



MEANINGFUL INNOVATIONS

DIGITAL DRIVEN

VISION

LEADING INTEGRATED PETROCHEMICAL
COMPLEX IN ASIA

MISSION

OPERATIONAL EXCELLENCE

HIGH PERFORMANCE
ORGANIZATION

CORPORATE SOCIAL
RESPONSIBILITY

VALUE CREATION

INNOVATION & CREATION
OF NEW BUSINESS



VALUES

INDIVIDUAL OWNERSHIP

SYNERGY

PERFORMANCE EXCELLENCE

INNOVATION

RESPONSIBILITY FOR SOCIETY

INTEGRITY & ETHICS

TRUST & RESPECT



I INDIVIDUAL OWNERSHIP



R RESULT-ORIENTED



P PROMISE AND DELIVER



C CONTINUOUS IMPROVEMENT



D DO THINGS TOGETHER



N NO BIAS



A ACTIVELY SOLVE THE PROBLEM

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MEANINGFUL INNOVATIONS

DIGITAL DRIVEN



IRPC
4.0

€KON\$



Digital Refinery

Enhancing business capability and expansion with digital technology.

IRPC 4.0 is an accomplishment in driving organization digitally at world class level.

AI Cost Analysis System

For New Gen Customers

SUSTAIN
ABILITY

People & Planet

Driving business growth sustainably together with balancing Economy, Society & Environment.

IRPC Prostheses Project

PP3340H

For the Better Life of Disability
Reduced Inequality



IRPCT

Vocational College
Producing a Capable Practical Workforce

Supporting **12**
Targeted Industries
Under **EEC** Area



Lam Sai Yong Model

The Prototype of Water
Shortage Management
for Local Communities.



R&D
EXCELLENCE

Innovation Center

Customers Connect.

Creating Value added products
in regard to Human Centrio.

PP Compound

Plastio is **90%** of Electric Car Components



Recommended Category



HDPE



LDPE



PP Homo



ABS



PP Block Copo



GPPS



Impact
Modifier



Optical
Brightener

VALUABLE
PARTNER

Business Solutions

Solution Provider for customers.

Up-to-date creation for
Sustainable Business Operation.
Growing steadily and **sustainably**
with a keen awareness of
shareholders expectation.



DIGITAL
PLATFORM

Leading to the largest
purchaser base of **Plastio**
E-commerce Platform
in South East Asia.



Plastket.com

Sales Goal

100,000 Tons

Revenue Beyond

4,000 Million Baht



Message from the Board of Directors



Throughout the many years in the business, IRPC has been committed to ethical governance. Its operation has always been transparent and accountable. The company has treated all stakeholders equitably and fairly, striving to balance economic, social, and environmental factors to ensure sustainable development.



Mr. Chansin Treenuchagron
Chairman

Dear shareholders,

2019 was a year of many changes for global economies and international trades. The second half of the year, in particular, was rather volatile politically and economically. Many factors led to this volatility. The US – China trade war had worldwide implications. Conflicts in the Middle East caused a global economic slowdown due to a dip in the supply of crude oil, which directly impacted the petroleum and petrochemical industries. The higher costs of energy and feedstocks resulted in a thinner petrochemical spread. Meanwhile, an increase in petrochemical production in Asia-Pacific also led to stiff price competition.

Economic uncertainty, product pricing, and global tension had an impact on the company's performance in 2019. IRPC's earnings before interest, taxes, depreciation, and amortization (EBITDA) in 2019 was 5.94 billion baht. It recorded a net loss of 1.174 billion baht, a year-over-year decrease of 115 percent in comparison to the net profit of 7.735 billion baht in 2018. Due to these challenges, IRPC made adjustments to its operational plan and strategies. For instance, catalyst coolers were installed at RDCC by May to augment its manufacturing efficiency, allowing IRPC to be more flexible with its sources of crude oil. The company also began manufacturing and selling IMO 2020 compliant low-sulfur fuel oil for cargo ships. Other mitigation measures included the integration of digital technology to enhance

the efficiency of operations, petrochemical spread management, the development of high value-added products, and budget control, the last of which IRPC has always used.

The future still holds many additional challenges, including the continuation of the trade war, the decline of single-use plastics, digital disruption, and new regulations imposed to combat climate change. The Board of Directors has considered these factors and devised business directions and strategies accordingly. In doing so, the board hopes to maintain IRPC's competitiveness and allow it to cope with future changes while fostering growth and business sustainability in the long run. The board has shifted its focus to expanding the domestic and Southeast Asian markets to minimize the undesirable effects of global market volatility. It will continue to oversee the enhancement of manufacturing plants, implement measures to protect the company from price volatility risk, and lessen IRPC's reliance on Middle Eastern crude oil to manage sourcing risks. At the same time, the board will ensure that IRPC continues to research and develop high value-added products with its customers, make optimal use of existing assets, and seek new business allies through projects. For example, IRPC is working on expanding its ABS powder production capacity by 6,000 tons per year. The commercial operation of this project is expected to be ready by 2020. The company has partnered

The Board of Directors has considered the future challenges and devised business directions and strategies accordingly. In doing so, the board hopes to maintain IRPC's competitiveness and allow it to cope with future changes while fostering growth and business sustainability in the long run by shifted its focus to expanding the domestic and Southeast Asian markets to minimize the undesirable effects of global market volatility.



Mr. Noppadol Pinsupa

President



with Japan Polypropylene Corporation Limited to expand its polypropylene compound market into the automotive industry, the electric vehicle industry, and the electrical appliance industry. Its joint-venture e-commerce plastic platform under the name of PLASTKET.COM has added a new distribution channel. IRPC has constructed a 12.5 MW floating solar power plant, which will expectedly start providing green energy in 2020. It has also added the development of Oil Pipeline Transportation System Project with PTT Tank Terminal Co., Ltd. and Thai Pipeline Network Co., Ltd. Moreover, to ensure organizational excellence and support future growth, IRPC has prioritized tangible and effective people development. To this end, the company has encouraged every employee at every corporate echelon to put their maximum potential to good use. It has ensured that everyone within the same job family would enjoy equal opportunity and merit-based career advancement. It has also worked out succession plans. All of this will contribute to its future competitive edge.

Throughout the many years in the business, IRPC has been committed to ethical governance. Its operation has always been transparent and accountable. The company has treated all stakeholders equitably and fairly, striving to balance economic, social, and environmental factors to ensure sustainable development. IRPC is a nationally and

internationally acclaimed enterprise, a fact attested by its recent accolades, such as the Sustainability Award of Honor from the Stock Exchange of Thailand, the NACC Integrity Awards from the National Anti-Corruption Commission, the Human Rights Awards from the Department of Rights and Liberties Protection of the Ministry of Justice, and the TCC Best Award from the Thai Chamber of Commerce. Furthermore, IRPC has been a named member of the Dow Jones Sustainability Indices in the Oil and Gas Refining and Marketing category for six consecutive years. This sustainability indicator has brought much pride and joy to everyone at IRPC.

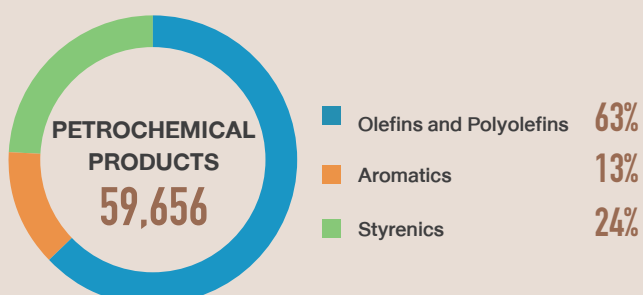
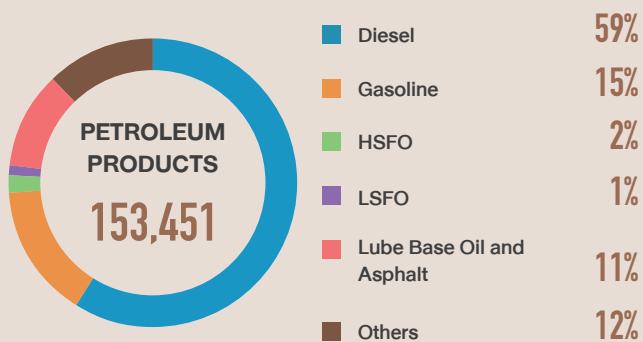
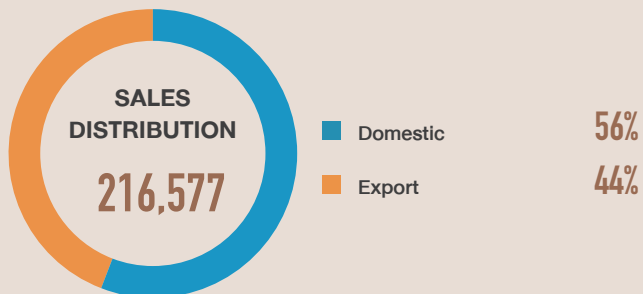
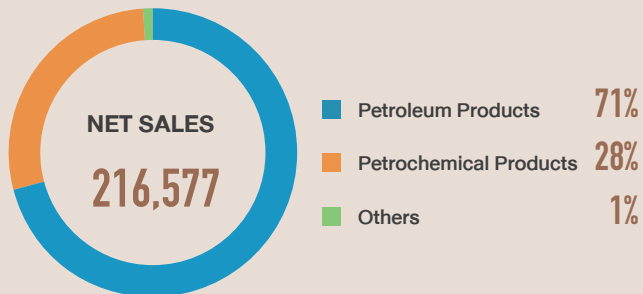
The Board of Directors is well aware that behind the success of IRPC is every party involved, especially the senior management team and employees of IRPC, who have dedicated themselves to their work. These individuals have contributed much to IRPC and have always been prepared to take IRPC to the next goal.

The Board of Directors would like to express its sincerest gratitude to every stakeholder for the trust and support shown. IRPC will always strive to realize its vision and mission. It will always operate ethically, transparently, and accountably within the framework of good corporate governance in the best interest of everyone involved. In doing so, IRPC will be able to generate value not only to its business but also to society, ensuring mutual growth in a sustainable manner.

Key Performance

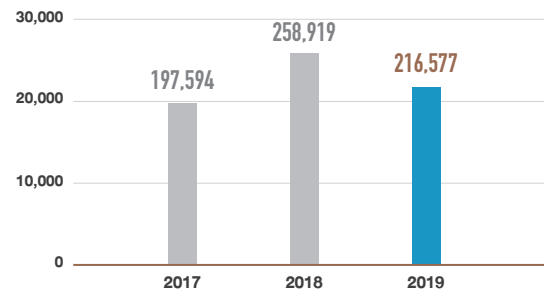
Unit: Million Baht

In 2019



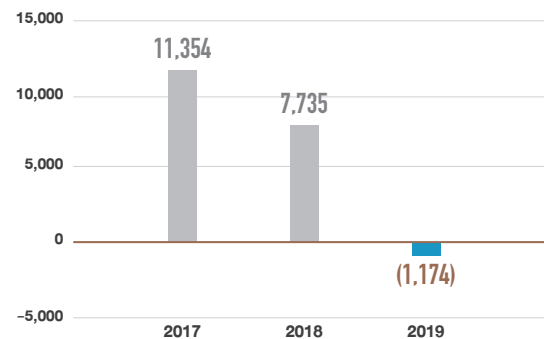
NET SALES

Unit: Million Baht



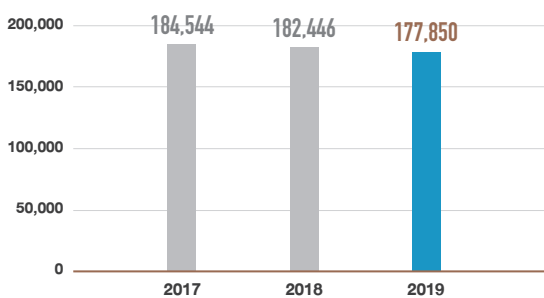
NET PROFITS

Unit: Million Baht



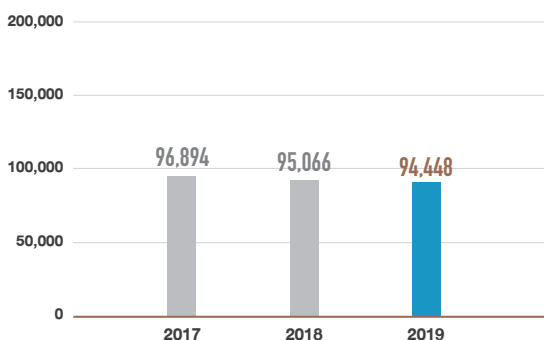
TOTAL ASSETS

Unit: Million Baht



TOTAL LIABILITIES

Unit: Million Baht



Financial Highlights

(Unit : Million Baht)

	2017 ⁽¹⁾	2018	2019
Financial Position			
Current Assets	47,583	46,629	43,647
Total Assets	184,544	182,446	177,850
Current Liabilities	49,353	48,896	45,707
Total Liabilities	96,894	95,066	94,448
Shareholders' Equity	87,650	87,380	83,402
Registered Capital	20,475	20,475	20,475
Paid-up Capital	20,434	20,434	20,434
Operating Performance			
Sales ⁽²⁾	214,101	280,551	239,315
Net Sales ⁽³⁾	197,594	258,919	216,577
Cost of Goods Sold	192,946	264,637	236,569
Gross Profit (Loss)	21,155	15,914	2,745
EBITDA ⁽⁴⁾	20,420	18,344	5,940
Net Profit (Loss)	11,354	7,735	(1,174)
Financial Ratios			
EBITDA Margin	9.54%	6.54%	2.48%
Net Profit Margin	5.30%	2.76%	(0.49%)
Return on Assets	6.36%	4.22%	(0.65%)
Return on Equity	13.48%	8.85%	(1.38%)
Current Ratio (Time)	0.96	0.95	0.95
Net Debt to Equity (Time) ⁽⁵⁾	0.65	0.63	0.67
Dividend Payout	52%	50%	n.a.
Dividend per Share (Baht/ Share)	0.29	0.19	⁽⁶⁾ 0.10
Book Value per Share (Baht/ Share)	4.28	4.27	4.07
Earning per Share (Baht/ Share)	0.56	0.38	(0.06)

Notes:

- (1) The Account Reclassification.
- (2) Sales includes Petroleum Sales, Petrochemical Sales, Power and Utilities Sales, Sales of storage tank and port service, etc.
- (3) Net Sales includes Petroleum Sales (excluding excise tax), Petrochemical Sales, Power and Utilities Sales.
- (4) EBITDA means Earnings before interest, taxes, depreciation and amortization.
- (5) Net Debt means interest bearing debt less cash and short-term investments.
- (6) The Board of Directors of the Company's meeting on 12 February 2020, approved to propose a dividend payment for the operating results of 2019 at Baht 0.10 per share. In this regard, the approval for the dividend shall be proposed to the Annual General Meeting of shareholders of the Company for the year 2020 for further consideration and approval.

Milestones and Awards of Success 2019



IRPC earned a **NACC Integrity Award** from the **National Anti-Corruption Commission (NACC)** for its transparent operations and compliance with anti-corruption guidelines. The award is a testament to IRPC's demonstration of ethics, social responsibility, human rights, and international ethics best practices.



IRPC was named an **Industry Mover with a Gold Class distinction in The Sustainability Yearbook 2019**. The company not only received the top score but was also the top score jumper of the oil and gas (refining and marketing) industry.



IRPC was a private-sector winner of the **Human Rights Role Model Organizations Project 2019**, a testament to its outstanding human rights performance. The project was organized by the Department of Rights and Liberties Projection, Ministry of Justice. IRPC also gave a presentation on its human rights activities at the event.



IRPC was included on the **Thailand Sustainability Investment 2019 list of the Stock Exchange of Thailand** in the Sustainability Excellence category and won a Sustainability Award of Honor. IRPC has received the Best Sustainability Awards for three consecutive years.



IRPC garnered a Thailand Quality Class (TQC) award for its management excellence at the **Thailand Quality Awards 2018 organized by the Ministry of Industries**. The prize demonstrates that IRPC has employed the organizer's national assessment criteria as guidelines for improving all aspects of its corporate potential.



IRPC was recognized as a **Social Empowerment winner at the Asia Responsible Enterprise Awards 2019** for its Prostheses Project with the Prostheses Foundation of H.R.H. the Princess Mother.

IRPC won a **Gold distinction at the Global Good Awards UK 2019** in the Community Partnership (Wellbeing in the Community) category for its Prostheses Project.



IRPC was granted the **"Change Agent Award"** in recognition of its exemplary transparency throughout the supply chain and the role it had played in inviting many private organizations to join Thailand's Private Sector Collective Action Coalition against Corruption (CAC).



IRPC was named a valuable partner at the **Valuable Partner Awards 2019 by the Innovation Group** at its 35th-anniversary event entitled "Glorious Celebration—A New ERA of Innovation." The event underlined Innovation Group's status as a leader in rubber and plastic technology with a comprehensive range of services for every industry.



IRPC received a plaque of honor at the **Thai Chamber of Commerce's Outstanding Ethics Awards 2019** in recognition of its good corporate governance. Its ethical operations have benefited its sustainable development.



IRPC garnered four of **The Prime Minister's Industry Awards 2019** trophies from the Ministry of Industries. Plant names and their distinctions were as follows:

- DCC and VGO plants—productivity increase
- ADU2 refinery—energy management
- PP plant—quality management
- ETP plant—social responsibility



Mrs. Nidcha Jirametthanakij, Senior Executive Vice President of Corporate Accounting & Finance, won the title of **Asia's Best CFO (Investor Relations) at the Asian Excellence Awards 2019**. IRPC itself garnered the title Best Investor Relations Company, which the company has received from the past six consecutive years from Corporate Governance Asia magazine.

IRPC won awards for productivity-increasing activities in its quality control circle (QCC) at **Thailand Quality Prizes 2019**.

- IRPC was awarded a Diamond distinction in the Manufacturing QCC Prize category for its “Reduce Weight Loss of Ball Mill during grinding process” project by the SAPN section of the Styrenics and Aromatics Business Unit.
- IRPC earned a Gold distinction for its “Plant Water Saving (Potable Water: WP) No. 41D003” by the REA2 section of the Refinery Business Unit and for its “Reduce Loss of Acetylene Black Product” project by the OLPA section of the Olefins Business Unit.
- IRPC received a Silver distinction in the Task Achieving QCC Prize category for its “Time Saving for Recycle Gas Pump No. 10P090 process” project by the PLP1 section of the Polyolefins Business Unit.

IRPC establishments also received distinctions at the national level of the **Zero Accident Campaign 2019 organized by the Department of Labor Protection and Welfare**.

These were as follows: IRPC Ayutthaya Depot received the Silver distinction for the third consecutive year; IRPC Chumphon Depot received the Bronze distinction for the second year in a row; and the Bangkok headquarters received the Silver distinction for the first time.

IRPC won the **CSR-DIW Continuous Awards** from the Department of Industrial Works for the following plants: PLP1, PLEH, PLPC, ABS, SAN, CCM, EPS, PS, BTX, EBSM, ADU1, ADU2, DCC, Lube Base Oil, ETP, PRP, and ACB.

IRPC establishments were named winners of the **2019 Competition for Outstanding Establishment Models on OSH&E** organized by the Department of Labor Protection and Welfare: Condensate Residue, PS, EBSM, IRPC Ayutthaya Depot, and IRPC Chumphon Depot. IRPC has garnered with these honors for the second consecutive year.

IRPC's Propylene plant received the **Carbon Footprint for Organizations (CFO) certificate** from Thailand Greenhouse Gas Management Organization (Public Organization).

IRPC received **Eco-Factory certificates** from the Department of Industrial Works for the following plants: Nano, BTX, Polystyrene, Polyethylene, Polypropylene, Propylene, Acetylene Black, Condensate Residue, and Combined Gas-Oil.



IRPC signed a deal to buy 300,000–400,000 liters of crude oil per month from Tecs Energy Co., Ltd. and VA Energy Co., Ltd. This fuel comes from processing plastic waste with an advanced technology called pyrolysis, allowing them to reduce plastic waste by about 560 tons per month. The deal supports circular economy principles for sustainability.



IRPC inked a 493-million-baht deal entitled the Engineering, Procurement and Construction, Commissioning (EPCC) of Floating Solar Power 12.5 MWp project with Siam Raj Public Company Limited (SR). This is a pilot floating solar power plant project for the IRPC Industrial Park. Upon completion, it will lower the company's carbon footprint by lessening its reliance on fossil fuel-derived electricity. The project also makes use of IRPC's P301GR HDPE to make floatation devices with a lifespan of at least 25 years.



IRPC announced its commitment to promote sustainable plastic waste management, building on existing environmental projects of the Federation of Thai Industries and Thailand Business Council for Sustainable Development.

IRPC has extended its loan agreement with PTT Public Company Limited. From the 10 Billion Baht borrowed, IRPC has offered 1.5 Billion Baht loans to other companies within the PTT Group to help them increase their financial liquidity.



IRPC and Guangzhao Saiju Performance Polymer Ltd. (GZSJ) co-founded iPolymer Co., Ltd., holding a 55% stake and a 45% stake, respectively. The partners also founded PLASTKET.COM, a plastic e-commerce platform per the IRPC 4.0 Policy, where artificial intelligence plays a role in the development of plastic pellet trading. The website will expand IRPC's business reach digitally throughout Southeast Asia.





