Oil Power Company Limited (holding 20.78% of shares) and PTT Global Chemical Public Company Limited (holding 10.00% of shares). All three companies are incorporated in Thailand and PTT Public Company Limited is the ultimate parent company.

The information of the Company's subsidiaries, associates and joint ventures are disclosed in Note 18.

The pricing policies for particular types of transactions are explained further below:

Transactions	Pricing policies
Sale of goods	Contract price
Rendering of service	Contract price
Purchase of goods and raw materials	Contract price based on market
Rental fees	Contract price
Service fees	Contract price
Technical fees	Contract price
Interest income and interest expenses	Contract rate

**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED****Notes to the Consolidated and Separate Financial Statements**

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The following material transactions were carried out with related parties:

**38.1 Business transactions**

For the years ended 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
The ultimate parent company				
- Revenue from sales	567	-	1	-
- Revenue from services	4	4	-	-
- Other income	1	1	-	-
- Cost of sales	36,345	31,775	12,378	11,390
- Administrative expenses	109	88	106	88
- Interest expenses	4	19	-	14
- Cost of property, plant and equipment and intangible assets	3	3	3	3
Shareholders				
- Revenue from sales	7,532	7,204	4,693	4,325
- Revenue from services	1	2	1	2
- Other income	8	10	5	5
- Cost of sales	2,707	348	2,615	38
- Interest expenses	4	5	3	5
Subsidiaries				
- Revenue from sales	-	-	22	-
- Revenue from services	-	-	1,039	799
- Interest income	-	-	17	44
- Other income	-	-	43	16
- Dividend income	-	-	2,866	5,926
- Cost of sales	-	-	395	38
- Administrative expenses	-	-	33	67
- Interest expenses	-	-	157	-
- Cost of property, plant and equipment and intangible assets	-	-	149	39
Associate				
- Revenue from services	1	-	-	-
- Interest income	23	-	23	-
- Other income	1	-	1	-
- Dividend income	-	-	149	142
- Administrative expenses	13	-	-	-

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For the years ended 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Joint ventures				
- Revenue from services	1	1	1	1
- Interest income	4	5	4	5
- Other income	5	7	5	7
- Dividend income	-	-	430	327
- Administrative expenses	-	1	-	1
Indirect associates				
- Revenue from sales	44	-	8	-
- Interest income	153	149	120	137
- Other income	78	-	78	-
- Cost of sales	1	-	-	-
Other related parties				
- Revenue from sales	14,026	12,628	7,584	6,740
- Revenue from services	31	6	-	-
- Interest income	-	1	-	1
- Other income	26	16	20	8
- Dividend income	256	396	248	390
- Cost of sales	2,422	1,329	485	513
- Administrative expenses	151	123	142	116
- Interest expenses	107	5	106	4
- Cost of property, plant and equipment and intangible assets	69	102	65	102

**38.2 Trade receivables and other receivables from related parties**

As at 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Trade receivables				
- The ultimate parent company	59	-	1	-
- Shareholders	729	629	450	401
- Subsidiaries	-	-	82	852
- Joint Ventures	1	1	1	1
- Indirect associates	8	-	8	-
- Other related parties	1,661	1,640	802	866
Total trade receivables	2,458	2,270	1,344	2,120
Other receivables				
- The ultimate parent company	2	2	1	1
- Shareholders	-	-	-	-
- Subsidiaries	-	-	19	35
- Joint ventures	2	4	2	4
- Associate	12	-	12	-
- Indirect associates	106	4	83	-
- Other related parties	27	62	27	61
Total other receivables	149	72	144	101

**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED****Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2021

**38.3 Dividend receivables from related parties**

As at 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Dividend receivables				
- Subsidiaries	-	-	-	193
- Joint ventures	91	59	91	59
Total dividend receivables	91	59	91	252

**38.4 Short-term loans to related parties**

As at 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Short-term loans to related parties				
- Subsidiaries	-	-	968	1,140
- Indirect subsidiaries	-	-	-	638
- Indirect associates	968	-	-	-
	968	-	968	1,778