BOARD RESPONSIBILITY

Board of Directors

Organization Structure

Management Team

Internal Control

Report of the Audit Committee

**Message from the Chairman,
Corporate Governance Committee**

**Message from the Chairman,
Nomination and Remuneration Committee**

**Message from the Chairman,
Risk Management Committee**



Board of Directors

1. Mr. Chansin Treenuchagron

Chairman

2. Mr. Nuttachat Charuchinda

Independent Director/
Chairman of the Risk
Management Committee

3. Mr. Woothisarn Tanchai

Independent Director/
Chairman of the Nomination
and Remuneration Committee

4. Mr. Worawat Pitayasiri

Director/
Member of the Risk
Management Committee

5. Mr. Ekniti Nitithanprapas

Director/
Member of the Risk
Management Committee

6. Mr. Somnuk Bomrungsalee

Independent Director/
Chairman of the
Audit Committee

7. Mr. Kris Imsang

Director/
Member of the Nomination
and Remuneration Committee



7

6

5

1

2

3

4



8. Mr. Noppadol Pinsupa

Director/
Member of the Risk
Management Committee/
President/ Secretary of
the Board of Directors

9. Mr. Jumpol Sumpaopol

Independent Director/
Member of the Audit Committee

10. Mr. Charoie Buranakanonda

Independent Director/
Member of the Corporate
Governance Committee

11. Mr. Anusorn Sangnimnuan

Independent Director/
Chairman of the Corporate
Governance Committee

12. General Nattaphon Narkphanit

Independent Director/
Member of the Corporate
Governance Committee

13. Mr. Wattanapong Kurovat

Director/ Member of the
Risk Management Committee

14. Air Marshal Boonsulb Prasit

Independent Director/
Member of the Nomination
and Remuneration

15. Miss Siriwan Chierapong

Independent Director/
Member of the Audit Committee



Board of Directors, IRPC Public Company Limited

Mr. Chansin Treenuchagron

Chairman

A Director who is authorized to sign on behalf of the Company

Age 59 Years

Directorship Starting Date: 20 October 2015

Education/ Training

- Bachelor of Economics Program, Thammasat University
- Master of Economic, Chulalongkorn University
- Honorary Doctorate of Science (Technology Management) Thammasat University
- Executive Development Relation, Class 1, Directorate of Civil Affairs
- The Executive Program in Energy Literacy for a Sustainable Future, Class 7/2015, Thailand Energy Academy (TEA7)
- Diploma, National Defence College, The National Defence Course, Class 57/2014, Thailand National Defence College
- Leadership Development Program III (LDP III), Class 1/2014, PTT Public Company Limited
- Advance Senior Executive Program (ASEP-5), Class 5/2010, KELLOGG & SASIN, Chicago, USA
- Air War College, Class 35/2006
- Senior Executive Program (SEP), Class 20, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- PTT Executive Leadership, General Electric, GE, New York, USA
- Advanced Certificate Course in Public Economics Management for Executives, Class 10, King Prajadhipok's Institute
- Leadership Excellence through Awareness and Practice (LEAP), INSEAD, Singapore & France
- Chartered Director Class (CDC), Class 11/2015, Thai Institute of Directors Association (IOD)
- Director Accreditation Program (DAP), Class 93/2011, Thai Institute of Directors Association (IOD)
- Financial Statements for Directors (FSD), Class 12/2011, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 85/2007, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Jan 2018 – Aug 2018	Chief Technology and Engineering Officer, PTT Public Company Limited
Dec 2017 – Aug 2018	Chairman, PTT Digital Solutions Company Limited
Oct 2017 – Aug 2018	Director/ Member of Risk Management Committee/ Member of Nomination and Remuneration Committee, Global Power Synergy Public Company Limited
Apr 2016 – Aug 2018	Member of the Risk Management Committee, IRPC Public Company Limited
Oct 2015 – Aug 2018	Director, IRPC Public Company Limited

Oct 2017 – Dec 2017	Chief Operating Officer, Infrastructure and Sustainability Management Business Group, PTT Public Company Limited
Apr 2017 – Dec 2017	Chairman, PTT Asahi Chemical Company Limited
Jan 2016 – Sep 2017	Senior Executive Vice President, Downstream Business Group Alignment, PTT Public Company Limited
Nov 2015 – Dec 2017	Chairman, PTT Polymer Marketing Company Limited
Nov 2015 – Mar 2017	Chairman, PTT Polymer Logistics Company Limited
Oct 2015 – Dec 2015	Senior Executive Vice President, Petrochemicals & Refining Business Unit, PTT Public Company Limited
Oct 2014 – Dec 2015	Chairman, PTT Green Energy (Thailand) Company Limited
Apr 2015 – Oct 2015	Director, Thai Oil Public Company Limited
Oct 2014 – Sep 2015	Senior Executive Vice President, Corporate Strategy, PTT Public Company Limited
Apr 2012 – Jul 2015	Director, PTT Polymer Logistics Company Limited
Mar 2013 – Sep 2014	Senior Executive Vice President, Corporate Commercial and Marketing, IRPC Public Company Limited
Nov 2012 – Sep 2014	Director, PTT Polymer Marketing Company Limited
Jun 2012 – Sep 2014	Director, UBE Chemical (Asia) Public Company Limited
Feb 2012 – Sep 2014	Director, Rayong Acetylene Company Limited
Nov 2011 – Sep 2014	Director, IRPC Polyol Company Limited
Nov 2011 – Aug 2014	Chairman, Rak Pa Sak Company Limited
Dec 2011 – Jun 2014	Director, Technology IRPC Company Limited
Oct 2011 – Feb 2013	Senior Executive Vice President, Corporate Port and Asset Management Business Unit, IRPC Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Aug 2018 – Present	President/ Chief Executive Officer/ Director/ Secretary to the Board, PTT Public Company Limited
Aug 2018 – Present	Chairman, IRPC Public Company Limited
Sep 2018 – Present	Director, PTT Exploration and Production Public Company Limited

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

None



Mr. Woothisarn Tanchai

Independent Director/ Chairman of the Nomination and Remuneration Committee

Age 61 Years

Directorship Starting Date: 19 June 2015

Education/ Training

- Bachelor of Science, Khon Kaen University
- Master of Public Administration, National Institute of Development Administration (NIDA)
- Master of Policy Science (M.P.S.), International Program, Saitama University, Japan
- Public Law Certificate, Faculty of Law, Thammasat University
- Public Director Certification Program (PDI), Class 1, King Prajadhipok's Institute

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

2011 – Aug 2018	Member, the National Culture Commission
2015 – Sep 2018	Advisor, Constitution Drafting Committee 2017
2011 – Oct 2018	Sub-committee, the Office of the Public Sector Development Commission (OPDC)
Sep 2017 – 2019	Director, Member of the Board of Directors of the Strategy for Balancing and Developing the Public Sector management System
Oct 2014 – Apr 2015	Member of the Risk Management Committee, IRPC Public Company Limited
Apr 2013– Apr 2015	Chairman of the Nomination and Remuneration Committee, IRPC Public Company Limited
2012	Member of the Audit Committee, IRPC Public Company Limited
Apr 2009 – Apr 2015	Independent Director, IRPC Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Jun 2015 – Present	Independent Director/ Chairman of the Nomination and Remuneration Committee, IRPC Public Company Limited
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Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

Dec 2019 – Present	Extraordinary House Committee on studying amendment of the constitution, Parliament
Mar 2018 – Present	Chairman of the Committee, the National Anti-corruption Commission (NACC)
2016 – Present	Member, Thammasat University Council
Dec 2014 – Present	Secretary General, King Prajadhipok's Institute
2011 – Present	Sub-committee, the National Anti-corruption Commission (NACC)
2008 – Present	Member, Nakhon Ratchasima Rajabhat University Council

Mr. Anusorn Sangnimnuan

Independent Director/ Chairman of the Corporate Governance Committee

Age 65 Years

Directorship Starting Date: 27 August 2016

Education/ Training

- B.Sc. (Chemical Engineering), Chulalongkorn University
- M.Eng. (Environmental Engineering), Asian Institute of Technology (AIT)
- Ph.D. (Chemical Engineering), Monash University, Melbourne, Australia
- Diploma, National Defence College, The joint State - Private Sector Course, Class 20, Thailand National Defence College
- Leadership Program, Class 10, Capital Market Academy The Stock Exchange of Thailand
- Advanced Diploma, Public Administration and Public Law, Class 5, King Prajadhipok's Institute
- DCP Refresher Course (DCP RE), Class 1/2008, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 62/2005, Thai Institute of Directors Association (IOD)
- Director Accreditation Program (DAP), Class 40/2005, Thai Institute of Directors Association (IOD)
- Finance for Non-Finance Directors Program (FND), Class 22/205, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

2014 – 2017	Independent Director, Prukpa Real Estate Public Company Limited
2014 – 2017	Chairman, The Transport Company limited
2013 – 2017	Director, Office of The National Economic and Social Development Board
2013 – 2016	Director, The Krungthep Thananakom Company Limited
2014 – 2015	Member of the National Reform Council
2014 – 2015	Director, Loxley Public Company Limited
2013 – 2015	Senior Consultant, The Bangchak Petroleum Public Company Limited
2005 – 2012	President, The Bangchak Petroleum Public Company Limited
2011 – 2012	Chariman, Bangchak Solar Energy Company Limited
2011 – 2012	Chariman, The Ubon Bioethanol Company Limited
2008 – 2012	Chariman, The Bangchak Biofuel Company Limited
2008 – 2011	Chairman, Thailand Business Council for Sustainable Development (TBCSD)
2008 – 2011	Director, Thai Capital Market Organizations
2007 – 2011	Director, Thai Listed Companies Association

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Sep 2016 – Present	Chairman of the Corporate Governance Committee, IRPC Public Company Limited
Aug 2016 – Present	Independent Director, IRPC Public Company Limited
2016 – Present	Independent Director/ Chairman of the Corporate Governance Committee/ Member of the Nomination and Remuneration Committee, Prukpa Holding Public Company Limited
2016 – Present	Director, B.Grimm Power Public Company Limited

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

None

Mr. Nuttachat Charuchinda**Independent Director/ Chairman of the Risk Management Committee/
A Director who is authorized to sign on behalf of the Company**

Age 64 Years

Directorship Starting Date: 29 April 2016

Education/ Training

- Bachelor of Engineering, Chiangmai University
- Master of Business Administration, Thammasat University
- Program for Global Leadership (PGL), Harvard Business School, USA
- Oxford Energy Seminar, UK
- Break Through Program for Senior Executives (BPSE), IMD Institute, Switzerland
- Diploma, National Defence College, The Joint State - Private Sector Course, Class 20, Thailand National Defence College
- Executive Program, Class 15, Capital Market Academy (CMA)
- Executive Program, Energy Education, Class 3, Thailand Energy Academy
- Director Certification Program (DCP), Class 129/2010, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

**Family relationship within the Company,
major shareholder or subsidiaries**

None

Work experience within the past 5 years

Jan 2019 – Jan 2020	Director, PTT Public Company Limited
Jul 2017 – Jun 2019	President, Bangkok Mass Transit Authority
May 2014 – Apr 2016	Chairman PTT Energy Resources Company Limited
2013 – Apr 2016	Director, Thai Oil Public Company Limited
2013 – Nov 2015	Director, PTT Exploration and Production Public Company Limited
2013 – 2015	Chief Operating Officer, Upstream Petroleum and Gas Business Group, PTT Public Company Limited
2011 – 2013	Chief Operating Officer, Downstream Petroleum Business Group, PTT Public Company Limited
2010 – 2011	Senior Executive Vice President, Corporate Strategy, PTT Public Company Limited

Current Position**Board member/ Management in Listed Company – The Stock Exchange of Thailand**

Feb 2020 – Present	Independent Director, IRPC Public Company Limited
Apr 2016 – Present	Director/ Chairman of the Risk Management Committee, IRPC Public Company Limited
Aug 2017 – Present	Director, National Power Supply Public Company Limited

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

Dec 2017 – Present	President, Ritta Holdings Company Limited
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Mr. Somnuk Bomrungsalee**Independent Director/
Chairman of the Audit Committee**

Age 62 Years

Directorship Starting Date: 9 April 2014

Education/ Training

- Bachelor of Engineering (Civil Engineering), King Mongkut's University of Technology Thonburi (KMUTT)
- Master of Public and Private Management, The National Institute of Development Administration (NIDA)
- Advanced Master of Management program, Class 2/2018, The National Institute of Development Administration (NIDA)
- The Program for Senior Executive on Justice, Class 20/2015, Administration Batch, National Justice Academy
- The Executive Program in Energy Literacy for a Sustainable Future, Class 5/2014, Thailand Energy Academy (TEA)
- Executive Training Course 2, Class 5/2013, Office of the Civil Service Commission
- Advanced Certificate Course Politics and Governance in Democratic Systems for Executives, Class 16/2012, King Prajadhipok's Institute
- Executive Training Course, Class 65/2009, Office of the Civil Service Commission
- Energy Executive Course, Class 2/2008, Ministry of Energy
- Director Certification Program (DCP), Class 233/2017, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": 50,000 Share Possession: 0.00024 %

**Family relationship within the Company,
major shareholder or subsidiaries**

None

Work experience within the past 5 years

Feb 2018 – 2019	Advisor, Energy Fund Administration Institute
Nov 2017 – 2018	Sub-committee, State Audit Commission, Office of the Auditor General of Thailand
Apr 2016 – Nov 2017	Member of the Nomination and Remuneration Committee, IRPC Public Company Limited
Oct 2016 – Sep 2017	Deputy Secretary of Energy
Oct 2015 – 2019	Sub-committee, Energy Commission, The National Legislative Assembly
Jul 2014 – Sep 2016	Inspector General, Ministry of Energy
2013 – 2014	Director – General, Department of Energy Business, Ministry of Energy
2011 – 2013	Deputy Director General, Department of Energy Business
2006 – 2011	Director, Bureau of Fuel Business Safety, Department of Energy Business

Current Position**Board member/ Management in Listed Company – The Stock Exchange of Thailand**

Nov 2018 – Present	Independent Director/ Audit Committee/ Chairman of Nomination and Remuneration Committee, Megachem (Thailand) Public Company Limited
Dec 2017 – Present	Chairman of the Audit Committee, IRPC Public Company Limited
Oct 2017 – Present	Independent Director, IRPC Public Company Limited
Apr 2014 – Present	Director, IRPC Public Company Limited

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

None



Mr. Ekniti Nitithanprapas

**Director/
Member of the Risk Management Committee**

Age 48 Years

Directorship Starting Date: 17 November 2015

Education/ Training

- B.A. in Economics, (Honor), Thammasat University
- M.S. in Economics/ Policy Economics, University of Illinois at Urbana-Champaign, USA
- Ph.D. in Economics/ Macroeconomics and International Finance, Claremont Graduate University, USA
- Advanced Certificate Course in Public Administration and Law for Executives, Class 9/2011, King Prajadhipok's Institute
- Oxford Programme On Negotiation in Bangkok, Leadership Focus Institute
- Role of the Chairman Program (RCP), Class 45/2019, Thai Institute of Directors Association (IOD)
- Board Matters and Trend (BMT), Class 4/2017, Thai Institute of Directors Association (IOD)
- Role of the Nomination and Governance Committee (RNG), Class 8/2016, Thai Institute of Directors Association (IOD)
- Corporate Governance for Capital Market Intermediaries (CGI), Class 4/2015, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 93/2007, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Jun 2018 – Jan 2020	Director/ Chairman, Krungthai Bank Public Company Limited
Jul 2018 – Oct 2019	Chairman, Thai Airways International Public Company Limited
Jun 2018 – Oct 2019	Director, Thai Airways International Public Company Limited
Nov 2015 – May 2018	Director, Siam Commercial Bank Public Company Limited
Nov 2015 – May 2018	Member of Nomination, Compensation and Corporate Governance Committee, Siam Commercial Bank Public Company Limited
Nov 2015 – May 2018	Chairman, National Credit Bureau Company Limited
Oct 2015 – May 2018	Director-General of the State Enterprise Policy Office, Ministry of Finance
Nov 2014 – Sep 2015	International Economic Advisor of Fiscal Policy Office, Ministry of Finance
Nov 2012 – Nov 2014	Deputy Director-General of Fiscal Policy Office, Ministry of Finance
Sep 2010 – Nov 2012	Minister (Economics and Finance), Office of Economics and Financial Affairs for U.K. and Europe, Royal Thai Embassy, U.K.

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Feb 2020 – Present	Chairman, TMB Bank Public Company
Feb 2020 – Present	Chairman, Thanachart Bank Public Company
Mar 2016 – Present	Member of the Risk Management Committee, IRPC Public Company Limited
Nov 2015 – Present	Director, IRPC Public Company Limited

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

May 2018 – Present	Director-General of the Revenue Department
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Mr. Kris Imsang

**Director/
Member of the Nomination and Remuneration Committee**

Age 54 Years

Directorship Starting Date: 2 December 2017

Education/ Training

- Bachelor of Engineering (Civil Engineering), Chulalongkorn University
- Certification in Top Executives in the Poom Palung Pandin Program, Class 3, Chulalongkorn University
- Leadership Development Program III, Class 2, PTT Public Company Limited
- Top Executive Program, Class 23, Capital Market Academy (CMA)
- Top Executive in Energy Program, Class 9, Thailand Energy Academy (TEA)
- Director Certification Program (DCP), Class 139/2010, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Oct 2018 – Oct 2019	Senior Executive Vice President, Corporate Governance and Regulatory Affairs, PTT Public Company Limited
Jan 2018 – Sep 2018	Senior Executive Vice President, Organization Management and Sustainability, PTT Public Company Limited
Dec 2017 – Feb 2019	Member of the Corporate Governance Committee, IRPC Public Company Limited
Sep 2017 – Oct 2019	Chairman, Sarn Palung Social Enterprise Company Limited
Mar 2016 – Aug 2019	Committee, Kamnoetvidya Science Academy (KVIS)
Feb 2016 – Dec 2017	Senior Executive Vice President, Human Resources & Organization Excellence, PTT Public Company Limited
Feb 2015 – Nov 2019	Chairman, Energy Complex Company Limited
Aug 2015 – Jan 2016	Executive Vice President, Retail Marketing, PTT Public Company Limited
Oct 2013 – Jul 2015	Executive Vice President, Petroleum Terminal Operations, PTT Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Nov 2019 – Present	Senior Executive Vice President, Down Stream Business Group Alignment, PTT Public Company Limited
Mar 2019 – Present	Member of the Nomination and Remuneration Committee, IRPC Public Company Limited
Dec 2017 – Present	Director, IRPC Public Company Limited

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

Feb 2019 – Present	Member of VISTEC Executive Committee, Vidyasirimedhi Institute of Science and Technology (VISTEC)
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Mr. Worawat Pitayasiri

Director/ Member of the Risk Management committee
A Director who is authorized to sign on behalf of the Company

Age 53 Years

Directorship Starting Date: 19 September 2018

Education/ Training

- Bachelor of Engineering (Chemical Engineering), Chulalongkorn University
- Master of Business Administration (M.B.A.), Thammasat University
- Asia Petrochemical Industry Conference (APIC) Class 2/2017, Japan Petrochemicals Industry Association
- PTT Group VP Leadership Development Program, PTT Public Company Limited
- Senior Executive Program (SEP), Class 26/2012, Sasin Graduate Institute of Business Administration, Chulalongkorn University
- Advanced Certificate Course Politics and Governance in Democratic Systems for Executives, Class 22, King Prajadhipok's Institute
- NIDA – Wharton Executive Leadership Program, Class 2009, The Wharton School of the University of Pennsylvania, USA
- Director Certification Program (DCP), Class 158/2012, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Nov 2019 – Feb 2020	Director, InnoSpace Thailand Company Limited
May 2018 – Nov 2018	Chairman, PTT Tank Terminal Company Limited
Oct 2016 – Sep 2018	Executive Vice President, Downstream Business Group Planning, PTT Public Company Limited
Mar 2016 – Sep 2016	Executive Vice President, Downstream Business Group Collaboration, PTT Public Company Limited
Jul 2015 – Mar 2016	Executive Vice President, PTT Public Company Limited
Jul 2015 – Mar 2016	President, PTT MCC Biochem Company Limited

Current Position**Board member/ Management in Listed Company – The Stock Exchange of Thailand**

Sep 2018 – Present	Director/ Member of the Risk Management committee, IRPC Public Company Limited
Sep 2018 – Present	Senior Executive Vice President, Innovation and Digital, PTT Public Company Limited

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

Oct 2019 – Present	Chairman, PTT Digital Solutions Company Limited
Sep 2019 – Present	Director, PTT Digital Solutions Company Limited
Feb 2019 – Present	Member of VISTEC Executive Committee, Vidyasirimedhi Institute of Science and Technology (VISTEC)

Air Marshal Boonsuib Prasit

Independent Director/
Member of the Nomination and Remuneration

Age 67 Years

Directorship Starting Date: 3 April 2019

Education/ Training

- Armed Forces Academies Preparatory School, Class 13
- Royal Thai Air Force Academy, Class 20
- Master of Engineer (Aeronautical Engineering), Hochschule der Bundeswehr Muenchen, Germany
- Squadron Officers, Class 56
- Air Command and Staff College, Class 33
- Air War College, Class 36
- Certificate in top Executives in the Energy Education Program, Class 8/2016, Thailand Energy Academy (TEA)
- Thailand's 5th National Conference on Collective Action Against Corruption (Tackling Corruption through Public-Private Collaboration)
- Seminar "Incorporation of State Investment Corporation"
- Ethical Leadership Program (ELP) Class 7/2017, Thai Institute of Directors Association (IOD)
- Director Accreditation Program (DAP), Class 117/2015, Thai Institute of Directors Association (IOD)
- Role of the Nomination & Governance Committee Program (RNG), Class 7/2015, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

2016 – 2018	Independent Director/ Chairman of the Nominating Committee, PTT Public Company Limited
2014 – 2016	Independent Director/ Member of the Nominating Committee, PTT Public Company Limited
2013 – 2014	Director, Directorate of Aeronautical Engineering, Royal Thai Air Force
2013	Special Expert, Royal Thai Air Force
2011 – 2013	Deputy Director, Directorate of Aeronautical Engineering, Royal Thai Air Force

Current Position**Board member/ Management in Listed Company – The Stock Exchange of Thailand**

Apr 2019 – Present	Independent Director, Member of the Nomination and Remuneration Committee IRPC Public Company Limited
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Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

2019 – Present	Chairman, Spot Services Alliances Company Limited
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Miss Siriwan Chierapong

**Independent Director/
Member of the Audit Committee**

Age 65 Years

Directorship Starting Date: 3 April 2019

Education/ Training

- Bachelor of Accountancy, Chulalongkorn University
- Master of Business Administration (M.B.A.), Thammasat University
- Senior Executive Program (SEP), Class 16, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- NIDA-Wharton Executive Leaders Program, The Wharton School University of Pennsylvania
- PTT Executive Leadership Program, General Electric, New York, USA
- Advanced Certificate Course in Public Economics Management for Executives, Class 7/2008, King Prajadhipok's Institute
- Director Certificate Program (DCP) Class 102/2008, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

2014 – 2018	Advisor, PTT Polymer Marketing Company Limited
2013 – 2014	President, PTT Polymer Marketing Company Limited
2012 – 2013	Executive Vice President, Strategy and Portfolio Management, Corporate Strategy and Organization Development, PTT Public Company Limited
2009 – 2012	Executive Vice President, Business Development and Project Management, Petrochemicals and Refining Business Unit, PTT Public Company Limited
2005 – 2009	Executive Vice President, Subsidiary Planning and Management, Petrochemicals and Refining Business Unit, PTT Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Apr 2019 – Present	Independent Director/ Member of the Audit Committee, IRPC Public Company Limited
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Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

None

Mr. Charcrie Buranakanonda

**Independent Director/
Member of the Corporate Governance Committee**

Age 64 Years

Directorship Starting Date: 22 May 2019

Education/ Training

- Bachelor of Engineering (Machinery Engineering), Kasetsart University
- Advanced Certificate Course in Public Administration and Law for Executives, King Prajadhipok's Institute, 2010
- PTT - GE Executive Program, GE Croton Ville, USA 2012
- Public Director Certification Program (PDI), 2013, King Prajadhipok's Institute
- Director Certificate Program (DCP) Class 103/2008, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": 55,000 Share Possession: 0.00027 %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

2012 – 2015	Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited
2011 – 2012	Executive Vice President, Natural Gas Separation, PTT Public Company Limited.
2009 – 2011	Executive Vice President, Natural Gas Pipeline System, PTT Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

May 2019 – Present	Independent Director/ Member of the Corporate Governance Committee IRPC Public Company Limited
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Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

None

General Nattaphon Narkphanit**Independent Director/
Member of the Corporate Governance Committee**

Age 58 Years

Directorship Starting Date: 22 June 2019

Education/ Training

- Armed Forces Preparatory School, Class 20
- Chulachomklao Royal Military Academy, Class 31
- Infantry Officer Basic Course, Infantry School, Class 74
- Infantry Officer Advance Course, Infantry School, Class 52
- Command and General Staff College, Class 71
- Asia Pacific Security Course, Security Studies Institute, Hawaii, USA
- Diploma, National Defence College, The National Defence College, Class 59, Thailand National Defence College

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

**Family relationship within the Company,
major shareholder or subsidiaries**

None

Work experience within the past 5 years

2017 – 2018	Chief of Staff, Royal Thai Army
Sep 2016 – May 2019	Member of the National Legislative Assembly
2016 – 2017	Deputy Chief of Staff, Royal Thai Army
2015 – 2016	Directing General of Directorate of Operations

Current Position**Board member/ Management in Listed Company – The Stock Exchange of Thailand**

Dec 2019 – Present	Director, Thanachart Bank Public Company Limited
Jun 2019 – Present	Independent Director/ Member of the Corporate Governance Committee, IRPC Public Company Limited
May 2019 – Present	Director, TMB Bank Public Company Limited

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

2018 – Present	Deputy Commander in Chief, Royal Thai Army and Assistant Director of Internal Security Operation Command
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Mr. Wattanapong Kurovat**Director/
Member of the Risk Management Committee**

Age 45 Years

Directorship Starting Date: 21 August 2019

Education/ Training

- Bachelor of Political Science, Thammasat University
- Master of Business Administration (MBA), Western Michigan University, USA
- The Civil Service Executive Development Program: Visionary and Moral Leadership Class 86, Civil Service Training Institute, Office of the Civil Service Commission
- Chief of Staff Program Class 53, Joint Staff College, National Defense Studies Institute
- The Executive Program in Energy Literacy for Sustainable Future TEA Class 13, Thailand Energy Academy

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

**Family relationship within the Company,
major shareholder or subsidiaries**

None

Work experience within the past 5 years

Feb 2018 – Apr 2019	Deputy Director General, Energy Policy and Planning Office
Apr 2015 – Feb 2018	Director, Power Policy Bureau, Energy Policy and Planning Office

Current Position**Board member/ Management in Listed Company – The Stock Exchange of Thailand**

Aug 2019 – Present	Director/ Member of the Risk Management Committee, IRPC Public Company Limited
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Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

Apr 2019 – Present	Director General, Energy Policy and Planning
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Mr. Jumpol Sumpaopol

Independent Director/ Member of the Audit Committee

Age 66 Years

Directorship Starting Date: 16 October 2019

Education/ Training

- Bachelor of sciences Industrial Education and Technology, Civil Engineering, King Mongkut's University of Technology Thonburi
- Bachelor of Engineering, Civil Engineering, King Mongkut's University of Technology Thonburi
- Certificate of Public and Private Management Program, Notional Institute of Development Administration
- Diploma of Metropolitan Leader, Bangkok Metropolitan and King Prajadhipok's Institute
- Certificate of New Government Budget Management, University of California Los Angeles (UCLA)
- Certificate of Infrastructure and System Development Traffic and Transportation
- Certificate of Corporate Governance for Director and Senior Executive of State Enterprises and Public Organization (Class 11), King Prajadhipok's Institute
- Certificate of Senior Executive Management of Metropolitan Development "Mahanakhon" (Class 1), Bangkok Metropolitan
- Certificate of Systematic Problem Solving and Decision Making: SPSDM, Office of the Public Sector Development Commission (OPDC)
- The Rule of Law and Democracy (Class 3), College Constitution Court
- Business Revolution and Innovation Network "BRAINS" (Class 2), The Federation of Thai industries (F.T.I.)
- Certificate Health Ambassador (Class 1), Chulabhorn Royal Academy
- Director Certification Program (DCP), Class 136/2012, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Apr 2013 – 2016	Deputy Governor of Bangkok, Bangkok Metropolitan Administration
2011 – 2013	Board of Directors, Metropolitan Electricity Authority (MEA)
2011 – 2013	Deputy Permanent Secretary for Bangkok, Bangkok Metropolitan Administration
Oct 2009 – Sep 2011	Director General Public works Department, Bangkok Metropolitan Administration

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Oct 2019 – Present	Independent Director/ Member of the Audit Committee, IRPC Public Company Limited
Feb 2017 – Present	Chairman/ Independent Director/ Chairman of Nomination and Remuneration committee, Stonehenge Inter Public Company Limited

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

2007 – Present	University Promotion Committee Board, King Mongkut's University of Technology Thonburi
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Mr. Noppadol Pinsupa

**Director/ Member of the Risk Management Committee/ President/ Secretary of the Board of Directors/
The Director who is authorized to sign on behalf of the Company**

Age 55 Years

Directorship Starting Date: 1 February 2019

Education/ Training

- Bachelor of Engineering (Electrical), Chulalongkorn University
- Master of Engineering (Electrical), Chulalongkorn University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 14/2019, Thailand Energy Academy
- Diploma, National Defence College, The National Defence Course, Class 60, Thailand National Defence College
- TIJ Executive Program on the Rule of Law and Development (RoLD Program), 2017, Thailand Institute of Justice (TIJ)
- Leadership Program, Class 22/2016, Capital Market Academy, The Stock Exchange of Thailand
- G – 20Y Summit 2015, France
- Mitsui – Harvard Business School HBS - Global Management Academy 2015 Japan and USA
- 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)
- Financial Statement for Directors, PTT Public Company Limited
- Director Certification Program (DCP), Class 146/2011, Thai Institute of Directors Association (IOD)
- Financial Statements for Directors (FSD), Class 12/2011, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

**Family relationship within the Company,
major shareholder or subsidiaries**

None

Work experience within the past 5 years

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
Oct 2015 – Jan 2019	Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited
2015 – 2016	Executive Vice President working on Acting Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited
Oct 2015 – Jan 2019	Director/ Member of the Risk Management Committee, Thai Oil Public Company Limited
2014 – 2018	Chairman, PTT Natural Gas Distribution Company Limited
Oct 2014 – Sep 2015	Executive Vice President, PTT, working on a secondment as President, Global Power Synergy Public Company Limited

2012 – 2014

Executive Vice President, Natural Gas for Vehicle, PTT Public Company Limited

2010 – 2012

Executive Vice President, Natural Gas Distribution, Gas Business Unit, PTT Public Company Limited

Current Position**Board member/ Management in Listed Company – The Stock Exchange of Thailand**

Feb 2019 – Present

Director/ Member of the Risk Management Committee/ President/ Secretary of the Board of Directors/ IRPC Public Company Limited

Feb 2019 – Present

Senior Executive Vice President, Downstream Petroleum Business Group, PTT Public Company Limited

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

Aug 2019 – Present

Deputy Chairman, PTT Energy Solutions Company Limited

May 2019 – Present

Chairman, IRPC Oil Company Limited

Apr 2019 – Present

Chairman, IRPC Polyol Company Limited

Mar 2019 – Present

Director, IRPC Oil Company Limited

Mar 2019 – Present

Chairman, IRPC A&L Company Limited

Mar 2019 – Present

Chairman, IRPC Technology Company Limited

Mar 2019 – Present

Chairman, iPolymer Company Limited

Jan 2019 – Present

Director, UBE Chemicals (Asia) Public Company Limited



Mr. Preecha Pocatanawat

Age 59 Years
(Resigned 1 March 2019)

Education/ Training

- Bachelor of Laws (LLB), Ramkhamhang University
- Barrister-at-Law, The Institute of Legal Education, Thai Bar Association, Thailand
- Bachelor of Business Administration (BBA), Ramkhamhang University
- Leadership Development Program III (LDP III) 2018, Singapore
- IRDPE Leadership & Effective Corporate Culture Program 2018, Institute of Research & Development for Public Enterprises (IRDPE)
- Senior Executive Certificate in Anti-corruption Strategic Management, Class 8/2017, Sanya Dharmasakti National Anti-corruption Institute (SDI)
- Strategy and Innovation for Business in Asia Program (SIBA), Class 4/2015, College of Management Mahidol University
- Leadership Development Program II (LDP II) 2014, China
- Director Certification Program (DCP), Class 261/2018, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Sep 2018 – Feb 2019	Director/ Member of the Nomination and Remuneration Committee, IRPC Public Company Limited
Dec 2016 – Sep 2018	Director, IRPC Technology Company Limited
2015 – Sep 2018	Executive Vice President, Corporate Human Resources, PTT Public Company Limited
2012 – 2015	Vice President, Finance, Account and Corporate Support, HMC Polymer Company Limited
2010 – 2012	Vice President, Strategic Financial Management and Policy, PTT Public Company Limited
2006 – 2010	Vice President, Financial Risk Management and Credit Policy, PTT Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Oct 2018 – Present	Senior Executive Vice President, Organization management and Sustainability, PTT Public Company Limited
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Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

2018 – Present	Chairman, Business Services Alliance Company Limited
2018 – Present	Chairman, Business Professional Solutions Company Limited
2015 – Present	Director, Energy Complex Company Limited

Miss Ruenvadee Suwanmongkol

Age 55 Years
(Complete the agenda in the 2019 Annual General Meeting of Shareholders)

Education/ Training

- LL.B. (1st Class Honor and Gold Medal) Chulalongkorn University
- M.B.A. Walter A. Haas School of Business, University of California at Berkeley
- L.L.M. Harvard Law School, Cambridge Massachusetts, USA
- Barrister-at-Law Legal Training Institute, Thai Bar Association
- The Programme of Senior Executives on Justice Administration Batch 15 National Justice Academy Judicial Training Institute Office of Judiciary
- Diploma, National Defence College, The Joint State - Private Sector Course, Class 25, Thailand National Defence College
- The Anti-corruption Strategic Management Course for Senior Executive, Class 5, Office of the National Anti-corruption Commission
- Advanced Certificate Course in Promotion of Peaceful Society, Class 2, King Prajadhipok's Institute
- Budgeting for Executive Program, Class 2, Bureau of Budget
- Government Senior Legal Executives Training Program, Class 6, Office of the Council of State
- Director Certification Program (DCP), Class 127/2010, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Apr 2016 – Apr 2019	Independent Director/ Member of the Audit Committee, IRPC Public Company Limited
Nov 2015 – Oct 2019	Committee Member, The Foundation Assanee Pollajan
Jul 2014 – Apr 2019	Director-General, Legal Execution Department, Ministry of Justice
2012 – 2014	Director - General, Department of Probation, Ministry of Justice
2012	Inspectors General, Ministry of Justice, Spokesperson of the Ministry of Justice
Mar 2011 – Feb 2017	Director, Thai Committee for Refugees Foundation
2009 – 2011	Deputy Director-General, Office of Justice Affairs, Ministry of Justice

Justice

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

None

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

Feb 2016 – Present	Member of Board Directors/ Member of the Scrutiny Sub-committee/ Chairman of the Legal Counseling Sub-committee, Bank for Agriculture and Agricultural Cooperatives
Jul 2015 – Present	Member of Board of Directors / Chairman of Risk Management, Dhanarak Asset Development
Jul 2013 – Present	Committee Member, The Foundation of Business Lawyer Promotion Present Committee Member, Women for Peace Foundation
Present	Director, Women for Peace Foundation

General Theppong TippayachanAge 61 Years
(Resigned 2 May 2019)**Education/ Training**

- Armed Forces Preparatory School, Class 18/1975
- Chulachomklao Royal Military Academy, Class 29/1977
- Master of Public Administration, Burapha University
- Diploma, National Defence College, The National Defence College, Class 54/2011, Thailand National Defence College

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Apr 2017 – Jun 2019	Member of the Corporate Governance Committee, IRPC Public Company Limited
Sep 2016 – Jun 2019	Independent Director, IRPC Public Company Limited
Oct 2017 – Sep 2018	Permanent Secretary for Defence
Oct 2016 – Sep 2017	Assistant Commander in Chief, Royal Thai Army
Aug 2014 – Nov 2016	Director, Provincial Waterworks Authority
Oct 2015 – Sep 2016	1 st Army Area Commander
Oct 2014 – Sep 2015	1 st Corps Commander
Oct 2013 – Sep 2014	Deputy Commander of 1st Army Area
Oct 2011 – Sep 2013	Commanding General of 2nd Infantry Division, Queen's Guard

Current Position**Board member/ Management in Listed Company – The Stock Exchange of Thailand**

None

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

None

General Sasin ThongpakdeeAge 61 Years
(Resigned 2 May 2019)**Education/ Training**

- Armed Forces Academy Preparatory School, Class 17
- Chulachomklao Royal Military Academy, Class 28
- Royal Thai Army Command and General Staff College, Class 68
- Joint Services Staff College, Thailand, Class 40
- Diploma, National Defence College, The Joint State - Private Sector Course, Class 24, Thailand National Defence College
- The Board's Role in Strategic Formulation, Governance Matters Australia

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Oct 2014 – Jun 2019	Member of the Corporate Governance Committee, IRPC Public Company Limited
Sep 2014 – Jun 2019	Independent Director, IRPC Public Company Limited
Oct 2017 – Sep 2018	Deputy Commander in Chief, Royal Thai Army
Oct 2016 – Sep 2017	Chief of Staff, Royal Thai Army
Oct 2015 – Sep 2016	Deputy Chief of Staff, Royal Thai Army
Oct 2012 – Sep 2015	Directorate of Operations

Current Position**Board member/ Management in Listed Company – The Stock Exchange of Thailand**

None

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

None



Mr. Jessada Promjart

Age 58 Years
(Resigned 1 October 2019)

Education/ Training

- Bachelor of Accounting, Thammasat University
- Master of Accounting, Thammasat University
- Advanced Diploma, Public Administration and Public Law, Class 12/2013, King Prajadhipok's Institute
- TLCA Executive Development Program (EDP), Class 9/2012, Thai Listed Company Association
- The Anti-corruption Strategic Management Course for Senior Executive, Class 1/2010, Office of the National Anti-corruption Commission
- Public Director Certification Program (PDI), Class 14, King Prajadhipok's Institute
- Advanced Audit Committee Program (AACP), Class 25/2017, Thai Institute of Directors Association (IOD)
- Ethical Leadership Program (ELP), Class 5/2016, Thai Institute of Directors Association (IOD)
- Company Secretary Program (CSP), Class 07/2004, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 45/2004, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": 25,000

(Self: 5,000 Share Possession: 0.00002 %)

(Spouse: 20,000 Share Possession: 0.00010 %)

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Sep 2016 – Oct 2019	Independent Director/ Member of the Audit Committee, IRPC Public Company Limited
Mar 2016 – Oct 2019	Director, IRPC Public Company Limited
Apr 2015 – Apr 2018	Independent Director/ Audit Committee, Nation Broadcasting Corporation Public Company Limited
Jun 2016 – Apr 2017	Director, Chu Kai Public Company Limited
Apr 2015 – May 2016	Audit Committee and Advisors, Chulabhorn Hospital
Sep 2014 – May 2016	Chief Executive Officer, Chu Kai Public Company Limited
Sep 2014 – May 2016	Director, The Crane Services Company Limited
Sep 2014 – May 2016	Director, The Crane Laem Chabang Company Limited
Sep 2014 – May 2016	Director, The Crane Rayong Company Limited
Sep 2014 – May 2016	Director, The Crane Heavy Lift Company Limited
2014	Vice Chairman of the Board, SEED MCOT Company Limited
2013 – 2014	Executive Vice President and Chief Financial Officer, MCOT Public Company Limited
2011 – 2012	Director, True Corporation Public Company Limited

2009 – 2013	Chief Financial Officer, MCOT Public Company Limited
2008 – 2015	Director, D-Land Development Company Limited
2008 – 2014	Independent Director and Audit Committee, Chu Kai Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Apr 2015 – Present	The Corporate Governance Committee, Joint Operation Agreement between Bangkok Entertainment Company Limited (BEC) and MCOT Public Company Limited
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Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

2019 – Present	Director and Audit Committee, AMR Asia Company Limited
Jun 2018 – Present	Director and Executive Director, YSS (Thailand) Company Limited
Dec 2018 – Present	Director, YSS Training Company Limited
Apr 2017 – Present	Audit Committee, Chulabhorn Royal Academy
Nov 2016 – Present	Director and Audit Committee, Expressway Authority of Thailand
Dec 2015 – Present	Director and Audit Committee, Government Savings Bank (Thailand)
Apr 2015 – Present	Director of Construction Sector, Chulabhorn Hospital and Chulabhorn Medicine Institute, Chulabhorn Hospital
Mar 2015 – Present	Corporate Governance Committee of the agreement of shopping center, Pahonyothin road's advantage between State Railway of Thailand and Central Inter Patthana Company Limited

Mr. Sukrit Surabotsopon

Age 61 Years

(Resigned 31 January 2019)

Education/ Training

- Bachelor of Engineering in Chemical Engineering with 2nd Class Honor, Chulalongkorn University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 6/2015, Thailand Energy Academy (TEA)
- Diploma, National Defence College, The Joint State – Private Sector Course, Class 26/2013, Thailand National Defence College
- Capital Market Academy Leader Program, Class 16/2013, Capital Market Academy
- Advanced Certificate Course Politics and Governance in Democratic Systems for Executives, Class 15/2012, King Prajadhipok's Institute
- TLCA Executive Development Program (EDP), Class 3/2009, Thai Listed Company Association
- The Board's Role in Strategic Formulation, Governance Matters Australia
- Audit Committee Program (ACP), Class 38/2012, Thai Institute of Directors Association (IOD)
- Monitoring the System of Internal Control & Risk Management (MIR), Class 12/2012, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 132/2010, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Dec 2018 – Jan 2019	Chairman, iPolymer Company Limited
Nov 2018 – Dec 2018	Director, iPolymer Company Limited
Jun 2018 – Dec 2018	Director, IRPC Polyol Company Limited
Jan 2017 – Jan 2019	Chairman, PTT Energy Solutions Company Limited
Mar 2015 – Jan 2019	Chairman, IRPC Technology Company Limited
Feb 2015 – Jun 2017	Chairman, IRPC PCC Company Limited
Oct 2014 – Jan 2019	Member of the Risk Management Committee, IRPC Public Company Limited
Aug 2014 – Jan 2019	Chairman, IRPC Oil Company Limited
Aug 2014 – May 2018	Chairman, IRPC Polyol Company Limited
Aug 2014 – Jul 2016	Chairman, Thai ABS Company Limited
Jan 2014 – Jan 2019	Director, The Federation of Thai Industries
Jan 2014 – Feb 2018	Chairman, Petroleum Refining Industry Club, The Federation of Thai Industries
Nov 2013 – Jan 2019	Chairman, IRPC A&L Company Limited
Nov 2013 – Jan 2019	Director, UBE Chemicals (Asia) Public Company Limited
Nov 2013 – Jun 2015	Director, PTT Polymer Marketing Company Limited
Oct 2013 – Jan 2019	Director/ President/ Secretary of the Board of Directors, IRPC Public Company Limited

Oct 2013 – Jan 2019	Senior Executive Vice President, Downstream Petroleum Business Group, PTT Public Company Limited
Jan 2012 – Oct 2013	Director, PTT International Company Limited
Oct 2011 – Sep 2013	Director, PTT Global Chemical Public Company Limited
Jan 2010 – Sep 2013	Senior Executive Vice President, Petrochemicals & Refining Business Unit, PTT Public Company Limited
Mar 2009 – Oct 2013	Director, Star Petroleum Refining Public Company Limited

Current Position**Board member/ Management in Listed Company – The Stock Exchange of Thailand**