Movements of short-term loans to related parties can be analysed as follows:

For the years ended 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Opening balance	-	-	1,778	-
<u>Cashflows</u>				
Cash paid for short-term loan	995	-	1,045	2,265
Cash received from repayment	(1,695)	-	(1,855)	(487)
<u>Other non-cash movement:</u>				
Reclassification (Note 18.2)	1,668	-	-	-
Ending balance	968	-	968	1,778

During the year ended 31 December 2021, the Company entered into the short-term loan agreement with a subsidiary for loan facility of Baht 1,743 million which bears interest at a fixed rate per annum. The repayment of interest and principal will be paid in one year after the first drawdown date. Such subsidiary already drawn down the loan of Baht 995 million. The purpose of the loan is to provide a short-term loan to a related party of Baht 995 million. The loan bears interest at a fixed rate per annum. The repayment of interest and principal will be made by the subsidiary within one year after the first drawdown date.



## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

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#### 38.5 Long-term loans to related parties and related interests

As at 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Long-term loans to related parties				
- Subsidiaries				
- Due within 1 year	-	-	48	48
- Due over 1 year	-	-	2,471	107
- Joint ventures				
- Due over 1 year	96	87	96	87
- Accrued interest income	11	6	11	6
- Associates				
- Due within 1 year	92	-	92	-
- Due over 1 year	585	-	585	-
- Indirect associates				
- Due over 1 year	2,660	2,712	-	2,463
- Accrued interest income	748	683	748	683
	4,192	3,488	4,051	3,394

Movements of long-term loans to related parties can be analysed as follows:

For the years ended 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Opening balance	2,799	2,834	2,705	2,753
<u>Cashflows</u>				
Increases during the year	834	-	3,246	-
Decreases from cash received during the year	(210)	(35)	(2,669)	(48)
<u>Other non-cash movement</u>				
Unrealised gain on exchange rate	10	-	10	-
Ending balance	3,433	2,799	3,292	2,705

#### Long-term loan to related parties agreements

##### *Combined Heat and Power Producing Company Limited*

The loan agreement for a Baht 314 million credit facility, dated 24 June 2014, It is due in 10 years and has an interest rate at MLR minus discount per annum, payable in every six months commencing in December 2014. The purpose of this loan is to provide working capital. As at 31 December 2021, the utilised credit facility amounts to Baht 107 million (at 31 December 2020: Baht 155 million).

##### *Xayaburi Power Company Limited*

The loan agreement for a Baht 2,463 million credit facility, dated 2 August 2016, is under a condition of Sponsor Agreement between Xayaburi Power Company Limited and the company, which is one of the sponsors. The loan is due in 15 years and has an interest rate per annum at MLR plus margin, payable in semi-annual installments commencing in 2021 with a repayment rate of 5.6% to 14.0% per year of the total loan, as indicated in the agreement. The purpose of this loan is to finance a construction project. On 30 November 2021, the associate made the payment of principal and interest Baht 106 million to the Company and the loan was novated to the subsidiary on the same date. Loan repayments must comply with the terms and conditions under the loan agreement with the financial institution before repayment can be made to the Company.

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*Nam Lik 1 Power Company Limited*

The loan agreement for a US dollar 3 million credit facility, dated 21 March 2017, is under a condition of a sponsor agreement between Nam Lik 1 Power Company Limited and the company, which is one of the sponsors. It is due in 12 years and has an interest rate at LIBOR 3M plus margin per annum, payable in semi-annual installments, commencing in 2019. Loan repayments must comply with the terms and conditions under the loan agreement with the financial institution before repayment can be made to the company. The loan is classified as a non-current asset. The purpose of the loan is to finance a construction project. As at 31 December 2021, the credit facility has been fully utilised at US dollar 3 million, equivalent to Baht 96 million (at 31 December 2020: US dollar 3 million, equivalent to Baht 100 million).

*Chonburi Clean Energy Company Limited*

The loan agreement for a Baht 895 million credit facility, dated 30 January 2018, The loan purpose is for development and construction of a non-hazardous industrial waste-to-energy power plant. It is due in 10 years and has an interest rate at MLR minus discount per annum. The loan is payable on shareholder demand. As at 31 December 2021 and 2020, the Group had loaned to related party Baht 248 million.

*Global Renewable Power Company Limited*

The loan agreement for a Baht 834 million credit facility, dated 4 January 2021. Its purpose is to repay its existing short-term loan including interest to the Company and to provide loans to two indirect subsidiaries. It is due in 10 years with a fixed interest rate per annum, payable in annual installments, commencing in June 2021. As at 31 December 2021, the credit facility has been fully utilised.

*GPSC Treasury Center Company Limited*

The loan agreement of a Baht 2,412 million credit facility, dated 30 November 2021. It is due in 10 years and has an interest rate at THOR plus margin per annum. Its purpose is to provide loan to indirect associate. Loan repayments depends on the repayment of indirect associate. The indirect associate must comply with the terms and conditions under the loan agreement with the financial institution before repayment can be made to the subsidiary. As at 31 December 2021, the credit facility has been fully utilized.

**38.6 Non-current assets - related parties**

As at 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Non-current assets - related parties				
- The ultimate parent company	4	7	-	-
- Shareholders	2,195 <sup>(*)</sup>	2,195 <sup>(*)</sup>	3	3
- Other related parties	8	8	8	8
	2,207	2,210	11	11

(\*) As at 31 December 2021, non-current assets of Baht 2,192 million was advance payment of the essential agreements as disclosed at Note 39.3.9 (as at 31 December 2020: Baht 2,192 million).

**GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED**
**Notes to the Consolidated and Separate Financial Statements**

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**38.7 Trade payables, accrued expenses and other payables from related parties**

As at 31 December	Consolidated financial statements		Separate financial statements	
	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
Trade payables and accrued expenses				
- The ultimate parent company	3,980	3,022	1,372	1,347
- Shareholders	596	35	596	4
- Subsidiaries	-	-	66	5
- Other related parties	83	42	67	30
Total trade payables and accrued expenses	4,659	3,099	2,101	1,386
Other payables				
- The ultimate parent company	37	3	33	3
- Shareholders	18	-	17	-
- Subsidiaries	-	-	15	21
- Joint ventures	-	1	-	1
- Associates	14	-	-	-
- Other related parties	393	233	223	44
Total other payables	462	237	288	69

**38.8 Non-current liabilities - related parties**

As at 31 December	Consolidated financial statements		Separate financial statements	
	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
Non-current liabilities - related parties				
- The ultimate parent company	4	5	-	-
- Shareholders	29	33	15	16
- Other related parties	53	32	25	-
	86	70	40	16

**38.9 Long-term loans from related parties, net**

As at 31 December	Consolidated financial statements		Separate financial statements	
	2021 Million Baht	2020 Million Baht	2021 Million Baht	2020 Million Baht
- Subsidiary				
- Due within 1 year	-	-	1,203	-
- Due over 1 year	-	-	10,428	-
- Other related party				
- Due over 1 year	8,000	-	8,000	-
	8,000	-	19,631	-

## GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

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Movements of long-term loans from related parties can be analysed as follows:

For the years ended 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Opening balance	-	-	-	-
<u>Cash flow:</u>				
Increases during the period	8,000	-	19,990	-
Repayments during the period	-	-	(340)	-
Deferred financing fee	-	-	(19)	-
Ending balance	8,000	-	19,631	-

Details of long-term loan agreements that the Company entered into with a subsidiary which are all Thai Baht loans are as follows:

Number	Outstanding balance As at 31 December 2021	Outstanding balance As at 31 December 2020	Interest rate	Principal repayment term	Interest payment period
	Million Baht	Million Baht			
1	766	-	BIBOR three-month plus a certain margin per annum	Repayment every six months from May 2021	Payment every three months
2	356	-	BIBOR three-month plus a certain margin per annum	Repayment every six months from June 2021	Payment every three months
3	9,028	-	THBFIX six-month plus a certain margin per annum	Repayment every six months from October 2021 and February 2022	Payment every month
4	1,500	-	THOR six-month plus a certain margin per annum	Repayment in full on maturity date	Payment every six months
Total	11,650	-			

In addition, the Company has entered into a loan agreement with a subsidiary of the ultimate parent company for the loan totalling Baht 20,000 million. Such loan bears interest at a fixed rate per annum. The interest shall be paid every six months and the principal shall be fully paid three years after the first drawdown date. The purpose is to support for investment in renewable energy abroad. Company must comply with the certain requirements and conditions, such as maintaining the net debt to equity ratio. As of 31 December 2021, the Company has already drawn down such loan amounting to Baht 8,000 million.

On 29 July 2021, the Company entered into a long-term loan agreement with a subsidiary. For loan facility of Baht 2,000 million, The loan is due in five years and bears interest at 3M BIBOR plus a certain fixed margin per annum. As at 31 December 2021, such loan has not yet been drawdown.

## 38.10 Directors and managements remuneration

For the years ended 31 December	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
	Million Baht	Million Baht	Million Baht	Million Baht
Short-term benefits	334	310	300	179

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**39 Commitments and significant agreements****39.1 Commitments****39.1.1 Capital expenditure obligations**

The Group had commitments under design, construction and installation of machinery and equipment and project construction contract considered as capital expenditure obligations as of the statement of financial position date but not recognized in the financial statement are as follow:

<b>Consolidated financial statement</b>				
	<b>Foreign currency Million</b>	<b>2021 Baht Million</b>	<b>Foreign currency Million</b>	<b>2020 Baht Million</b>
Baht	-	1,410	-	2,108
US Dollar	633	21,255	647	19,539
Yen	-	-	38	11
Swedish krona	213	798	398	1,477
Euro	2	80	-	-
<b>Total</b>		<b>23,543</b>		<b>23,135</b>

<b>Separate financial statement</b>				
	<b>Foreign currency Million</b>	<b>2021 Baht Million</b>	<b>Foreign currency Million</b>	<b>2020 Baht Million</b>
Baht	-	104	-	346
US Dollar	1	14	3	92
Yen	-	-	39	11
<b>Total</b>		<b>118</b>		<b>449</b>

**39.1.2 Letters of guarantee**

As at 31 December 2021 and 2020, there were outstanding letters of guarantee issued by financial institutions on behalf of the Group in respect of certain performance required in the normal course of business of the Group, as follows:

<b>Company</b>	<b>Currency</b>	<b>2021 Million</b>	<b>2020 Million</b>
Global Power Synergy Public Company Limited	Baht	58	67
IRPC Clean Power Company Limited	Baht	470	462
Combined Heat and Power Producing Company Limited	Baht	2	12
Glow Energy Public Company Limited	Baht	639	666
Glow SPP 2 Company Limited	Baht	714	286
Glow SPP 3 Company Limited	Baht	536	536
Glow SPP 11 Company Limited	Baht	424	423
Glow IPP Company Limited	Baht	11	11
GHECO-One Company Limited <sup>(1)</sup>	Baht	42	38
Houay Ho Power Company Limited <sup>(2)</sup>	US Dollar	3	3

<sup>(1)</sup> The bank guarantee of GHECO-One Company Limited is guaranteed by a subsidiary up to a maximum of 65 percent of the amount.

<sup>(2)</sup> On 2 February 2015, the Group issued the letter of guarantee with amounts not exceeding an aggregate of US Dollar 3 million to a bank in order to guarantee Houay Ho Power Company Limited's liability to EGAT under the Power Purchase Agreement.