None

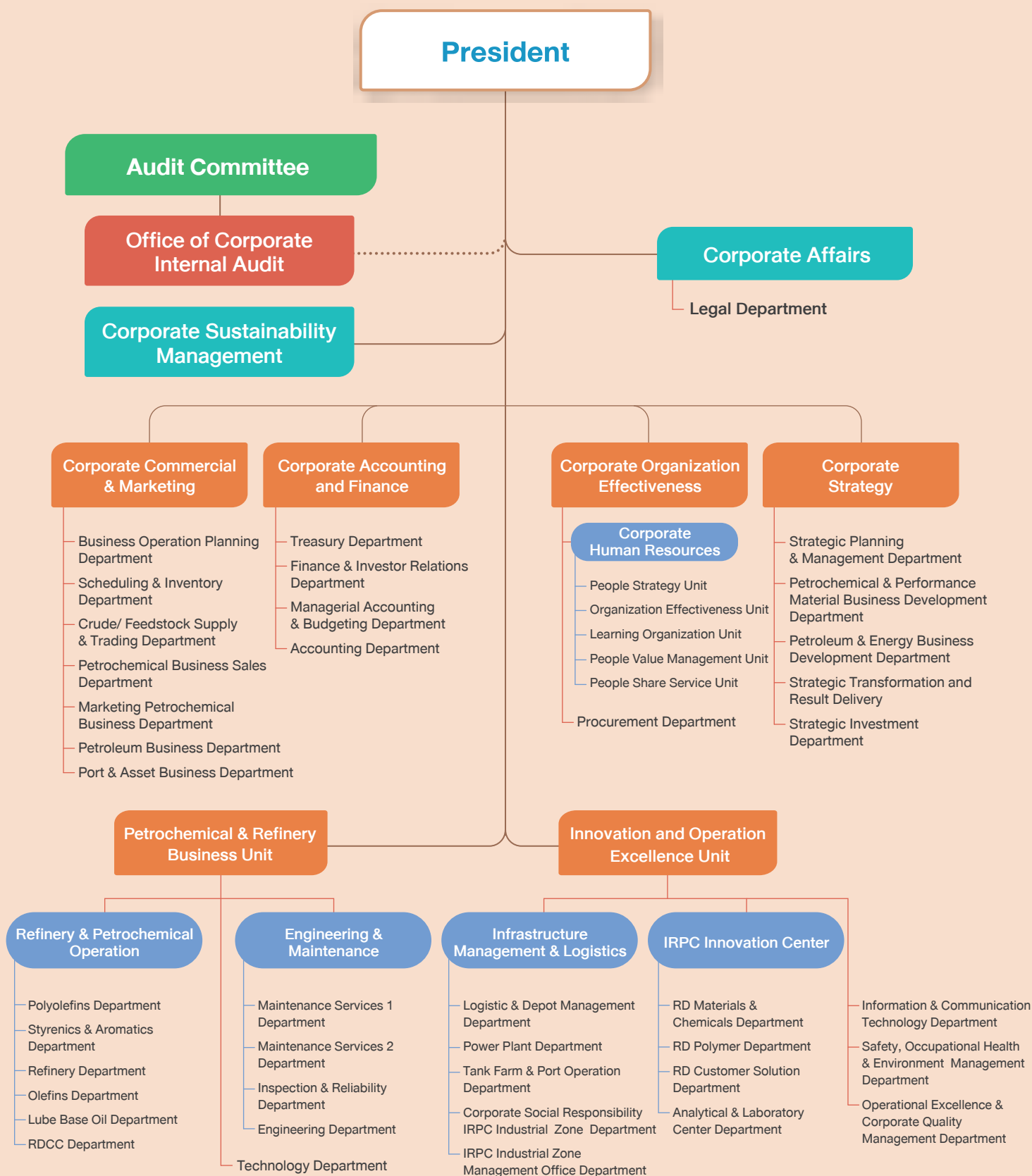
Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

None



Organization Structure

As of January 2, 2020



Management Team

1. Mr. Noppadol Pinsupa

President

2. Mr. Somkiat Lertritpuwadol

Senior Executive Vice President,
Corporate Strategy

3. Miss Wanida Utalsomnapa

Senior Executive Vice President,
Corporate Commercial and Marketing

4. Mr. Veerawat Srinoradithlert

Senior Executive Vice President,
Corporate Organization Effectiveness

5. Mrs. Nidcha Jirametthanakij

Senior Executive Vice President,
Corporate Accounting & Finance

6. Mr. Vichit Nittayanonte

Senior Executive Vice President,
Innovation and Operation Excellence

7. Mr. Woravuth Sivapetranart

Senior Executive Vice President,
Petrochemical and Refinery Operation



7

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Miss Awrapin Ketratanakul
Executive Vice President,
Sustainability Management Office



Mr. Thammasak Panyowatkool
Executive Vice President,
Officiates as Office of Internal
Audit Manager



Mr. Kraisit Anukoolutaiwong
Executive Vice President,
Innovation and Operation Excellence



Miss Arisara Suthasut
Executive Vice President,
Corporate Affairs and Company Secretary



Mr. Rathapol Unakanporn
Executive Vice President,
Infrastructure Management & Logistics



Mr. Phothiwat Paopongchuang
Executive Vice President assigned
to work as a Managing Director of
Technology IRPC Company Limited



Mr. Pranarch Kosayanont
Executive Vice President,
Refinery and Petrochemical Operation

Management Team, IRPC Public Company Limited

Mr. Noppadol Pinsupa

President

Age 55 Years

President Starting Date: 1 February 2019

Education/ Training

- Bachelor of Engineering (Electrical), Chulalongkorn University
- Master of Engineering (Electrical), Chulalongkorn University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 14/2019, Thailand Energy Academy
- Diploma, National Defence College, The National Defence Course, Class 60, Thailand National Defence College
- TIJ Executive Program on the Rule of Law and Development (RoLD Program), 2017, Thailand Institute of Justice (TIJ)
- Leadership Program, Class 22/2016, Capital Market Academy, The Stock Exchange of Thailand
- G – 20Y Summit 2015, France
- Mitsui – Harvard Business School HBS - Global Management Academy 2015 Japan and USA
- 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)
- Financial Statement for Directors, PTT Public Company Limited
- Director Certification Program (DCP), Class 146/2011, Thai Institute of Directors Association (IOD)
- Financial Statements for Directors (FSD), Class 12/2011, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

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
Oct 2015 – Jan 2019	Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited
2015 – 2016	Executive Vice President working on Acting Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited

Oct 2015 – Jan 2019	Director/ Member of the Risk Management Committee, Thai Oil Public Company Limited
2014 – 2018	Chairman, PTT Natural Gas Distribution Company Limited
Oct 2014 – Sep 2015	Executive Vice President, PTT, working on a secondment as President, Global Power Synergy Public Company Limited
2012 – 2014	Executive Vice President, Natural Gas for Vehicle, PTT Public Company Limited
2010 – 2012	Executive Vice President, Natural Gas Distribution, Gas Business Unit, PTT Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Feb 2019 – Present	Director/ Member of the Risk Management Committee/ President/ Secretary of the Board of Directors/ IRPC Public Company Limited
Feb 2019 – Present	Senior Executive Vice President, Downstream Petroleum Business Group, PTT Public Company Limited

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

Aug 2019 – Present	Deputy Chairman, PTT Energy Solutions Company Limited
May 2019 – Present	Chairman, IRPC Oil Company Limited
Apr 2019 – Present	Chairman, IRPC Polyol Company Limited
Mar 2019 – Present	Director, IRPC Oil Company Limited
Mar 2019 – Present	Chairman, IRPC A&L Company Limited
Mar 2019 – Present	Chairman, IRPC Technology Company Limited
Mar 2019 – Present	Chairman, iPolymer Company Limited
Jan 2019 – Present	Director, UBE Chemicals (Asia) Public Company Limited



Mr. Woravuth Sivapetranart

Senior Executive Vice President, Petrochemical and Refinery Operation

Age 56 Years

Senior Executive Vice President, Petrochemical and Refinery Operation Starting Date: 1 March 2019

Education/ Training

- Bachelor of Science (Chemistry), Prince of Songkla University
- Master of Business Administration (Business Administration), Chulalongkorn University
- MINI MBA Thammasat University
- GE Global Customer Summit, ASEAN Executive Program, Crotonville, USA
- Leadership Development Program III, PTT Leadership and learning Institute
- Senior Executive Program (SEP), Class 32, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Advanced Management Program 3 (AMP3), PTT Leadership and learning Institute
- Executive Energy Management Program (EEM), Season 3, Ministry of Energy
- Director Certification Program (DCP), Class 281/2019, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": 279,351 Share Possession: 0.00137 %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Jan 2019 – Feb 2019	Senior Executive Vice President, Petrochemical & Refinery Business Unit, IRPC Public Company Limited
Jan 2017 – Dec 2018	Executive Vice President, Refinery and Petrochemical Operation, IRPC Public Company Limited
2014 – 2016	Executive Vice President, Technology & Operational Excellence, IRPC Public Company Limited
2011 – 2014	Executive Vice President Operation 2, IRPC Public Company Limited
2010 – 2011	Acting Executive Vice President, Operation 2, IRPC Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Mar 2019 – Present	Senior Executive Vice President, Petrochemical and Refinery Operation, IRPC Public Company Limited
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Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

Mar 2019 – Present	Director, WHA Industrial Estate Rayong Company Limited
Mar 2019 – Present	Director, IRPC Clean Power Company Limited
Mar 2017 – Present	Director, IRPC Polyol Company Limited
Apr 2017 – Present	Director, IRPC A&L Company Limited

Mr. Somkiat Lertritpuwadol**Senior Executive Vice President,
Corporate Strategy**

Age 57 Years

Senior Executive Vice President, Corporate Strategy Starting Date: 1 January 2019

Education/ Training

- Bachelor of Science (Chemistry), Ramkhamhaeng University
- Master of Business Administration, Asian University
- Mini MBA, Thammasart University
- NIDA Executive Leadership Program – Wharton University of Pennsylvania
- Advanced Certificate Course in Public Economics Management for Executives, Class 11, King Prajadhipok's Institute
- The Executive Program in Energy Literacy for a Sustainable Future (TEA) Class 9, Thailand Energy Academy
- Capital Market Academy Leader Program, Class 285/2019, Capital Market Academy, The Stock Exchange of Thailand
- Financial Statements for Directors (FSD), Class 36/2018, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 224/2016, Thai Institute of Directors Association (IOD)
- Director Accreditation Program (DAP), Class 111/2014, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": 311,480

(Self: 295,580 Share Possession: 0.00145 %)

(Spouse: 15,900 Share Possession: 0.00008 %)

**Family relationship within the Company,
major shareholder or subsidiaries**

None

Work experience within the past 5 years

Dec 2014 – Feb 2019	Director UBE Chemical (Asia) Public Company Limited
Jan 2016 – Dec 2018	Senior Executive Vice President, Corporate Commercial and Marketing, IRPC Public Company Limited
Feb 2015 – Jun 2017	Director, IRPC PCC Company Limited
Jan 2016 – Dec 2016	Acting Executive Vice President, Corporate Marketing, IRPC Public Company Limited
Feb 2012 – Jul 2016	Director, Thai ABS Company Limited
Oct 2012 – Apr 2015	Director, TPI Internet Portal Company Limited
2011 – 2015	Executive Vice President, Corporate Marketing, IRPC Public Company Limited
2010 – 2011	Executive Vice President, Corporate Planning Supply Feedstock&Trading/ Acting Executive Vice President, Research and Development, IRPC Public Company Limited

Current Position**Board member/ Management in Listed Company – The Stock Exchange of Thailand**

Jan 2019 – Present	Senior Executive Vice President, Corporate Strategy, IRPC Public Company Limited
Jan 2019 – Present	Secretary of the Risk Management Committee, IRPC Public Company Limited

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

Mar 2019 – Present	Director, IRPC Clean Power Company Limited
Nov 2018 – Present	Director, iPolymer Company Limited
Jul 2018 – Present	Director, WHA Industrial Estate Rayong Company Limited
Jan 2016 – Present	Acting Managing Director, IRPC OIL Company Limited
Jan 2016 – Present	Acting Managing Director, IRPC A&L Company Limited
Dec 2014 – Present	Director, IRPC A&L Company Limited
Feb 2012 – Present	Director, IRPC Oil Company Limited



Mrs. Nidcha Jirametthanakij

Senior Executive Vice President, Corporate Accounting & Finance

Age 57 Years

Senior Executive Vice President, Corporate Accounting & Finance Starting Date: 1 October 2018

Education/ Training

- Bachelor of Accounting (Accounting), Thammasat University
- Master of Business Administration, Kasetsart University
- Executive Development Program by Fiscal Policy Research Institute Foundation, Kingdom of Thailand in cooperation with Maxwell School of Syracuse University
- Advanced Management Program (AMP) 2 – People Management
- CFOs Orientation Course for New IPOs, The Stock Exchange of Thailand (SET)
- Director Certification Program (DCP), Class 206/2015, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

2018	Executive Vice President, PTT Public Company Limited, Secondment to PTT Oil and Retail Business Company Limited
2016 – 2018	Vice President, Group Financial Planning, PTT Public Company Limited
2013 – 2016	Acting Managing Director, PTT Regional Treasury Center Pte. Ltd.
2011 – 2013	Vice President, Investor Relations, PTT Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Oct 2018 – Present	Senior Executive Vice President, Corporate Accounting & Finance, IRPC Public Company Limited
Mar 2018 – Present	Executive Vice President, Corporate Finance & Accounting, PTT Public Company Limited

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

Dec 2018 – Present	Director, IRPC A&L Company Limited
Nov 2018 – Present	Director, iPolymer Company Limited
Nov 2018 – Present	Director, IRPC Oil Company Limited
Nov 2018 – Present	Director, IRPC Polyol Company Limited
Nov 2018 – Present	Director, WHA Industrial Estate Rayong Company Limited
Oct 2018 – Present	Director, UBE Chemicals (Asia) Public Company Limited
Oct 2018 – Present	Director, IRPC Clean Power Company Limited

Miss Wanida Utaisomnapa**Senior Executive Vice President, Corporate Commercial and Marketing**

Age 53 Years

Senior Executive Vice President, Corporate Commercial and Marketing Starting Date: 1 January 2019

Education/ Training

- Bachelor of Business Administration (Finance with second class honors), Bangkok University
- Master of Business Administration (Finance and Marketing), National University, San Diego, USA
- PLLI Leadership Development Program, IMD, Singapore
- Advance Management Program, DDI
- Leadership/ The 7 HABITS of Highly Effective People, PacRim/ FranklinCovey
- PTT-HBS Leadership Development Program Class 1, Harvard Business School, India&China
- Refinery Economics, Solomon Associates, Singapore
- Advance Price Risk Management, Invincible Energy, Singapore
- The Board's Role in Strategic Formulation, Governance Matters Australia

Possession of IRPC shares (%)

No. of share "IRPC": 210,440 Share Possession: 0.00103 %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Nov 2018 – Mar 2019	Director, IRPC Clean Power Company Limited
Oct 2018 – Dec 2018	Executive Vice President, Strategic Transformation and Result Delivery Office, IRPC Public Company Limited
Feb 2015 – Dec 2018	Secretary of the Risk Management Committee, IRPC Public Company Limited
Jan 2015 – Dec 2018	Executive Vice President, Corporate Business Planning, IRPC Public Company Limited
2014 – 2015	Executive Vice President, Corporate Planning Supply Feedstock and Trading, IRPC Public Company Limited
2013 – 2014	Acting Executive Vice President, Corporate Planning Supply Feedstock and Trading/ Acting Vice President of Crude Feedstock Supply Trading Department/ Acting Price Risk Management Division Manager, IRPC Public Company Limited

2012 – 2013

Vice President of Crude & Feedstock Supply Trading Department/ Acting Price Risk Management Division Manager,
IRPC Public Company Limited

2011 – 2012

Vice President, Business Operation Planning Department,
IRPC Public Company Limited

2010 – 2011

Division Manager, Crude Oil & Petroleum Feedstock Division, IRPC Public Company Limited

Current Position**Board member/ Management in Listed Company – The Stock Exchange of Thailand**

Jan 2019 – Present

Senior Executive Vice President,
Corporate Commercial and Marketing,
IRPC Public Company Limited**Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand**

Jul 2019 – Present

Director, Guangzhou Saiju Performance Polymer Company Limited

Mar 2019 – Present

Director, IRPC A&L Company Limited

Apr 2019 – Present

Director, IRPC Polyol Company Limited

Jan 2019 – Present

Director, UBE Chemicals (Asia) Public Company Limited

Nov 2018 – Present

Director, IRPC OIL Company Limited



Mr. Veerawat Srinoradithlert

Senior Executive Vice President,
Corporate Organization Effectiveness

Age 57 Years

Senior Executive Vice President, Corporate Organization Effectiveness Starting Date: 1 March 2019

Acting Senior Executive Vice President,
Innovation and Operation Excellence

Acting Senior Executive Vice President, Innovation and Operation Excellence Starting Date: 1 January 2020

Education/ Training

- Bachelor of Engineering (Chemical Engineering), King Mongkut's University of Technology Thonburi
- Master of Business Administration, Burapha University
- Mini MBA, Thammasat University
- Executive Development Program

Possession of IRPC shares (%)

No. of share "IRPC": 10,579 Share Possession: 0.00005 %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

2012 – Feb 2019	Executive Vice President, Engineering & Maintenance, IRPC Public Company Limited
2011 – 2012	Vice President, Complex 1 Department/ Analytical Center & Laboratory Department, IRPC Public Company Limited
2010 – 2011	Vice President, Complex 1 Department, IRPC Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Jan 2020 – Present	Acting Senior Executive Vice President, Innovation and Operation Excellence, IRPC Public Company Limited
Mar 2019 – Present	Senior Executive Vice President, Corporate Organization Effectiveness

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

Oct 2019 – Present	Director, IRPC Technology Company Limited
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Mr. Pranarch Kosayanont**Executive Vice President,
Refinery and Petrochemical Operation**

Age 53 Years

Education/ Training

- Bachelor of Science (Chemistry),
King Mongkut's University of Technology Thonburi
- Mini MBA, Thammasart University
- PTT-HBS Leadership Development Program 1
- Senior Executive Program (SEP), Class 25, Sasin Graduate
Institute of Business Administration of Chulalongkorn University

Possession of IRPC shares (%)

No. of share "IRPC": 245,292 Share Possession: 0.00120 %

**Family relationship within the Company,
major shareholder or subsidiaries**

None

Work experience within the past 5 years

Jan 2019 – Jul 2019	Acting Executive Vice President, Refinery and Petrochemical Operation
Oct 2014 – Dec 2018	Vice President, Refinery, IRPC Public Company Limited
2010 – Oct 2014	Vice President, Lube Base Oil, IRPC Public Company Limited

Current Position**Board member/ Management in Listed Company – The Stock Exchange
of Thailand**

Aug 2019 – Present	Executive Vice President, Refinery and Petrochemical Operation, IRPC Public Company Limited
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**Board member/ Management in Non-Listed Company – The Stock
Exchange of Thailand**

None

Mr. Rathapol Unakanporn**Executive Vice President,
Infrastructure Management & Logistics**

Age 56 Years

Education/ Training

- Bachelor of Science,
King Mongkut's University of Technology Thonburi
- Master of Engineering (Industrial Engineering),
Kasetsart University
- Master of Public Administration (M.P.A.),
Graduate School of Public, Administration National Institute
- MINI MBA, Thammasat University
- The Global Petrochemical Industry
- Lummus Technology Seminar,
Lummus Technology a CB&I company
- Project Management (FOSTER WHEELER)
- The Global Customer Summit GE Crotonvill, USA
- Leadership Development Program III, PTT Leadership and
Learning Institute

Possession of IRPC shares (%)

No. of share "IRPC": 1 Share Possession: 0.00000 %

**Family relationship within the Company,
major shareholder or subsidiaries**

None

Work experience within the past 5 years

Jan 2019 – Jul 2019	Acting Executive Vice President, Infrastructure Management & Logistics
Jan 2017 – Dec 2018	Vice President, Corporate Social Responsibility IRPC Industrial Zone
Jan 2014 – Dec 2016	Vice President, Styrenics & Aromatics Department

Current Position**Board member/ Management in Listed Company – The Stock Exchange
of Thailand**

Aug 2019 – Present	Executive Vice President, Infrastructure Management & Logistics IRPC Public Company Limited
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**Board member/ Management in Non-Listed Company – The Stock
Exchange of Thailand**

None



Mr. Thammasak Punyowatkool

Executive Vice President,
Officiate as Office of Internal Audit Manager

Age 53 Years

Education/ Training

- Bachelor of Science (Accounting), Kasetsart University
- Mini MBA : Executive Leadership Development Program
Faculty of Commerce and Accountancy, Thammasat University
- The Manager Program, Management and Psychology Institute,
Class 47
- The Board's Role in Strategic Formulation,
Governance Matters Australia

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

2014 – 2017	Director, IRPC Technology Company Limited
2014 – 2015	Executive Vice President, Corporate Accounting, IRPC Public Company Limited
2013 – 2014	Acting Executive Vice President, Corporate Accounting, IRPC Public Company Limited
2010 – 2013	Vice President, Managerial Accounting Department, IRPC Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

2016 – Present	Executive Vice President, Officiate as Office of Internal Audit Manager and Secretary of Audit Committee IRPC Public Company Limited
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Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

2014 – Present	Director, Rayong Acetylene Company Limited
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Miss Arisara Suthasut

Executive Vice President, Corporate Affairs and Company
Secretary And Acting Executive Vice President,
Corporate Sustainability Management

Age 44 Years

Appointed as a Executive Vice President,
Corporate Affairs and Company Secretary since 1 October 2019

Education/ Training

- Bachelor of Engineering (Chemical Engineering),
Kasetsart University
- Master of Science, Petrochemical Technology, The Petroleum
and Petrochemical College, Chulalongkorn University

Possession of IRPC shares (%)

No. of share "IRPC": 2,200 Share Possession: 0.00001 %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

2018 – Sep 2019	Director, Corporate Management Department, PTT Tank Terminal Company Limited
2013 – 2019	Division Manager, Downstream Business, PTT Public company Limited
2013 – 2017	Division Manager, Business Development Department, IRPC Public Company Limited
2012 – 2013	Analyst, Petrochemical Subsidiary Planning and Management, PTT Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Jan 2020 – Present	Acting Executive Vice President, Corporate Sustainability Management, IRPC Public Company Limited
Oct 2019 – Present	Executive Vice President, Corporate Affairs and Company Secretary, IRPC Public Company Limited
2019 – Present	Department Manager, Chief Operation Office Downstream Petroleum Business, PTT Public Company Limited

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

Oct 2019 – Present	Director, Technology IRPC Company Limited
Oct 2019 – Present	Director, Sarn Palung Social Enterprise Company Limited

Miss Awrapin Kettratanakul

Age 60 Years
(Retire 31 December 2019)

Education/ Training

- Bachelor of Science (Medical Technology), Mahidol University
- Master of Science (Environmental Engineering), Asian Institute of Technology
- Doctor of Engineering (Urban Engineering), The University of Tokyo (TODAI), Tokyo, Japan.
- Mini MBA, Thammasat University
- Leadership Great Leaders, Great Teams, Great Results By PacRim
- Management Accounting for Non-Financial Executives, Federation of Accounting Professions
- Air Emission Abatement Technology for Petroleum&Petrochemical Industry, The Overseas Human Resources and Industry Development Association (HIDA)
- Change Acceleration Process, GE
- PTT Group Leadership Development Program, PTT Public Company Limited
- Executive Development Program 2010, Fiscal Policy Research Institute Foundation Kingdom of Thailand
- The Board's Role in Strategic Formulation, Governance Matters Australia
- McKinsey Leadership Academy Program
- Digital Leadership Acceleration Program 2018, The Boston Consulting Group
- Embracing Higher Productivity Mindset, Lead Business Institute
- Power Grid, Compass Institute

Possession of IRPC shares (%)

No. of share "IRPC": 92,600 Share Possession: 0.00045 %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

2014 – Dec 2018	Executive Vice President, Sustainability Management Office, IRPC Public Company Limited
2012 – 2014	Executive Vice President, Corporate Quality, Safety, Occupational Health&Environment Department, IRPC Public Company Limited
2008 – 2012	Vice President, Department of Corporate Quality Safety Health and Environment, IRPC Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

None

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

2014 – Present	Counsellor, The Environmental Engineering Association of Thailand
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Mr. Phothiwat Paopongchuang

Executive Vice President, President Office/
Managing Director, Technology IRPC Company Limited

Age 59 Years

Education/ Training

- Bachelor of Engineering (Mechanical Engineering), Khonkhan University
- Master of Industrial (Management Engineering) King Mongkut's University of Technology North Bangkok
- Master of Public Administration, National Institute of Development Administration (NIDA)
- Doctor of Business Administration (Industrial Business and Human Resource), King Mongkut's University of Technology North Bangkok
- Mini MBA, Thammasat University
- Professional Engineer from Council of Engineers
- The Board's Role in Strategic Formulation, Governance Matters Australia
- Director Certification Program (DCP), Class 243/2017, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": 64,320 Share Possession: 0.00031 %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

2011 – 2014	Acting Executive Vice President, IRPC's Office of Industrial Zone Management, IRPC Public Company Limited
2010 – 2011	Vice President of CSR Division, IRPC Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

2014 – Present	Executive Vice President, President Office, IRPC Public Company Limited
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Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

2014 – Present	Managing Director, Technology IRPC Company Limited
2013 – Present	Director, Sport Services Alliance Company Limited

Mr. Kraisit Anukoolutaiwong

Executive Vice President,
Innovation & Operation Excellence

Age 59 Years

Education/ Training

- Bachelor of Arts (Political Science), Thammasat University
- Master of Public Administration, National Institute of Development Administration (NIDA)
- Mini MBA, Thammasat University

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Feb 2018 – Feb 2019	Acting People Strategy/ Acting Organization Effectiveness, IRPC Public Company Limited
2015 – Sep 2019	Director, Technology IRPC Company Limited
Oct 2012 – Apr 2015	Director, TPI Internet Portal Company Limited
2011 – Feb 2019	Executive Vice President, Corporate Human Resource, IRPC Public Company Limited

Current Position

Board member/ Management in Listed Company – The Stock Exchange of Thailand

Mar 2019 – Present	Executive Vice President, Innovation & Operation Excellence, IRPC Public Company Limited
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Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

None

Mr. Vichit NittayanonteAge 60 Years
(Retire 31 December 2019)**Education/ Training**

- Bachelor of Science (General Science), Chulalongkorn University
- Master of Business Administration Degree, Burapa University
- Mini MBA Thammasat University
- Director Accreditation Program (DAP), Class 91/2011, Thai Institute of Directors Association (IOD)
- Financial Statements for Directors (FSD), Class 12/0211, Thai Institute of Directors Association (IOD)

Possession of IRPC shares (%)

No. of share "IRPC": 333,394 Share Possession: 0.00163 %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Mar 2019 – Dec 2019	Senior Executive Vice President, Innovation and Operation Excellence, IRPC Public Company Limited
Jan 2019 – Dec 2019	Executive Vice President, IRPC Innovation Center, IRPC Public Company Limited
Mar 2017 – Dec 2019	Director, Rakpasak Company Limited
Jan 2017 – Dec 2018	Executive Vice President, Operation Support, IRPC Public Company Limited
Jan 2016 – Dec 2016	Acting Managing Director, IRPC Polyol Company Limited
Dec 2014 – Dec 2019	Director, IRPC A&L Company Limited
Feb 2012 – Dec 2019	Director, IRPC Oil Company Limited
Feb 2012 – 30 Apr 2018	Director, IRPC Polyol Company Limited
2012 – 2016	Executive Vice President, Petrochemical Operation, IRPC Public Company Limited
Dec 2012 – Jul 2016	Acting Managing Director, Thai ABS Company Limited
Feb 2012 – Jul 2016	Director, Thai ABS Company Limited
Feb 2012 – Dec 2015	Director, Thai Polyurethane Industry Company Limited
2010 – 2012	Managing Director, IRPC Polyol Company Limited

Current Position**Board member/ Management in Listed Company – The Stock Exchange of Thailand**

None

Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

None

Mrs. Peyada ChongpayuhaAge 58 Years
Returned to work at PTT Plc. At 1 Oct.2019**Education/ Training**

- Bachelor of Economics (B.Econ.), Chulalongkorn University
- Master of Arts (M.A.), Public Policy & Admin., University of Wisconsin-Madison, USA

Possession of IRPC shares (%)

No. of share "IRPC": - Share Possession: - %

Family relationship within the Company, major shareholder or subsidiaries

None

Work experience within the past 5 years

Oct 2018 – Sep 2019	Executive Vice President, Corporate Affairs / Company Secretary, IRPC Public Company Limited
Oct 2018 – Sep 2019	Director, Technology IRPC Company Limited
2016 – Sep 2018	Vice President, PTT Leadership and Learning Institute, PTT Public Company Limited
2016 – 2016	Vice President, Corporate Human Resource Management Department, PTT Public Company Limited
2012 – 2015	Vice President, Strategic Management and Budgeting Department, PTT Public Company Limited
2009 – 2012	Vice President, Appointed as Deputy Managing Director, Corporate Planning and Finance Department, PTT Retail Management Company Limited

Current Position**Board member/ Management in Listed Company – The Stock Exchange of Thailand**

Oct 2019 – Present	Executive Vice President, Corporate Reputation and Social Responsibility, PTT Public Company Limited
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Board member/ Management in Non-Listed Company – The Stock Exchange of Thailand

None



Internal Control

The Board's View on Internal Controls

IRPC sees the importance of internal control. The company pays close attention to controls' adequacy, suitability, and weaknesses, as well as the remedies of these weaknesses, to ensure proper execution, reporting, and compliance with rules, regulations, and articles of association. The effectiveness of internal controls was assessed through a series of questions and a review of an assessment form by the management team and Internal Control, a unit of Corporate Strategy, at Board Meeting No. 2/2020 on February 12, 2020. Also present at the meeting were independent directors and the Audit Committee. It is the board's opinion that IRPC has sufficient internal controls that can satisfy the requirement of COSO's Integrated Framework for Internal Control, thanks to an adequate number of human resources. The board also ensures that internal controls have been extended to IRPC's subsidiaries to prevent their directors or executive officers from misusing assets or using them without authorization. The board believes that controls of connected transactions and related party transactions, as well as those of other matters, are equally sufficient.

IRPC regularly improves its internal controls due to changing internal and external factors. In 2019 the company enhanced its the following components of internal controls:

1. Control Environment

The board and management advocated a corporate culture in which intelligent and morally sound people were vital to the realization of IRPC's vision and mission in an efficient and effective manner. They also advocated compliance with the code of conduct and a grounded and appropriate control environment.

The board had issued corporate governance, compliance, anti-corruption, and anti-bribery policy, as well as a code of conduct. Directors, executive officers, and employees were expected to adhere to these guidelines in their day-to-day operations. In addition, every employee was required to electronically submit an annual conflicts of interest report. They also completed a code of conduct compliance self-assessment.

The Board of Directors oversaw the overall operations independently of the management team. It expressed opinions and provided suggestions to company strategies, which guided management in their business and operation planning. The board also regularly monitored IRPC's performance and its own performance to ensure that the company would achieve its goals.

IRPC's corporate structure, comprising business groups and functions, allowed for effective management. The entire IRPC Group was steered towards the same goal. This separation of powers provided a system of checks and balances. Moreover, the people development plan clearly defined the desired qualification of each post. It included succession planning for all major positions and stipulated a standardized and systematic performance assessment. Performance was regularly monitored. The results of performance assessments played a part in determining compensation, doubling as an incentive for people to exercise their full potential.

IRPC pushed for the three lines of defense, regarded as international best practice, for risk management and internal control. Operatives and heads of job functions acted as the first line of defense; Internal Control and Corporate Compliance, the second; and Internal Audit, the third. These parties adhered to pertinent defense guidelines in their work, which included risk assessment, control activities, risk monitoring, and risk assessment. The first line of defense played the most significant role in the success and effectiveness of this method.

2. Risk Assessment

The board and senior executive officers made risk management a priority, bolstering stakeholders' confidence in IRPC's ability to achieve short-and long-term goals. The oversight of risk management was entrusted to the Risk Management Committee (RMC), appointed by the board and comprising selected board members, and the Risk Management and Internal Control Committee (RMCC), chaired by the president and composed of senior executives. These committees ensured the suitability and effectiveness of risk management and internal control, as well as concrete implementations of risk management measures throughout the organization. Management guidelines were as follows:

The ISO 31000 family of risk management standards, COSO's Integrated Framework of Enterprise Risk Management, and the Risk Management Policy served as guidelines for managing corporate risks, functional risks, and project risks that may affect the company's ability to achieve its goals. Changes in internal and external factors, as well as chances of corruption and fraud, were thoroughly considered, allowing IRPC to devise a comprehensive range of risk mitigation measures. Furthermore, IRPC reviewed its known risks and monitored the progress of risk management. Containing risks within the risk tolerance level was considered the duty of every unit.

The RMC and the RMCC received a report summarizing details of corporate risk management every quarter. A summary of functional risk management, meanwhile, went to the meeting of its respective business unit or function.

With ISO 22301 standard of business continuity management in place, IRPC was prepared to handle emergencies and crises. The scheme ensured that IRPC would be able to continue operating by minimizing impact and maintaining its corporate reputation.

3. Control Activities

IRPC was armed with efficient and effective control activities based on internal control best practice. These activities allowed IRPC to take the necessary risks while ensuring that goals would be met. Written regulations, policies, provisions, manuals, and procedures determined the scope of power of executive officers and employees in each corporate echelon, including the ability to authorize a business transaction. IRPC monitored compliance with these regulations, policies, provisions, manuals, and procedures regularly. It also routinely monitored its compliance with the policy and guidelines governing transactions with potential conflicts of interest to ensure these transactions were transparently, accountably, and fairly approved in the best interest of the company.

IRPC applied a continuous control monitoring system (CCMS) to the procurement, sales, and payment processes. It helped the company continuously monitor and discover irregularities effectively, according to principles of checks and balances.

IRPC had developed three control self-assessments (CSAs): the organizational control self-assessment, the process control self-assessment, and the operational control self-assessment. These control self-assessments enabled management to further improve upon control activities to thoroughly and comprehensively manage and mitigate risks.

IRPC further improved the efficiency and effectiveness of its project governance guidelines. It also began building a digital platform to analyze data and monitor the progress of a project. The platform is expected to be completed and functional in 2020.

As for its information technology, IRPC complied with the ISO 27001 standards for information security management, bolstering stakeholders' confidence in the efficiency and effectiveness of IRPC's data security.



4. Information & Communication

The quality of information and communication was of great importance to IRPC because it effects effective internal control. IRPC's directors, management, and employees were entitled to vital information about company performance. The directors always received meeting documents in advance to afford them sufficient time to digest the information and make their decisions accordingly.

Internal channels of communication included Town Hall (senior management to employees), corporate intranet, electronic mail, and Line chat groups. Meanwhile, channels of communication for external stakeholders included text messaging (SMS), Line messaging application, electronic mail, Facebook, and company website. A specialized unit was directly responsible for disclosing critical information to stakeholders on a regular basis. Through a well-defined whistleblower system, IRPC assured its employees and external parties that their reports would be reviewed with the utmost confidentiality, justice, honesty, and transparency, and timeliness.

IRPC's adoption of digital technology improved operational processes by eliminating unnecessary steps. Moreover, digital analyzes proved beneficial to the operations, employees, and customers of IRPC. This digital adoption was known as the IRPC 4.0 Project, which encompassed manufacturing operations (artificial intelligence-enabled controls and system planning), marketing (understanding and quickly responding to customer needs), procurement (eliminating redundant procedures and enhancing procurement planning), supply-chain services (supply-chain management through analyzing customer behavior and feedstock availability), and information technology management and infrastructure.

IRPC began developing an E-Compliance database to store information about pertinent laws, rules, regulations, and compliance assessment. The database is expected to be operational in 2020.

Furthermore, IRPC raised an awareness of governance, risk management, and compliance (GRC) among its employees through regular communications, informing them of implementation guidelines and requirements. The goal of GRC communications was to ensure efficiency, transparency, and compliance.

5. Monitoring Activities

IRPC monitored and assessed the adequacy of internal controls. It also formulated remedial measures for weaknesses uncovered to ensure the efficiency and effectiveness of controls. The company required management of every corporate echelon (the first line of defense) to oversee and evaluate the internal processes of their respective business unit or function for efficiency and compliance. It tasked Internal Control (a unit of Corporate Strategies and the second line of defense) to assess the sufficiency and suitability of internal controls and to provide remedial recommendations if any vulnerabilities had been found. To this end, IRPC required any internal control shortcomings to be reported to management immediately. It also made sure that the remedial progress would be monitored to ensure the effectiveness and timeliness of the remedy.

Internal Control, an independent unit reporting directly to the Audit Committee, examined and evaluated the effectiveness of internal controls according to the audit plan approved by the Audit Committee. This audit plan had been aligned with corporate strategies and significant risks. Internal Control also provided suggestions that could enhance the effectiveness and efficiency of internal controls to management for remedial measures to be executed. Additionally, Internal Control reported evaluation results and remedial progress (until the flaw was corrected) to the Audit Committee.

(Mr. Chansin Treenuchagron)

Chairman

Report of the Audit Committee

Dear shareholders,

The Audit Committee of IRPC Public Company Limited comprises three independent directors, all of whom are knowledgeable and experienced. Their fields of expertise include energy, engineering, finance and accounting, and business management. Mr. Somnuk Bomrungsalee serves as the current chairman of the committee. Its other two members are Miss Siriwan Chierapong and Mr. Jumpol Sumpaopol. There were two changes to members of the Audit Committee in 2019: Miss Ruenvadee Suwanmongkol retired by rotation on April 3, 2019, and Mr. Jessada Promjart resigned on October 1, 2019.

Duties of the Audit Committee are either assigned by the Board of Directors or stipulated in the Charter of the Audit Committee, which has been formulated in conformity with regulatory announcements of the Stock Exchange of Thailand and the Securities and Exchange Commission. The committee's policy is to emphasize compliance with good corporate governance principles and pertinent laws, rules, and regulations. Furthermore, the Audit Committee oversees that IRPC has effective and efficient internal controls and internal audit mechanisms.

The Audit Committee held a total of 12 meetings in 2019, including meetings with the management team, the internal auditor, and the financial auditor when the agenda involved matters that concerned them. Below is a summary of the committee's duties and responsibilities:

1. Financial Statements

The Audit Committee met to examine 2019's quarterly and annual financial statements, which included connected transactions and potential conflicts of interest. The independent financial auditor and the senior executive officer for finance and accounting were present at these meetings to provide explanations and answer questions from the Audit Committee regarding the accuracy and completeness of financial statements, significant accounting adjustments, the sufficiency of disclosure, and the auditor's remarks. The Audit Committee concluded that IRPC's financial statements had displayed all materially significant entries according to financial reporting standards.

Furthermore, the Audit Committee and the independent auditor also met without management to discuss audit plans, remarks, independence, significant risks, and key audit matters.

2. Risk Management

The Audit Committee reviewed risk management reports prepared by Internal Audit and the independent auditor. It also reviewed corporate risk management reports prepared by the Risk Management Committee, which encompassed the approval of risk management policy and framework, risk management monitoring, and approval of risk management measures. A corporate risk management report was submitted to the board regularly. The Audit Committee deduced from these reports that IRPC's risk management was sufficient and appropriate for its business context and that IRPC had successfully maintained all risks within its tolerance level.

3. Internal Controls

The Audit Committee assessed the adequacy and suitability of IRPC's internal controls in 2019 to reasonably assure that they were efficient and effective and that the company would be able to achieve its goals and objectives. To do so, the Audit Committee looked at assessment reports prepared by the internal auditor and the independent financial auditor and reports on the implementation of audit suggestions. The committee also required senior management to complete an internal control assessment form, which had been formulated in conformity with COSO's Integrated Framework of Internal Control. Having thoroughly examined internal controls, risk management, financial reports, and assessment results, the Audit Committee came to the conclusion that it would be reasonable to believe that IRPC's internal controls were adequate and sufficient, allowing for efficient and effective operations.



4. Internal Audit

The Audit Committee oversaw that Internal Audit was independent of management and reported directly to the Audit Committee itself. This reporting line conformed to the provisions of its charter, which had undergone an annual review. The committee made sure that the work of Internal Audit complied with the approved audit policy and plan. It also addressed issues arising from the auditing process and offered its counsel on how to enhance the efficiency of internal audits. Moreover, the committee regularly monitored the progress of audits.

The Audit Committee continued to place a particular emphasis on human development. To this end, it promoted an exchange of knowledge among internal audit employees of the PTT Group. It also encouraged internal auditors to become certified, ensuring that their competence and the quality of their work would comply with international standards. Furthermore, the Audit Committee underlined the importance of applying digital technology to internal auditing to boost the efficiency and effectiveness of its work.

5. Corporate Governance

Paying a great deal of attention to business ethics, the Audit Committee scrutinized and expressed its opinion on all significant transactions that IRPC made with related parties to prevent conflicts of interest. To this end, the committee ensured that these transactions were reasonably executed at arm's length, that the amount of each transaction was appropriately comparable to market prices, and that their conditions were no different from those made with a third party. Moreover, the Audit Committee examined the whistleblowing process to ensure its alignment with good corporate governance principles. It also oversaw disclosures per requirements of the Stock Exchange of Thailand. Additionally, the Audit Committee provided whatever support it could to help IRPC and its subsidiaries extend their membership to the Thailand Private Sector's Collective Action Against Corruption.

6. Compliance

The Audit Committee assured that IRPC's operations would thoroughly comply with all applicable laws, including securities and exchange legislation, announcements of the Stock Exchange of Thailand, industrial regulations, and environmental protection law. After inspection, the Audit Committee concluded that the company benefited from effective compliance mechanisms.

7. Independent Auditor Nomination

The Audit Committee considers and nominates an independent auditor each year. It is also responsible for proposing audit fees and putting forward a motion to terminate the current independent auditor, if needed. To ensure the independence of the auditor, the Audit Committee considers the candidate's qualifications, competences, and experience in the field. For the upcoming fiscal year, the Audit Committee has nominated Deloitte Touche Tohmatsu Auditing Co., Ltd. as the independent auditor to the Board of Directors. With the board's approval, the motion will be presented to shareholders for their assent. The committee has also investigated the use of other services provided by this auditor to assure that the auditor would remain independent.

The Audit Committee performed its duties with great care and prudence throughout 2019. It provided many suggestions and recommendations that would later benefit IRPC. It also ensured that the company's financial statements were correct, complete, and credible. It oversaw corporate governance, compliance, risk management, and internal controls, ensuring their efficiency, effectiveness, and adequacy. The Audit Committee did all of this for the benefit of the company and its sustainable growth.

(Mr. Somnuk Bomrungsalee)

Chairman of the Audit Committee

Message from the Chairman, Corporate Governance Committee

Dear shareholders,

Charged by the Board of Directors, the Corporate Governance Committee oversees matters of good governance, which enables IRPC to achieve its goals sustainably. The committee understands that transparency, fairness, and social responsibility, which are crucial success factors, allow a corporation to garner trust and confidence from all of its stakeholders. This feat demands a tremendous amount of co-operation. With public support and recognition, a company may enjoy fruitful growth while it is contributing to social prosperity.

Throughout 2019, IRPC was faced many obstacles and challenges stemming from economic uncertainties, which were caused by the ongoing trade war between superpowers. Nonetheless, IRPC persisted with corporate governance policy and best practice. In addition to continuing its anti-corruption efforts, the company contributed to two national strategies (social equality and equity; and sustainability of national biodiversity, environmental quality, and natural resources) and the United Nations' Sustainable Development Goals (SDGs). It also conducted other good governance activities that expressed its commitment to elevating its corporate governance standards and good corporate citizenship. As a result, IRPC garnered a number of accolades in 2019 for its corporate governance excellence, including the Sustainability Awards of Honor, the title of the private-sector winner of the Human Rights Awards, the CAC Change Agent Award, the NACC Integrity Awards, and the TCC Best Award.