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**39.1.3 Letter of Credit**

As at 31 December 2021, the Group had outstanding letters of credit issued by financial institutions on behalf of GHECO-ONE Company Limited in respect of purchase of coal totalling US Dollar 22 million (as at 31 December 2020 : US Dollar 19 million).

**39.2 Long-term service commitments**

The Group entered into service agreements with a related party for receiving management services, system management and inspection and other related services to be performed in accordance with the operations and maintenance procedures. Under term and conditions of the service agreements, the Group is obliged to the fee. Such agreements have the term of 10 years and automatically renewed for additional 5 years.

**39.3 Significant agreements****39.3.1 Significant Power Purchase Agreements**

The Group entered into Power Purchase Agreements (PPAs) with the Electricity Generating Authority of Thailand (EGAT) totalling 17 agreements. The PPAs are effective for the periods of 21 years, 25 years and 30 years commencing from their commercial operation dates. Sales quantities and prices must comply with the agreements. In 2017, the Group entered into Amendments to two of the PPAs to revise their pricing structures and extend the PPAs' terms for another 3 years after their maturity dates.

**39.3.2 Gas supply agreements**

The Group entered into Gas Supply Agreements (GSAs) with PTT Public Company Limited (PTT) totalling 17 agreements. The agreements are effective for periods between 4 and 25 years. Sales quantities and prices must comply with the agreements. Four of these agreements can be extended for another 4 years commencing from the maturity date, with the conditions stipulated in the agreements.

**39.3.3 Coal supply agreements**

The Group entered into coal supply agreements with both domestic and overseas companies to purchase coal, totalling six agreements. Sales quantities and prices must comply with the agreements.

**39.3.4 Coal berth joint operation agreement**

The Group entered into a joint operation agreement with the Industrial Estate Authority of Thailand (IEAT) to develop an area to construct a shipping berth at Map Ta Phut Industrial Estate. This berth is to be used for handling coal, other raw materials and necessary goods. The Group has the right to utilise this area for 30 years and must pay the specified benefits to IEAT. In addition, the dedicated berth's ownership is transferred to IEAT 15 years from the commencing date.

**39.3.5 Operation and management services agreements**

The Group entered into Operation and Management Services Agreements with two overseas companies to use its facilities between 1 July 2016 and 31 December 2021. The fees must be received as stated in the agreements.

**39.3.6 Long-term parts and repairs agreements**

The Group entered into long-term parts and repairs agreements with domestic and overseas companies to provide certain parts and maintenance services on power plant machines and equipment. The scope of work performed, their conditions and prices must comply with the agreements.

**39.3.7 Maintenance agreement**

The Group entered into a Maintenance Service 230 kV Substation Agreement (MSA) with EGAT. In accordance with the MSA, EGAT commits to perform preventive maintenance services, including corrective maintenance and on-call services of the 230 kV substation and transmission line for 6 years. The scope of work performed, its condition and its price must comply with the agreement.

**39.3.8 Royalty agreement**

In consideration for the granting and issuance of all rights, leases, permits and other benefits to the Group under the Build-operate-transfer Agreement (BOT), the Group pays a royalty to the Government of Lao PDR each quarter, within 90 days of the end of each quarter. The royalty can be paid in Thai Baht, US Dollars and Kip at the rate of 3.15% during the first seven years of commercial operation and 7.2% thereafter, of sales revenue under its PPAs.

**39.3.9 Essential agreements under the Energy Recovery Unit Project**

On 10 May 2019, the Group entered into agreements relating to the Energy Recovery Unit (ERU) Project, which is a part of the Clean Fuel Project (CFP) of Thai Oil Public Company Limited (TOP). The agreements are detailed below.

**a) Asset sale and purchase agreement (ERU)**

The Group entered into an asset sale and purchase agreement for the transfer of ownership of the ERU Project from TOP for the amounts not exceeding US Dollar 757 million. The Group makes payments according to Project's milestones, and ownership will be transferred upon the Project's construction and issuing of the Provisional Acceptance Certificate (PAC) under the CFP, which expected to be completed within 2023.