The Corporate Governance Committee will continue to improve IRPC's corporate governance. With even more stringency, thoroughness, tangibility within the good corporate governance paradigm, IRPC hopes to become a role model organization for sustainable development, supporting the Thai capital market's governance standard and ensuring the sustainability of the IRPC.



(Mr. Anusorn Sangnimnuan)

Chairman of the Corporate Governance Committee



Message from the Chairman, Nomination and Remuneration Committee

Dear shareholders,

In 2019 the Nomination and Remuneration Committee comprised three directors: Mr. Woothisarn Tanchai (Independent Director) served as the chairman of the committee; its other two members were Mr. Kris Imsang (Director) and Air Marshal Boonsuib Prasit (Independent Director). The committee performed its tasks with due regard to its duties and responsibilities in the best interest of shareholders and other stakeholders and based on fairness and appropriateness. Every action taken were in line with an excellent level of international corporate governance best practices and the most current CG Code issued by the Securities and Exchange Commission (SEC) on March 17, 2017. The Nomination and Remuneration Committee adopted and adapted these principles to better suit IRPC's business context, aiming to create value-added to IRPC in a sustainable manner, meeting the expectations of the investors, the capital market, the government, and society at large.

The committee held a total of 10 meetings in 2019, during which it nominated directors to the board and board committees, as well as determined board, board committee, and presidential compensation packages. In addition to these primary duties, the committee reviewed desired qualifications for the Candidates for the president, ensuring their alignment with the Articles of Association and the GC Handbook. The committee concluded that a candidate for this vital post should possess the knowledge, experience, and expertise that suit the nature of the business and the company's needs. Furthermore, the committee reviewed qualifications for Senior Executive Vice Presidents of Corporate Organization Effectiveness and Innovation and Operation Excellence. These are the two new offices created after the restructuring was approved on February 12, 2019, to increase the effectiveness of employees and IRPC itself, as a well and to ensure an efficient adoption of digital technologies in conformity with corporate strategies and in support of long-term growth.

The committee reviewed and concluded that existing compensation package for board and board committee members, which the shareholders voted to approve in 2006, would remain unchanged. As for bonuses for the directors, the committee considered the proposed bonus rate carefully compared it to the rates that the shareholders had approved in the past. The committee also looked at the current dividend rate, dividend yield, and board performance. (The board was subject to an independent assessment by an external agency, who concluded that the board's performance was excellent.)

As for 2020, the Nomination and Remuneration Committee has plans and guidelines in place to improve its performance and performance assessment. For instance, it will adapt the presidential performance assessment criteria from the Corporate Governance Center of the Stock Exchange of Thailand to the company. It will also continue to perform its duties transparently and efficiently to ensure fairness and benefits to the company and its shareholders. The committee hopes to bring about further advancements and sustainable growth of IRPC.

(Mr. Woothisarn Tanchai)

Chairman of the Nomination and Remuneration Committee

Message from the Chairman, Risk Management Committee

Dear shareholders,

IRPC Public Company Limited continues to recognize and highly value efficient and effective corporation-wide risk management, which assures stakeholders of its ability to achieve goals, as well as prevent and mitigate losses, despite unfavorable circumstances and uncertainties. The Board of Directors has established the Risk Management Committee (RMC) to oversee policies and guidelines for mitigating and managing the company's numerous business risks appropriately and efficiently. The RMC is also responsible for reviewing the principles behind IRPC's financial tools and derivatives, examining and offering advice on the management of risks of investment projects with considerable technical complexity and long-term obligations, encourage management and employees to exercise risk management according to the established guidelines and policy, and determine preventive measures for future risks that may arise from ignoring an opportunity presented by a changing circumstance. The RMC currently comprises five directors, all of whom are qualified experts with extensive risk management experience and competency:

- | | |
|------------------------------|----------|
| 1. Mr. Nuttachat Charuchinda | Chairman |
| 2. Mr. Ekniti Nitithanprapas | Member |
| 3. Mr. Worawat Pitayasiri | Member |
| 4. Mr. Wattanapong Kurovat* | Member |
| 5. Mr. Noppadol Pinsupa | Member |

* Mr. Wattanapong Kurovat was appointed to this committee on August 21, 2019.

In 2019 the RMC met 7 times. Below is a summary of its performance:

1. The RMC oversaw and reviewed the corporate level of risk management in compliance with the ISO 31000, which consisted of risk identification, analysis, and assessment; establishing risk management measures; and monitoring and reviewing risk management outcomes every quarter to keep risks manageable and achieve goals. At the corporate level, there were three main groups of risks: strategic, business, and operational. Additional meetings were held for critical cases that could significantly affect IRPC.
2. The RMC offered guidance for management to the management team at the corporate level. The Risk Management and Internal Control Committee (RMCC) provided oversight and drove corporate risk management under the RMC's predetermined policy and approaches. Meanwhile, the Hedging Committee conducted market analyses and managed risks relating to prices, the availability of crude oil as feedstock for petroleum and petrochemical products, transportation expenses, and financial transactions.
3. The RMC examined the report of price and financial risk management and provided comments and suggestions every quarter.



4. The RMC inspected and discussed operational risk factors—namely safety, health, and environmental factors; process interruptions; and community-related factors to ensure the adequacy of risk management measures in protecting lives, assets, company business continuity, and the interests of stakeholders.
5. The RMC offered its business strategy and risk management recommendations to iPolymer Co., Ltd., which is a joint venture between IRPC and China-based Guangzhao Saiju Performance Polymer Ltd., specializing in a digital platform.
6. The RMC reviewed and made comments on the risk management of IRPC's human resource development, including systematic executive succession planning to ensure business continuity, ensuring its alignment with goals and strategies.
7. The RMC analyzed the risk management of IRPC's IT security. To ensure system stability and create value-added, the RMC recommended employing a stable cloud protection and control system.
8. The RMC examined and reflected on the 2020 corporate-level risks before presenting them to the Board of Directors, ensuring that risks and risk appetite of IRPC would be in line with its business direction, strategies, corporate goals, and changing environment.
9. The RMC assessed the suitability and risks of IRPC's strategic investment projects and activities with considerable technical complexity, long-term financial obligations, and significant risks before they were presented to the board for approval.
10. The RMC reported its performance to the board every quarter.

The Risk Management Committee executed its tasks systematically, prudently, thoroughly, and competently with independence and alignment with corporate governance in the interests of IRPC and its shareholders and stakeholders.

(Mr. Nuttachat Charuchinda)

Chairman of the Risk Management Committee





MANAGEMENT STRUCTURE

IRPC Information

Management Structure

Corporate Governance Report

People Management

IRPC Information

Company Name	IRPC Public Company Limited
Stock Symbol	IRPC
Registration No.	0107537002567
Type	Refinery and Petrochemical
Sector	Natural Resources
Group	Energy and Public Utilities
Registered Capital	20,475,000,000 baht, which are divided into 20,475,000,000 common shares, each is valued at 1 baht
Paid-up and Issued Capital	20,434,419,246 baht, divided into 20,434,419,246 common shares, each is valued at 1 baht
Locations	<p>Headquarters and Plants 299 Mu 5 Sukhumvit Rd., Choeng Noen, Mueang Rayong, Rayong Tel. 038-611-333 Fax. 038-612-813</p> <p>Bangkok Office 555/2 Energy Complex, Building B, Floors 6–10, Vibhavadi–Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900 Tel. 02-765-7000 Fax. 02-765-7001</p>
Website	www.irpc.co.th
References	
Securities Registrar	Thailand Securities Depository Co., Ltd. 93 Ratchadaphisek Rd., Din Daeng, Din Daeng, Bangkok 10400 Tel. 02-009-9000 Fax. 02-009-9991
Auditor	Mr. Mongkol Somphol CPA No. 8444 Deloitte Touch Tohmatsu Jaiyos Audit Co., Ltd. 11/1 AIA Building, Sathorn Tower, Floors 23–27, Sathon Tai Rd., Yan Nawa, Sathon, Bangkok 10120 Tel. 02-034-0000 Fax. 02-034-0100
Debenture Registrar (THB)	TMB Bank Public Company Limited 3000 Phahon Yothin Rd., Chomphon, Chatuchak, Bangkok 10900 Tel. 02-299-1111



Juristic persons whose 10% shares or more are held by IRPC

No.	Company	% of shares	Paid-Up Capital (Unit: Million Baht)
1	IRPC Oil Co., Ltd. Address: 555/2 Energy Complex, Building B, 7 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900 Tel. 0-2765-7000 Fax. 0-2765-7001 Type of Business: Distribution of refined products	99.99%	2,000
2	Rakpasak Co., Ltd. Address: 555/2 Energy Complex, Building B, 7 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900 Tel. 0-2765-7000 Fax. 0-2765-7001 Type of Business: Marine logistics Remarks: Subsidiary of IRPC Oil Co., Ltd.	99.99%	30
3	IRPC Technology Co., Ltd. Address: 309 Moo 5, Sukhumvit Road, Choeng Noen, Rayong Tel. 0-3802-2835 Fax. 0-3802-2835 ext. 301 Type of Business: Vocational school	99.99%	750
4	IRPC A&L Co., Ltd. Address: 555/2 Energy Complex, Building B, 9 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900 Tel. 0-2765-7508 Fax. 0-2765-7550 Type of Business: Sale of polymers	57.48%	10
5	iPolymer Co., Ltd. Address: 555/2 Energy Complex, Building B, 9 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900 Tel. 0-2117-3994, 065-717-8856 Type of Business: E-commerce sale of polymers and chemicals	55.00%	120
6	IRPC Polyol Co., Ltd. Address: 555/2 Energy Complex, Building B, 7 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900 Tel. 0-2765-6666 Fax. 0-2765-6677 Type of Business: Production and distribution of polyols	50.00%	300
7	IRPC Clean Power Co., Ltd. Address: 299 Moo 5, Sukhumvit Road, Choeng Noen, Rayong Tel. 0-3861-1333 Fax. 0-3861-2813 Type of Business: Production and distribution of electricity and steam	48.99%	3,083

No.	Company	% of shares	Paid-Up Capital (Unit: Million Baht)
8	WHA Industrial Estate Rayong Co., Ltd. Address: 9/187 UM Tower, 18 th Floor, Ramkhamhaeng Road, Suan Luang, Bangkok Type of Business: Industrial estate development	40.00%	650
9	UBE Chemicals (Asia) Public Company Limited Address: 98 Sathorn Square Office Tower, 18 th Floor, North Sathorn Road, Silom, Bang Rak, Bangkok 10500 Tel. 0 2206-9300 Fax. 0 2206-9312 Type of Business: Production and distribution of petrochemicals	25.00%	10,739
10	PTT Energy Solutions Co., Ltd. Address: 888 Map Chalud-Laem Son Road, Huai Pong, Rayong Tel. 0 3897-8300 Fax. 0 3897-8333 Type of Business: Engineering consultancy	20.00%	150
11	Guangzhou Saiju Performance Polymer Ltd. Address: G314, No. 201, Kezhu Road, New and Hi-tech Industrial Development Zone, Science City, Guangzhou, China, 510000 Tel. (86) 020-28143100, (86) 020-28143180 Type of Business: E-commerce distribution of polymers and chemicals from China	15.00%	8.9 (Million Chinese Yuan)
12	Sarn Palung Social Enterprise Co., Ltd. Address: 555/1 Energy Complex Building A, 10 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900 Tel. 0 2537-2971 Type of Business: Supporting execution of social enterprises	15.00%	2.5
13	Rayong Acetylene Co., Ltd. Address: 2/3 Moo 14, Bangna-Trad Road, Km. 6.5, Bang Kaeo, Bang Phli, Samut Prakan Tel. 0 2338-6100 Fax. 0 2312-0126 Type of Business: Production and distribution of acetylene gas	13.04%	115

Remark: Only operating companies are shown.



Shareholding Structure

Common stocks

As of December 31, 2019, IRPC Authorized Capital 20,475,000,000.00 Baht. Paid-up Capital 20,434,419,246.00 Baht. A par value of 1 Baht each.

Major Shareholders

The top 10 shareholders of the company, the closing date of the share roster as of February 27, 2019, were as follows:

No.	Name	Shares	Shareholding (%)
1	PTT Public Company Limited ⁽¹⁾	9,819,694,600	48.05
2	Thai NVDR Company Limited ⁽²⁾	1,621,252,579	7.93
3	Social Security Office	360,851,700	1.77
4	SOUTH EAST ASIA UK (TYPE C) NOMINEES LIMITED	357,102,861	1.75
5	STATE STREET EUROPE LIMITED	335,602,294	1.64
6	Krungsri Dividend Stock LTF (KFLTFDIV)	252,999,100	1.24
7	THE BANK OF NEW YORK (NOMINEES) LIMITED	209,435,175	1.02
8	Krungsri Dividend Stock Fund (KFSDIV)	139,462,500	0.68
9	N.C.B.TRUST LIMITED-POLUNIN DEVELOPING COUNTRIES FUND, LLC	118,549,851	0.58
10	GIC PRIVATE LIMITED	93,658,800	0.46
Total		13,308,609,460	65.12

Note:

- (1) PTT Plc, as IRPC's majority shareholder, plays a part in setting the policy for the management and operation of IRPC with the approval of its Board of Directors. As of December 31, 2019, PTT was represented by five out of 15 IRPC directors.
 - (2) Thai NVDR, a subsidiary of SET, engages in the business of issuing NVDRs (non-voting depository receipts), a listed form of SET securities. NVDRs are sold to investors, the proceeds of which are invested in SET-listed Thai reference securities. Investors in NVDRs are eligible for financial benefits, including dividends and the right for booking recapitalization shares as if they were shareholders of listed companies, but they are ineligible to vote at AGMs. Information about investors in Thai NVDR appears at www.set.or.th.
- IRPC has no Shareholding Agreement in matters affecting its administration.
 - Shareholders who are foreigners can hold IRPC shares of up to 49% of the total issued and paid-up shares.
As of February 27, 2019, IRPC's shares held by foreigners amounted to 12.07% of the total shares.
 - Shareholders number 4 and 7 are NOMINEES ACCOUNT which have no influence on the policy for the management and operation of IRPC.

Dividend Policy

IRRC Public Company Limited

IRRC's policy is to pay dividends at no less than 25% of its annual net profit after tax and all other reserve allowances, as required by IRPC's Articles of Association and by law. Such dividend payment is subject to its investment plans as well as other obligations and necessities as seen fit by the Board.

Affiliates

Each affiliate will separately consider its own dividend payment, taking into account its cash flow balances or net profits, or both, against its reserve investment budget as required by law or against other obligations as seen fit by each affiliate's board of directors.

Report

SHAREHOLDERS

IRPC conducts business with integrity, taking into account the highest benefit of shareholders, considering sustainable growth and adequate continuous return. In the General Meeting of Shareholders, shareholders will appoint the Board, acknowledge annual operation result of the Company and consider meeting agenda as stipulated by law, including approval of financial state.

Appointment

BOARD OF DIRECTORS

Board of Directors consists of 15 members. The duty is to oversee all corporate operations to ensure the compliance to policies, directions and targets what will return maximum benefit to shareholders, taking into account the interest of all stakeholders with fairness, social responsibility adherence, under the moral and code of conduct to become the Good Corporate Citizen of the world.

The Board of Directors has envisioned **IRPC to become a leading integrated petrochemical complex in Asia** by formulating short-and long-term strategic plan to assure that the Company growth will be in line with the targeted direction.



SUB-COMMITTEE

AUDIT COMMITTEE

is appointed by the Board and the sub-committee shall comprise of at least 3 directors, having duty to audit financial statement and to give advice on internal audit procedures. The board shall have at least 1 member who have adequate knowledge and experience in auditing the accountability of Company's financial statement.

NOMINATION AND

REMUNERATION COMMITTEE

is appointed by the Board and the sub-committee shall comprise of at least 3 members, at least 1 of whom shall be an independent director, having duty in selection candidates for directorship, sub-committee and President, including to determine fair remuneration.



INDEPENDENT DIRECTORS

is independent from major shareholders or group(s) of major shareholders. and the Company executives, The director's duties is to express their opinions freely under the assigned tasks as to protect benefit of all shareholders and stakeholders equally. As of end of 2019, the Independent Directors consists of 8 members. In the event where the chairman is not an independent director, the independent director may be elected to perform duty in the meeting in some occasions.



CHAIRMAN

The Board of Directors elects 1 member as a chairman, to support and promote the performance of the Board at highest extend of the responsibility assigned, to oversee and monitor management result of the Board and sub-committees to ensure the effectiveness as specified in corporate objectives.

CORPORATE GOVERNANCE COMMITTEE

is appointed by the Board and the sub-committee shall comprise of at least 3 members, at least 1 of whom shall be an independent director, having duty to propose practice guidelines, give advice on good corporate governance to the Board, to oversee the good corporate governance operation of the Company to ensure the efficiency.

RISK MANAGEMENT COMMITTEE

is a ppointed by the Board and the sub-committee shall comprise of at least 3 members, having duty to formulate risk management policy, risk management plan and risk management procedures to cover the entire organization.

PRESIDENT

is appointed and supervised by the Board of Directors, having duty to manage Company's operation to ensure its compliance with objectives, policies and strategies set forth by the Board as well as report the Company's performance result to the Board in a correct and transparent manner.

COMPANY SECRETARY

Management Structure

PRESIDENT

is appointed by the Board of Directors.

SENIOR EXECUTIVE VICE PRESIDENT

is appointed by the President. The duty is to manage work under responsibility, policy and target assigned by the President.

MANAGEMENT COMMITTEE

The duty is to manage and ensure parallel direction of the whole operations, to consider important matters on business operation and to screen the agenda as to propose to the Board for approval. The committee comprises of:

- President
- Senior Executive Vice President
- Executive Vice President

COMPANY SECRETARY

is appointed by Board of Directors. The duty is to perform secretarial tasks pursuant to the Securities and Stock Exchange Act B.E. 2551 and as stipulated by the Capital Market Supervisory Board as well as performing duties assigned by the Board.



Efficient management and good corporate governance principles are integral to the design of the management structure, which upholds the relationships between the shareholders, the boards and the executives. It brings about competitiveness, long-term value for shareholders and sustainable growth.





Management Structure



Management Structure

IRPC's management comprises the shareholders, the Board of Directors, and the management team of senior executive officers. The president of IRPC serves as the chief executive officer. The board is accountable to shareholders, while the senior management team is accountable to the board. Efficient management and good corporate governance principles are integral to the design of the management structure, which upholds the previously mentioned relationships between the shareholders, the board, and the executives. The design also brings about competitiveness, long-term value for shareholders, and sustainable growth. IRPC fairly and equitably considers the interests of all stakeholders. Its transparent operations embody its corporate social responsibility.

According to corporate governance best practice, a company's shareholders elect a board of directors to oversee operations on their behalf. The board gives visions, business directions, policies, strategic

plans, and annual budget to senior executive officers to implement. In addition to ensuring the goals set by the board are met, the senior management team monitors the transparency and efficiency of operations to maximize the benefits and returns on shareholders' investment. The top executives also ensure corporate profitability and sustainable growth, as well as employees' well-being and fair compensation.

Board of Directors

As of December 31, 2019, the Board of Directors of IRPC comprises 15 members, which is appropriate for the size, type, and complexity of its businesses. There are two types of directors:

- 14 non-executive directors (93.33 percent of the entire board)
- One executive director (the president)

Of the 15 members, eight qualify as independent directors (more than 50 percent), one of whom is female.

Board of Directors as of December 31, 2019

No.	Name	Position(s)	Date of Appointment/ Term
1.	Mr. Chansin Treenuchagron	Director Chairman	October 20, 2015 1 st term April 4, 2018 2 nd term
2.	Mr. Woothisarn Tanchai	Independent Director Chairman of the Nomination and Remuneration Committee	June 19, 2015 1 st term April 4, 2017 2 nd term
3.	Mr. Nuttachat Charuchinda	Director Chairman of the Risk Management Committee	April 29, 2016 1 st term April 4, 2018 2 nd term
4.	Mr. Somnuk Bomrungsalee	Independent Director Chairman of the Audit Committee	April 9, 2014 1 st term April 4, 2017 2 nd term
5.	Mr. Anusorn Sangnimnuan	Independent Director Chairman of the Corporate Governance Committee	August 27, 2016 1 st term April 4, 2017 2 nd term
6.	Mr. Ekniti Nitithanprapas	Director Member of the Risk Management Committee	November 17, 2015 1 st term April 4, 2017 2 nd term
7.	Mr. Kris Imsang	Director Member of the Nomination and Remuneration Committee	December 2, 2017 1 st term April 3, 2019 2 nd term
8.	Mr. Worawat Pitayasiri	Director Member of the Risk Management Committee	September 19, 2018 1 st term April 3, 2019 2 nd term
9.	Air Mshl. Boonsuib Prasit ⁽²⁾	Independent Director Member of the Nomination and Remuneration Committee	April 3, 2019 1 st term
10.	Miss Siriwan Chierapong ⁽³⁾	Independent Director Member of the Audit Committee	April 3, 2019 1 st term
11.	Mr. Charcie Buranakanonda ⁽⁴⁾	Independent Director Member of the Corporate Governance Committee	May 22, 2019 1 st term
12.	Gen. Nattaphon Narkphanit ⁽⁵⁾	Independent Director Member of the Corporate Governance Committee	June 24, 2019 1 st term
13.	Mr. Wattanapong Kurovat ⁽⁶⁾	Director Member of the Risk Management Committee	August 21, 2019 1 st term
14.	Mr. Jumpol Sumpaopol ⁽⁷⁾	Independent Director Member of the Audit Committee	October 16, 2019 1 st term
15.	Mr. Noppadol Pinsupa ⁽¹⁾	Director/ President Member of the Risk Management Committee/ Secretary of the Board of Directors	February 1, 2019 1 st term

Notes: At either the Annual General Meeting of Shareholders or a board meeting, the following directors were appointed to the board to replace directors who retired by rotation or resigned in 2019:

1. Mr. Noppadol Pinsupa was appointed director, president, member of the Risk Management Committee, and secretary of the Board of Directors, effective on February 1, 2019. He replaced Mr. Sukrit Surabotsopon, who resigned on January 30, 2019.
2. Air Mshl. Boonsuib Prasit was appointed independent director and member of the Nomination and Remuneration Committee, effective on April 3, 2019, replacing Miss Ruenvadee Suwanmongkol, who retired by rotation on April 3, 2019.
3. Miss Siriwan Chierapong was appointed independent director and member of the Audit Committee, effective on April 3, 2019, replacing Miss Nantika Thangsuphanich, who resigned on November 6, 2018.
4. Mr. Charcie Buranakanonda was appointed independent director and member of the Corporate Governance Committee, effective on May 22, 2019, replacing Gen. Sasin Thongpakdee, who resigned on May 2, 2019.
5. Gen. Nattaphon Narkphanit was appointed independent director and member of the Corporate Governance Committee, effective on June 24, 2019, replacing Mr. Preecha Pocatanawat, who resigned on March 1, 2019.
6. Mr. Wattanapong Kurovat was appointed director and member of the Risk Management Committee, effective on August 21, 2019, replacing Gen. Theppong Tippayachan, who resigned on May 2, 2019.
7. Mr. Jumpol Sumpaopol was appointed independent director and member of the Audit Committee, effective on October 16, 2019, replacing Mr. Jessada Promjart, who resigned on October 1, 2019.



Authorized Directors

The following four directors are authorized to act on behalf of the company pursuant to the Company Certificate dated December 31, 2019: (1) Mr. Chansin Treenuchagron, (2) Mr. Nuttachat Charuchinda, (3) Mr. Worawat Pitayasiri, and (4) Mr. Noppadol Pinsupa. For the authorization to be legally binding, two of these four directors must imprint their signatures and affix the IRPC seal.

Composition and Qualifications of the Board

1. The Board of Directors shall consist of 5–15 members.
2. Independent directors shall account for at least one-third of the board, and there shall be at least three of them.
3. Directors shall not be older than 70 years of age.
4. Each director shall serve a 3-year term, after which he or she may seek to be re-appointed, subject to legal provisions. Nonetheless, a director may only serve up to three consecutive terms or nine years. There shall be no exceptions.
5. The following limitations shall apply to board members' directorships in state enterprises or other companies listed on the Stock Exchange of Thailand:
 - (1) Up to three state enterprises or juristic persons whose shares are held by a state enterprise.
 - (2) Up to three companies listed on the Stock Exchange of Thailand. The combination of directorships in (1) and (2) must not exceed five.
6. Directors shall be experts in their respective fields. Their combined expertise shall satisfy the needs of the company. There shall be a minimum of three petroleum or petrochemical experts, one legal expert, and one accounting and finance expert. Their appointment shall comply with IRPC's nomination policy and criteria, which takes into account their education, management experience in relevant fields, and success recognized by businesses whose size is equivalent to that of IRPC.
7. Directors shall possess all of the required qualifications but none of the prohibitions pursuant to the Public Limited Company Act, the Securities and Exchange Act, the Capital Market Advisory Board's notifications, rules and regulations of the Securities and Exchange

Commission and the Stock Exchange of Thailand, IRPC's Articles of Association and corporate governance principles, and other pertinent laws. They shall also be free from any questionable traits that render them unfit for running IRPC's businesses.

8. Directors shall possess all of the required qualifications but none of the prohibitions pursuant to the Cabinet Resolution dated January 24, 2011, on the appointment of high-ranking government officers and directors in state enterprises or juristic persons whose shares are held by state enterprises.
9. Directors' character traits and personal image shall complement and support corporate governance to add value to IRPC, including ethics, integrity, independence, assertiveness, creativity, a duty of care, a duty of loyalty, dedication, and good social standing.
10. For former directors, their past performance, commitment, and beneficial opinions and recommendations shall also be considered.

Independent Director

According to corporate governance principles adopted by IRPC, one-third of the Board of Directors shall be independent directors. Both directors and independent directors shall serve a 3-year term. Independent director retiring by rotation may seek to be re-elected by shareholders; however, they may only serve up to three consecutive terms or nine years. There shall be no exceptions. Independent directors shall possess the expertise and qualifications of independence pursuant to notifications of the Capital Market Supervisory Board and stipulations of the Board of Directors. According to company policy, independent directors shall hold no more than 0.5 percent of IRPC's issued shares; this requirement is more stringent than the 1-percent stipulation of the Securities and Exchange Commission. The definition of an IRPC independent director shall be disclosed in the Corporate Governance Handbook and on the company website. Independent directors shall be free to speak their minds at every meeting. They shall attend meetings regularly and have access to sufficient financial and business information, which enables them to express their thoughts freely in the best interests of stakeholders. In doing so, they shall also prevent conflicts of interest between IRPC and its executive officers, authorized directors, and majority shareholder.

As of December 31, 2019, there are eight independent directors, which accounts for more than half of the board (which is more than the legal requirement of one-third). The names of IRPC's current independent directors are as follows:

- | | |
|------------------------------|----------------------|
| 1. Mr. Woothisarn Tanchai | Independent Director |
| 2. Mr. Somnuk Bomrungsalee | Independent Director |
| 3. Mr. Anusorn Sangnimnuan | Independent Director |
| 4. Air Mrsh. Boonsuib Prasit | Independent Director |
| 5. Miss Siriwan Chierapong | Independent Director |
| 6. Mr. Charcrie Buranakanond | Independent Director |
| 7. Gen. Nattaphon Narkphanit | Independent Director |
| 8. Mr. Jumpol Sumpaopol | Independent Director |

The duties and responsibilities of independent directors are as follows:

1. Independent directors shall familiarize themselves with their duties and responsibilities set forth in the Public Limited Company Act B.E. 2535 and the Securities and Exchange Act B.E. 2535. They shall also adhere to best practices of the Securities and Exchange Commission, the Stock Exchange of Thailand, and other regulators.
2. Independent directors shall encourage fellow directors and the company's executive officers to perform their roles responsibly, carefully, and honestly in compliance with pertinent laws, company objectives, the Articles of Association, board and shareholder resolutions, and regulations of oversight agencies.

3. Independent directors shall encourage the company to adopt good corporate governance principles and best practice seriously.
4. Independent directors shall ensure that the company has appropriate and efficient internal controls and risk management.
5. Independent directors shall ensure that the company complies with the Connected Transaction Policy. They shall also ensure that the disclosure of related party transactions, other important events, information that may benefit shareholders, and changes that may affect the price of its securities conform with the conditions and timeline requirements of the Stock Exchange of Thailand.
6. Independent directors shall freely speak their minds and offer suggestions for the benefit of the company, minority shareholders, and other stakeholders.
7. Independent directors may perform other tasks at the request of the board as long as they do not interfere with their independence.
8. Independent directors shall meet at least once a year.

If an independent director post becomes vacant, IRPC shall first appoint a qualified individual who fits the definition of an independent director to fill the position and maintain the minimum number of independent directors required by the Capital Market Supervisory Board and corporate governance best practice. If another director later qualifies as an independent director by meeting the established

Board of Directors' Snapshot as of December 31, 2019

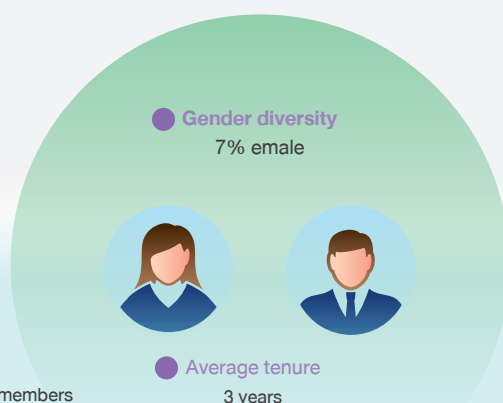
All director nominees exhibit

- High integrity, Duty of Care and Duty of Loyalty
- A proven record of success
- A commitment to sustainability and social issues
- Innovative thinking
- Knowledge of corporate governance requirement and practices

Average age

59 years

- 13 independent or non-executive members have energy/ petroleum/ petrochemical industry experience



Board component

- Structure of entire Board 15
- independent 8
- non-executive 14
- Executive 1

Average board meeting

Attendance: 96 % of meetings
(minimum required 75 %)

- 14 non-executive and independent directors with 3 or less other mandates (restriction as referred in CG Handbook)



requirements, that director shall automatically be considered an independent director. In practice, however, IRPC will still ask the Nomination and Remuneration Committee to review this director's qualifications.

Appointment and Dismissal

The following is a summary of the director appointment and dismissal procedures:

Appointment

1. Shareholders shall appoint directors. The Nomination and Remuneration Committee shall compile a list of potential candidates and present it to the board. Once approved, the list of nominees shall go before the annual general meeting of shareholders for consideration and election under the following criteria:
 - (1) One share shall be equal to one vote. Each shareholder's number of votes shall be subject to the number of shares held.
 - (2) Shareholders may cast their votes for individual candidates or once collectively for all directors to be elected, whichever the shareholders deem appropriate. Each candidate, by individual or collective voting, shall receive the number of votes per the total number of shares held by each shareholder under (1). Shareholders shall never split their votes.
 - (3) The ranking of successful candidates, the number of whom is equal to the number of directors to be elected, shall be subject to the number of votes received. If candidates secure equal votes, which makes the number of successful candidates greater than that of directors to be elected, the chairperson of the meeting shall cast the deciding vote.
2. The board shall elect one of its members as the chairperson. It may also select one or more of its members to serve as the vice-chairperson(s). Their duties shall be as prescribed in the Articles of Association and assigned by the chairperson. (There are currently no vice-chairpersons.)
3. The board shall appoint the president, following the established procedures and regulations. The president shall also serve as a director and a secretary to the board.
4. If any director post becomes vacant for any reason other than retirement by rotation, the board shall select a qualified person without any of the legal prohibitions at their next meeting. If

the remaining term is less than two months, the new director shall only serve the remainder of the term. The board may only pass a resolution on this matter with at least three-quarters of the votes of the remaining directors.

5. If the board no longer has a quorum as a result of vacancies, the existing directors may only call for a shareholder meeting to elect new directors to fill the vacant posts. This meeting shall take place within one month from the date on which the quorum no longer exists. The newly elected directors shall serve only the remaining term of whomever they replace.
6. The newly elected directors shall attend a director orientation within three months from their respective date of appointment to learn all of the necessary and pertinent information.

Dismissal

1. Directors shall retire by rotation after completing a term of three years; however, they may seek re-election.
2. In addition to retirement by rotation, a directorship shall end with death, resignation, lack of qualifications, possessing qualities prohibited by law, the resolution of a shareholder meeting, or court order.
3. Directors wishing to resign shall tender their resignation letter to the company. The resignation shall take effect on the date the resignation letter reaches the company.

Board Duties and Responsibilities

The Board of Directors has a duty of care and a duty of loyalty. Accountable to the shareholders, it oversees business operations and management's conformity with the established policies, guidelines, and goals in the best interests of shareholders within the framework of ethics and for the benefit of all stakeholders. The following are board duties and responsibilities:

1. The board shall define IRPC's vision, direction, and strategies in a way that supports sustainable growth while balancing economic, social, and environmental factors. Board members shall fully express their views. They shall value all information that might prove beneficial to the process of establishing business directions. The board shall consider potential financial and non-financial risks to ascertain whether management can efficiently implement the defined vision, direction, and strategies according to the goals outlined.

2. The board shall review and determine IRPC's principal policies, strategies, objectives, financial targets, and action plans at least once a year. It shall also regularly monitor reports on the implementation of action plans according to IRPC's direction and strategies.
3. The board shall ensure reliable accounting, financial reporting, and auditing systems. It shall also supervise assessments of internal control and internal audit, ensuring their efficiency and effectiveness.
4. The board shall consider potential major risk factors and determine a comprehensive framework of risk management. It shall ensure that an efficient risk management system or procedure are in place and seek business opportunities that may arise from these risks.
5. The board shall monitor all potential conflicts of interest, as well as and rectify them as soon as they occur. It shall review all significant business transactions, focusing on maximizing benefits to shareholders and all stakeholders.
6. The board shall arrange for an appropriate compensation system or mechanism for IRPC's senior management, taking into accounts IRPC's performance and business plans, creating short- and long- term incentives.
7. According to board policy, the president's directorship in other companies shall require board approval. Meanwhile, other senior executive officers' directorships in other companies shall necessitate an assent of the present. The appointment of directors to IRPC's subsidiaries or joint ventures, subject to the proportion of its shareholding or a shareholder agreement, shall also be the board's authority.
8. The board shall define the composition and operational goals of the office of the president with due consideration to IRPC's business plans and the use of the balanced scorecard framework. Moreover, the board shall regularly assess the performance of the president, whose compensation is subject to the assessment results, creating short- and long-term incentives.
9. The board shall provide suitable communication channels with shareholders and stakeholders. It shall also assess IRPC's disclosures to ensure their accuracy, clarity, transparency, reliability, and conformity with standards.
10. As leaders, board members shall act as role models of conduct under IRPC's corporate governance and corporate social responsibility guidelines.
11. The board shall encourage IRPC to undertake all forms of anti-fraud and anti-corruption activities and promote corporate governance best practices.
12. The board shall appoint a legally qualified individual to serve as company secretary to assume responsibilities set forth in the Securities and Exchange Act and other pertinent regulations.

Authority of the Board

1. The Board of Directors shall have the authority to approve visions, strategies, short- and long-term business plans, and critical policies, such as the corporate governance policy, risk management policy, trade competition policy, anti-corruption policy, connected transaction policy, and disclosure policy;
2. financial regulations, investments, investment directions, financial targets, action plans, and annual budgets;
3. procurements that exceed the president's authority;
4. investment projects and significant operations under the company's objectives, articles of association, shareholder resolutions, and relevant laws, as well as oversee the efficient and effective implementation of the established policies and plans;
5. transactions under the Securities and Exchange Act, such as connected transactions and property acquisitions or disposals;
6. payments of interim dividends to shareholders and staff's annual compensation and bonuses;
7. performance targets and the president's performance-based compensation;
8. the president's positions in other organizations; and
9. executive officers' directorships in IRPC subsidiaries or joint ventures under shareholder agreements or the proportion of shareholding.



Authority of Shareholders

Unless otherwise stipulated by law, the following shall require approval from shareholders. A resolution of this nature may only be passed with at least three-fourths of all votes cast by eligible shareholders present at a shareholder meeting:

1. the sale or transfer of the whole or essential parts of the business to other parties;
2. the purchase or acquisition of a business of another (private) company;
3. making, or amending or terminating the whole or essential parts, of a business lease agreement;
4. assigning another party to manage an IRPC business;
5. merging with another party to share losses or profits;
6. making amendments to the memorandum of association or articles of association;
7. the increase or decrease of IRPC's registered capital or the issuance of debentures; and
8. the merger or dissolution of IRPC.



Duties and Responsibilities of the Chairman

IRPC stipulates that the chairperson and the president shall not be the same individual to ensure a clear separation of power between policymaking and policy execution. This separation also facilitates the leadership of the Board of Directors and its efficient oversight of executive officers. The chairperson's duties and responsibilities include the following:

1. call board meetings, preside over board and shareholder meetings, and determine business items on the agenda with the president;
2. approve business items on the agenda of every board meeting with the president;
3. attend board and shareholder meetings, ensure their efficiency meetings in compliance with IRPC's Articles of Association, encourage directors and shareholders to express their views freely based on the information duly provided;
4. equitably encourage shareholders to exercise their rights and protect their interests;
5. help the board fulfill its duties and responsibilities to the best of its abilities under the framework of good corporate governance and to support the president;
6. supervise and monitor the performance of the board and its committees to ensure that IRPC's objectives are reached; and
7. cast a deciding vote at board meetings in the event of equal votes.

Sub-Committees

Adhering to good corporate governance principles, the Board of Directors has appointed four standing board committees to oversee critical matters in their respective areas. The composition of these committees is as follows:

1. Audit Committee

The Audit Committee shall consist of at least three independent directors. Its composition, including duties and responsibilities, shall meet the requirements promulgated by the notifications of the Securities and Exchange Commission and the framework of the Capital Market Supervisory Board. Each of these directors shall possess the knowledge, expertise, and experience that the role demands. The Audit Committee shall have at least one director with sufficient knowledge and experience in accounting and finance to ascertain whether financial statements are indeed reliable. Its current members are:



1

1) Mr. Somnuk Bomrungsalee
(Independent Director)
Chairman



2

2) Miss Siriwan Chierapong
(Independent Director)
Member



3

3) Mr. Jumpol Sumpaopol
(Independent Director)
Member

All three directors on the Audit Committee possess both the knowledge and experience required to review IRPC's financial statements.

1. Mr. Somnuk Bomrungsalee	Chairman	
Duration	Experience	
Nov. 2018 – present	Member of the Audit Committee	Megachem (Thailand) Public Company Limited
Dec. 2017 – present	Chairman of the Audit Committee	IRPC Public Company Limited
2. Miss Siriwan Chierapong	Member	
Duration	Experience	
Apr. 2019 – present	Member of the Audit Committee	IRPC Public Company Limited
3. Mr. Jumpol Sumpaopol	Member	
Duration	Experience	
Oct. 2019 – present	Member of the Audit Committee	IRPC Public Company Limited

Office of Corporate Internal Audit and Secretary to the Audit Committee

Reporting directly to the Audit Committee, the Office of Corporate Internal Audit ensures that IRPC's operations, as well as the conduct of management and employees, comply with all laws, related rules and regulations, and the internal control system. The office also handles both internal and external whistleblowing reports. The manager of Internal Audit is independent and reports directly to the Audit Committee.

The Audit Committee has appointed the Executive Vice President, Office of Corporate Internal Audit as its secretary to assist it with meeting appointments, meeting agenda, accompanying documents, and meeting minutes. The secretary also contributes to the oversight of the implementation of the Audit Committee's policies. The secretary also possesses the necessary knowledge, competence, and experience to assist the Audit Committee.

Mr. Thammasak Panyowatkool

Mr. Thammasak Panyowatkool, Executive Vice President, has served as Internal Audit manager and secretary to the Audit Committee since January 1, 2016. (His biography appears on page 41.)

Term of Office

1. Members' term of office shall be as long as that of their directorship (up to three years).
2. Members who complete their terms of office may be re-appointed, subject to the board's discretion, but they may serve no more than three consecutive terms or nine years. There shall be no exceptions.
3. In the event of dismissal, due reasons shall be provided to the Stock Exchange of Thailand.
4. If any committee position becomes vacant for any reason other than retirement by rotation, the board shall appoint a new, qualified director to serve on the committee within three months from the date on which the vacancy occurs.



Duties and Responsibilities

1. The Audit Committee shall review the accuracy and sufficiency of IRPC's financial reports, ensuring that they meet accounting standards stipulated by law.
2. The Audit Committee shall examine IRPC's internal controls, internal audit system, and risk management process for their suitability, sufficiency, and effectiveness;
3. The Audit Committee shall oversee operations' compliance with securities and exchange laws, as well as other pertinent regulations.
4. The Audit Committee shall inspect connected transactions and other transactions with possible conflicts of interest to ensure compliance with laws and regulations of the Stock Exchange of Thailand and to ensure justification of such transactions in the best interests of IRPC.
5. The Audit Committee shall select and nominate an independent auditor; make recommendations on the auditor's fees; dismiss the auditor in the event of incompetence, negligence, or misconduct; and hold a meeting with the auditor at least once a year without the presence of senior management.
6. The Audit Committee shall make certain that the independent auditor's and Internal Audit's spheres of responsibility and auditing plans are complementary to each other to reduce auditing redundancy.
7. The Audit Committee shall review auditing plans and offer views on the budget and workforce of the Office of Corporate Internal Audit.
8. The Audit Committee shall appoint, transfer, or dismiss the manager of Internal Audit and ensure the independence of the Office of Corporate Internal Audit.
9. The Audit Committee shall oversee the efficiency and effectiveness of IT systems relevant to internal controls and risk management.
10. The Audit Committee shall prepare the Report of the Audit Committee, which is a part of the annual report.
11. The Audit Committee shall access the information needed to review and investigate relevant persons within the scope of duties and responsibilities of the Audit Committee under IRPC's regulations.

12. The Audit Committee shall report to the Board of Directors—the timeliness of which allows for improvements or rectifications—whenever it finds or suspects a transaction or action may significantly impact IRPC's financial standing and performance, including:

- conflicts of interest;
- misconducts, or abnormalities or shortcomings in the internal control system;
- violations of securities and exchange laws, regulations of the Stock Exchange of Thailand, or other relevant rules.

If the board or management fails to take action promptly without a valid reason, the Audit Committee shall report the incident to the Securities and Exchange Commission or the Stock Exchange of Thailand without delay.

13. The Audit Committee may also perform other tasks mandated by the board.

2. Nomination and Remuneration Committee

The Nomination and Remuneration Committee shall consist of at least three directors, at least one of whom shall be an independent director. Its current members are:



1



2



3

- 1) Mr. Woothisarn Tanchai
(Independent Director) Chairman
- 2) Mr. Kris Imsang (Director)
Member
- 3) Air Mshl. Boonsuib Prasit
(Independent Director) Member

Mrs. Peyada Chongpayuha, Executive Vice President of the Office of Corporate Affairs and Company Secretary served as secretary to the Nomination and Remuneration Committee from October 16, 2018, to September 30, 2019.

Miss Arisara Suthasut, Executive Vice President of Corporate Affairs and company secretary, has served as secretary to the Nomination and Remuneration Committee since October 1, 2019.

Term of Office

- 1) Members' term of office shall be as long as that of their directorship (up to three years).
- 2) Members who complete their terms of office may be re-appointed, subject to the board's discretion, but they may serve no more than three consecutive terms or nine years. There shall be no exceptions.