**b) Products sales agreement**

The Group entered into a sales agreement for electricity, steam and other products under the ERU Project with TOP. The agreement's term is 25 years from the Project's ownership transfer date which sale quantity and renewal period must comply with the agreement.

**c) Fuel and utilities supply agreement**

The Group entered into a fuel and utilities supply agreement with TOP for purchasing pitch, other fuels, and various utilities that are necessary to operate the ERU Project. The agreement term is 25 years from the Project's ownership transfer date. The contract's renewal period must comply with the agreement.

**d) Operation and maintenance service agreement**

The Group entered into an operation and maintenance service agreement to engage TOP for providing operation and maintenance services for all ERU Project units. The agreement term is 25 years from the Project's ownership transfer date. The contract renewal period must comply with the agreement.

**39.3.10 Investment agreements**

On 14 July 2021, a subsidiary entered into a share purchase agreement with Copenhagen Infrastructure II K/S (CI-II) and Copenhagen Infrastructure III K/S (CI-III) to acquire shares in CI Changfang Limited and CI Xidao Limited, the companies which are developing and constructing an offshore wind power project in Taiwan. The share acquisition represents 25% of the total registered and paid-up capital, totalling US Dollar 500 million. The investment is subject to satisfying the conditions precedent in the agreement.

On 9 November 2021, a subsidiary transferred the rights in share purchase agreement to an indirect subsidiary.

**40 Promotional privileges**

The BOI has granted the Group some privileges relating to its production of electricity, steam, water, chilled water, refuse-derived fuel and lithium-ion batteries. The privileges include income tax exemption for certain operations for four or eight years from the date on which the income is first derived from those operations. As promoted companies, the Group must comply with certain terms and conditions prescribed in the promotional certificates.

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**41 Events after the reporting date****41.1 Registration of Nuovo Plus Company Limited**

On 11 January 2022, the Company and Arun Plus Company Limited jointly established Nuovo Plus Company Limited, which was incorporated in Thailand with a total registered share capital of Baht 4,200 million and called for initial paid-up capital at Baht 1,050 million. The Company owns 49% of the shareholding interests. The principal business operation of an associate is to study the feasibility of the battery business and support investment in the battery value chain, supporting the electric vehicle industry in line with Thailand's automotive industry policy of promoting electric vehicles and energy storage system.

**41.2 Called for additional paid-up share capital of Global Renewable Synergy Company Limited**

On 17 January 2022, Global Renewable Synergy Company Limited called for the additional paid-up share capital for 164,990,000 ordinary shares at Baht 5.12, totalling Baht 845 million. The Company paid for the additional paid-up share capital on 18 January 2022.

**41.3 Called for additional paid-up share capital of Avaada Energy Private Limited**

On 17 January 2022, Avaada Energy Private Limited called for the additional paid-up share capital for 28,234,308 shares at Indian Rupee 66.41, totalling Indian Rupee 1,875 million which is equivalent to Baht 841 million. This increased the Company's shareholding interest from 41.62% to 42.93% of its total registered and paid-up share capital. The Company paid for the additional paid-up share capital on 18 January 2022.

**41.4 Guarantee contract**

On 4 February 2022, the Company entered into a loan guarantee agreement with a financial institution to guarantee the loan facilities of an associate up to a maximum of Indian Rupee 7,500 million and related obligation from the loan for managing and preventing relevant risks to the loan guarantee. The Group is obliged to guarantee the loan up to a maximum of its shareholding proportion.





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555/2 Energy Complex Building B, 5<sup>th</sup> Floor,  
Vibhavadi – Rangsit Road, Kwaeng Chatuchak,  
Khet Chatuchak, Bangkok 10900.

Tel. 0 2140 4600

Fax. 0 2140 4601

[corporate@gpscgroup.com](mailto:corporate@gpscgroup.com)



[www.gpscgroup.com](http://www.gpscgroup.com)