Duties and Responsibilities

Duties and responsibilities of the Nomination and Remuneration Committee can be divided into two parts:

Part 1: Nomination

1. The committee shall review and propose recommendations for the structure, size, and composition of the Board of Directors and board committees based on the size, type, and complexity of the business. In doing so, the committee ensures that the board is transparent and free from the influences of shareholders with controlling power. Its proposal shall be submitted to the board or shareholders at a shareholder meeting or both to obtain approval.
2. The committee shall review the qualifications of each director candidate. The following criteria shall be taken into consideration:
 - 1) Directors to serve on the board shall have the necessary skills, knowledge, capabilities, and other qualifications but none of the prohibitions stipulated by laws and other pertinent regulations, including the Corporate Governance Handbook and Articles of Association.
 - 2) Directors to serve on the board shall have excellent general characteristics, including ethics, responsibility, factual decision-making, maturity, expression of different and independent points of view, adherence to professional principles and standards, and diversity of knowledge, work experience, age, and gender.

- 3) Directors to serve on the board shall possess skills that suit the business needs and requirements of IRPC. It shall also be in IRPC's best interest if the candidate is on a list guaranteed by a government agency.
- 4) Directors to serve on the board shall be able to dedicate their time fully to the position. Their directorships in other companies, state enterprises, or listed companies shall satisfy the following requirements:
 - i. Up to three state enterprises or juristic persons whose shares are held by a state enterprise.
 - ii. Up to three companies listed on the Stock Exchange of Thailand. The combination of directorships in (1) and (2) must not exceed five.
3. The committee shall review the qualifications of each independent director candidate, taking into account good corporate governance principles, the criteria of the Securities and Exchange Commission and the Stock Exchange of Thailand. The committee shall also ensure that these candidates do not possess any of the prohibitions stipulated by law and related regulations.
4. The committee shall propose the criteria and process for nominating incoming directors to the board for approval.
5. The committee shall recommend appropriate director candidates in the event of a vacancy or retirement by rotation to the board or shareholders at a shareholder meeting for approval, whichever the case may be.
6. The committee shall nominate suitable members of the board to serve on different board committees. The appointments shall be subject to the board's assent.
7. The committee shall carefully vet appropriate candidates for the president in the best interest of IRPC. The appointment of the president shall be subject to the board's assent.
8. The committee shall determine the president's duties, responsibilities, and performance targets. Leadership, social responsibility, establishment and implementation of strategies, financial



performance, relationship with the board, and succession plan, creation of and promotion of positive corporate image shall serve as the criteria for evaluating the president's performance and annual compensation adjustment. The proposal shall be subject to the board's approval.

9. The committee shall assess the performance of the president annually, which it shall use as a benchmark to adjust the president's compensation, including the monthly salary, pension, bonus, welfare package, and other monetary and non-monetary benefits, based on the defined criteria. The proposal shall be subject to the board's approval.
10. The committee shall oversee executive succession planning to ensure business continuity in the event that the president or other senior executive officers retire or are unable to perform their role.

Part 2: Compensation

1. The committee shall examine and propose director compensation's structure and its criteria. Components of director compensation shall include cash retainers, bonuses, meeting allowances, and other monetary or non-monetary forms of compensation. Compensation for the board and its committees shall be adequate and fair, as well as correspond to the size of the business, to attract and retain qualified directors for the benefit of shareholders. Director compensation shall require the approval of shareholders.
2. The committee shall determine the criteria for the compensation of the president, as well as its components, taking appropriateness, adequacy, and fairness into account to motivate the president to create value-added to IRPC sustainably. The compensation plan is designed to retain a leader of great caliber. The president's compensation shall be subject to the board's assent.
3. If needed, the committee may engage external consultants to advise it on the appropriate director and presidential compensation. IRPC shall bear the expenses.

4. The committee may also perform other tasks mandated by the board.

Director Nomination Process

The Nomination and Remuneration Committee reviews and selects suitable candidates for election to the board or appointment to board committees based on these desired qualification criteria determined by the board:

1. The candidates shall possess suitable knowledge, experiences, and abilities that will benefit IRPC, especially in the fields of business or industries related to IRPC's primary operations. Their presence on the board shall satisfy board composition requirements and be aligned with IRPC's business direction.
2. The committee shall consider the board's skills matrix and diversity, including genders, ages, fields of expertise, experiences, and hard and soft skills, as well as sustainability factors. Director nominees, if appointed, should be able to perform their role efficiently and complement the board as a whole with their unique knowledge, competence, experience, and diversity for the benefit of IRPC. Data from the director pool shall also be taken into consideration.
3. The nominees shall possess all of the desired qualities but none of the prohibitions stipulated by law, such as the Public Limited Company Act B.E. 2535, the Securities and Exchange Act B.E. 2535, and other pertinent regulations.
4. The committee shall consider the director nominees' track record of commitment and dedication, and in cases of returning directors, their past performance. Nominees' directorships in other listed companies must not prevent them from fulfilling the needs of IRPC's business. In addition, the number of their directorships shall not exceed the established limit and shall conform to the Cabinet Resolution dated January 24, 2011, on the appointment of high-ranking government officers and the appointment of directors in state enterprises.

5. The committee shall ensure that directors' independence satisfies the requirements of the Securities and Exchange Commission and those of IRPC. If any of the existing independent directors can no longer meet these requirements, the committee shall also consider the necessity for additional independent directors to maintain the structure of the board as defined in its policy.
6. The committee shall determine the term of office for independent directors. A returning independent director may serve up to three consecutive terms or nine years.
7. The committee shall speak with qualified candidates before nomination to ascertain whether they would be willing to accept a directorship in IRPC if appointed.
8. The committee shall present a list of nominees, those who pass the aforementioned criteria, which includes their qualifications and reasons for their nomination, to the Board of Directors. With board approval, the list shall go before the upcoming shareholder meeting for approval. The board shall have the authority to appoint new directors on the list when attempting to fill vacancies that occur during the year, conforming to IRPC's Articles of Association and the Public Limited Company Act.
9. For appointments to board committees, the Nomination and Remuneration Committee shall consider appropriate knowledge and abilities, the composition of each committee, and directorship criteria, such as skills matrix, board diversity, and each director's independence. Nominations shall be submitted to the Board for approval.

3. Corporate Governance Committee

The Corporate Governance Committee shall consist of at least three directors, at least one of whom shall be an independent director. Its role shall be to offer corporate governance guidelines and advice to the board. Its current members are:



- 1) Mr. Anusorn Sangnimnuan
(Independent Director) Chairman
- 2) Mr. Charcrie Buranakanonda
(Independent Director) Member
- 3) Gen. Nattaphon Narkphanit
(Independent Director) Member

Mrs. Peyada Chongpayuha, Executive Vice President of the Office of Corporate Affairs and Company Secretary served as secretary to the Corporate Governance Committee from October 16, 2018, to November 30, 2019.

Miss Arisara Suthasut, Executive Vice President of the Office of Corporate Affairs and Company Secretary has served as secretary to the Corporate Governance Committee since October 1, 2019

Term of Office

1. Members' term of office shall be as long as that of their directorship (up to three years).
2. Members who complete their terms of office may be re-appointed, subject to the board's discretion, but they may serve no more than three consecutive terms or nine years. There shall be no exceptions.
3. The remuneration for members of the Corporate Governance Committee shall be subject to shareholders' approval.

Duties and Responsibilities

1. The committee shall oversee the Corporate Governance Policy and other pertinent matters of great significance, such as the Anti-Corruption Policy, sustainability management, and social responsibility. The committee shall also align the Code of Ethics and Code of Conduct with the principles, standards, and requirements of listed company regulators, such as the Stock Exchange of Thailand and the Securities and Exchange Commission, as well as those of other nationally and internationally recognized organizations. The committee shall review and Corporate Governance Handbook at least once a year.



Board of Directors
visited petrochemical
production lines.



2. The committee shall establish guidelines and measures, as well as supervise and monitor operations' compliance with them, that continuously upholds and improves IRPC's corporate governance.
3. The committee shall examine and endorse methods for assessing the performance of the board and its committees. It shall also report assessment results to shareholders.
4. The committee shall supervise orientation for new directors, ensuring that they thoroughly understand their duties and responsibilities. The committee shall also provide new directors with vital information about IRPC's business and factors of which they ought to be aware.
5. The committee shall encourage directors to undergo training programs that benefit their role as directors. Its director development policy and plan shall be aligned with IRPC's short-, mid-, and long-term goals. The committee shall also lead activities that promote good corporate governance knowledge annually.
6. The committee shall hold at least three meetings annually. It shall report its performance to the board at least once a year.
7. The Charter of the Corporate Governance Committee shall be reviewed at least once every two years.
8. The committee may perform other tasks mandated by the board.

4. Risk Management Committee

The Risk Management Committee shall consist of at least three directors who are petroleum or petrochemical experts. It shall oversee the risk management policy, plan, and procedure for the organization as a whole, taking into account their compliance with corporate and strategic plans. Its current members are:



- 1) Mr. Nuttachat Charuchinda
(Director) Chairman
- 2) Mr. Worawat Pitayasiri
(Director) Member
- 3) Mr. Ekniti Nitithanprapas
(Director) Member
- 4) Mr. Wattanapong Kurovat
(Director) Member
- 5) Mr. Noppadol Pinsupa
(Director) Member

Ms. Wanida Uthaisomana, Executive Vice President of Corporate Business Planning, served as secretary to the Risk Management Committee until December 2018. (She was appointed Senior Executive Vice President of the Corporate Commercial and Marketing on January 1, 2019.)

Mr. Somkiat Lertritpuwadol, Senior Executive Vice President of Corporate Strategy, has served as secretary of this committee since January 2019.

Term of Office

1. Members' term of office shall be as long as that of their directorship (up to three years).
2. Members who complete their terms of office may be re-appointed, subject to the board's discretion, but they may serve no more than three consecutive terms or nine years. There shall be no exceptions.

Duties and Responsibilities

1. The committee shall formulate suitable, efficient risk management policies and recommendations.
2. The committee shall ensure that all corporate risks are identified, considering external and internal risk factors. It shall also evaluate the impacts and likelihood of these risks. The committee shall rank risks and make proper use of risk management measures.
3. The committee shall support and improve the risk management system. It shall ensure that various risk management instruments, such as financial instruments and derivatives contracts, futures contracts, and hedging, are effectively used.
4. The committee shall supervise, monitor, and review the effectiveness of risk management. It shall also assess the implementation of measures under the risk management framework.
5. The committee shall report risk management assessment results and risk-mitigating activities to the board regularly. In addition, it shall inform the board of all critical matters with significant impacts on IRPC's operations without delay.

6. The committee shall provide the necessary support for risk management activities to ensure their continuity and alignment with IRPC's business plan.
7. The committee shall evaluate and offer its advice on risk management for investment projects and activities with considerable technical complications, long-term obligations, and significant risks.
8. The committee shall report its performance in the annual report.
9. The committee may perform other tasks mandated by the board.

Auxiliary Risk Management Committees and Personnel

In addition to the Risk Management Committee of the Board of Directors, IRPC has established the following auxiliary risk management committees and personnel at the management, taskforce, and risk-agent levels to monitor and ensure greater efficiency in the company's overall risk management and internal control system:

1. Risk Management and Internal Control Committee (RMCC)
2. Hedging Committee
3. Risk Managers: overall risk management of a unit
4. Risk Owners: risk management and planning
5. Risk Agents: A risk agent coordinates risk management planning within a unit or project and reports risk management progress or performance to the respective department or project manager to ensure appropriate, sufficient risk management that corresponds to risks at the unit level.

Board and Sub-Committee Meetings

The entire year of board meetings are scheduled in advance. A schedule is presented to the board in October or November for approval. As a rule of thumb, a board meeting takes place once a month on the third Tuesday. Additional meetings may be arranged if the need arises.



Together, the Chairman and the President determine agenda items based on a review of potential topics. Directors are encouraged to propose matters for consideration. Notable issues that require regular attention appear on the agenda of each month, such as the progress of an ongoing investment project and company performance. An examination of previous board opinions and resolutions are also part of the agenda to ensure that policies and strategies are properly executed.

The company secretary arranges each meeting and prepares accompanying documents, ensuring that each session proceeds smoothly. This position facilitates the work of the directors through various means, such as providing legal and regulatory advice and recommendations, producing supporting documents, and taking meetings minutes, and preparing the venue.

Since 2017 IRPC has benefited from the Board Portal, which is accessible via the internet from computers, smartphones, and tablets. This online platform allows the board to function more flexibly and efficiently. Through it, board members may access IRPC's essential documents, documents for board and board committee meetings, development and learning plans, and a library of past and present information of importance to the board. The platform also accommodates the delivery of meeting notice and agenda with sufficient details seven days in advance to allow directors enough time to prepare themselves.

At every meeting, directors with vested interests or conflicts of interest in an agenda item excuse themselves or abstain from voting on the item in question. Furthermore, in accordance with the Corporate Governance Policy, the chairman provides ample opportunities for directors to express their opinions freely. All questions are clarified before deciding on the subject by a majority resolution or a special resolution (per IRPC's Articles of Association).

To pass a resolution, at least two-thirds of all directors must be present. Meeting minutes include directors' opinions and observations. They are presented to the board at the next meeting for review and approval. The adopted minutes and related meeting documents are systematically electronically stored for ease of retrieval. Access to these documents is limited, subject to each person's level of confidentiality security clearance.

The Board of Directors had a total of 13 meetings in 2019. One was an ad hoc meeting to determine and review IRPC's direction, strategies, and business plans (BOD-STs); two were private meetings among independent directors; and another one was a meeting without the executives, promoting conformity with good corporate governance principles. The directors offered a diverse range of beneficial recommendations. They freely discussed the performance of the management team in detail. The board tasked executive officers with implementing its recommendations and reporting the results back to the board periodically. The issues discussed were as summarized below:

At the private meetings of independent directors (May 21 and October 15, 2019), topics discussed included measures to reduce the energy business's impact, succession planning, corporate social responsibility programs, the development of the Eastern Economic Corridor (EEC), research and development, environmental solutions, production maximization planning, marketing, and logistics.

At the meeting without executives (July 23, 2019), the board covered a range of topics of benefit to IRPC, including action plans for off-course investment projects, succession planning, non-profit activities, environmental governance, code of conduct case studies, and procurement.

The board as a whole attended 96 percent of its meetings in 2019. Each director attended at least 75 percent of all meetings. The table below summarizes their attendance.

Meeting Attendance of the Board of Directors and Board Committees in 2019

(Unit: Meetings)

Name	Board (15 Members) Number of Meetings:13	Board without Executives (13 Members) Number of Meetings:1	Independent Directors (7 Members) Number of Meetings:2	Audit Committee (3 Members) Number of Meetings:12	Risk Management Committee (5 Members) Number of Meetings:7	Corporate Governance Committee (3 Members) Number of Meetings:6	Nomination & Remuneration Committee (3 Members) Number of Meetings:10	2019 AGM (13 Members) Number of Meetings:1
1. Mr. Chansin Treenuchagron	13/13	1/1	-	-	-	-	-	1/1
2. Mr. Woothisarn Tanchai	13/13	1/1	2/2	-	-	-	10/10	1/1
3. Mr. Nuttachat Charuchinda	13/13	1/1	-	-	7/7	-	-	1/1
4. Mr. Somnuk Bomrungsalee	13/13	1/1	2/2	12/12	-	-	-	1/1
5. Mr. Anusorn Sangnimnuan	13/13	1/1	2/2	-	-	6/6	-	1/1
6. Mr. Ekniti Nitithanprapas	12/13	1/1	-	-	6/7	-	-	1/1
7. Mr. Kris Imsang	12/13	1/1	-	-	-	1/1	7/7	1/1
8. Mr. Worawat Pitayasiri	13/13	1/1	-	-	6/7	-	-	1/1
9. Air Mrshl. Boonsuib Prasit	10/10	1/1	2/2	-	-	-	6/6	-
10. Miss Siriwan Chierapong	10/10	1/1	2/2	9/9	-	-	-	-
11. Mr. Charcrie Buranakanonda	7/7	1/1	1/1	-	-	3/3	-	-
12. Gen. Nattaphon Narkphanit	5/6	1/1	1/1	-	-	3/3	-	-
13. Mr. Wattanapong Kurovat	3/4	-	-	-	3/3	-	-	-
14. Mr. Jumpol Sumpaopol	2/2	-	-	2/2	-	-	-	-
15. Mr. Noppadol Pinsupa	12/12	-	-	-	7/7	-	-	1/1
Retired or Resigned Directors in 2019								
16. Mr. Sukrit Surabotsopon ⁽¹⁾	1/1	-	-	-	-	-	-	-
17. Mr. Preecha Pocatanawat ⁽²⁾	2/2	-	-	-	-	-	3/3	-
18. Miss Ruenvadee Suwanmongkol ⁽³⁾	2/3	-	-	1/3	-	-	-	1/1
19. Gen. Sasin Thongpakdee ⁽⁴⁾	5/5	-	-	-	-	3/3	-	1/1
20. Gen. Theppong Tippayachan ⁽⁵⁾	5/5	-	-	-	-	3/3	-	1/1
21. Mr. Jessada Promjart ⁽⁶⁾	10/10	1/1	1/1	9/9	-	-	-	1/1

Notes :

(1) Mr. Sukrit Surabotsopon resigned on January 31, 2019

(2) Mr. Preecha Pocatanawat resigned on March 1, 2019

(3) Miss Ruenvadee Suwanmongkol retired April 3, 2019

(4) Gen. Sasin Thongpakdee resigned on May 2, 2019

(5) Gen. Theppong Tippayachan resigned on May 2, 2019

(6) Mr. Jessada Promjart resigned on October 1, 2019



Management

As chief executive officer of IRPC, the President oversees all of IRPC's operations under the guidance of the board. He acts in the best interests of the company and shareholders according to the current circumstance. The president reports any significant change to the management structure to the board for review and approval.

In 2019 IRPC continued to be restructured. Corporate Organization Effectiveness and Innovation and Operation Excellence were added to the management structure to support future strategies of organizational effectiveness, effective adoption of digital technology, and diversification of its investment portfolio beyond the oil and gas industry. The company readied its industrial park for optimal use. It created new opportunities and prepared successors systemically. It also strengthened the safety, stability, and efficiency of its production lines.



President

The Board of Directors has tasked the president, as the top executive officer, with managing IRPC according to the goals, regulations, and policies laid down by the board. The scope of the president's authority has been defined in writing. Company regulations, meanwhile, serve as the framework within which executive officers and employees operate.

Mr. Sukrit Surabotsopon served as President from October 1, 2013, to January 30, 2019 (a total of five years and four months).

Mr. Chansin Treenuchagron, chairman, served as acting President on January 31, 2019.

Mr. Noppadol Pinsupa has served as President since February 1, 2019.

Duties and Responsibilities

1. The President shall ensure that the company operates in conformity with the law, its objectives and Articles of Association, board policies, and shareholder resolutions.
2. The President shall be in charge of all executive officers, employees, and contractors. Presidential oversight shall include matters of employment, appointment, work regulations, salary rates, wages, welfare, position transfers, dismissals, promotions (level, salary, or position), and disciplinary actions under the board's policies.
3. The President shall realize the policies, strategic and business plans, vision, and mission established by the board with efficiency and in the best interests of the company.
4. The President shall review and grant approval investment budgets, procurements, and operating expenses according to the business plans and annual budget approved by the board.
5. The President shall comprehensively and efficiently manage cash flows, investment projects, budgets, and risk management plans and processes within the scope of authority granted by the board.
6. The President shall examine the company's operating results and submit interim and annual dividend proposals based on the examination to the board or shareholders for approval, whichever the case may be.
7. The President shall evaluate the company's performance and submit a progress report to the board every quarter.
8. The President shall, as a leader, serve as a role model of compliance and conduct.
9. The President shall, as a leader, serve as a role model who supports and motivates employees to adopt the IRPC DNA: make appropriate decisions; bolster confidence and corporate image through communications; exercise environmental stewardship and pay attention to social responsibility; and emphasize occupational health and safety.

10. The President shall ensure that the company conforms to anti-corruption and anti-bribery guidelines.
11. The President shall facilitate the company's commitment to the United Nations' Sustainable Development Goals and good corporate citizenship.

12. The President shall support the company's operations under the scope of authority granted by the board.

Senior Executive Officers

The following are IRPC's seven senior executive officers per the definition of the Securities and Exchange Commission as of December 31, 2019.

Name	Position
1. Mr. Noppadol Pinsupa	President
2. Mr. Woravuth Sivapetranart	Senior Executive Vice President, Petrochemical & Refinery Operation
3. Mr. Somkiat Lertritpuwadol	Senior Executive Vice President, Corporate Strategy
4. Mrs. Nidcha Jirametthanakij	Senior Executive Vice President, Corporate Accounting & Finance
5. Miss Wanida Utaisomnana	Senior Executive Vice President, Corporate Commercial and Marketing
6. Mr. Veerawat Srinoradithlert ⁽¹⁾	Senior Executive Vice President, Corporate Organization Effectiveness
7. Mr. Vichit Nittayanonte ⁽²⁾	Senior Vice President, Innovation and Operation Excellence

Notes :

(1) Mr. Veerawat Srinoradithlert was appointed Senior Executive Vice President of Corporate Organization Effectiveness on March 9, 2019.

(2) Mr. Vichit Nittayanonte was appointed Senior Executive Vice President of Innovation and Operation Excellence on March 1, 2019. He retired on December 31, 2019.

Duties and Responsibilities

1. Senior executives shall implement the president's policies and goals.
2. Senior executives shall determine and align the strategic plans, objectives, and primary goals of their respective functions with IRPC's vision and mission. These shall guide and be implemented employees in their reporting lines.
3. Senior executives shall ensure that their function achieves predetermined goals, objectives, and short- and long-term strategic plans, operating within the management framework under the organization structure and within the scope of their assignments.
4. Senior executives shall provide advice, support, assistance, and solutions for their team. They shall also create motivations and a work environment that maximize the performance efficiency and effectiveness of the employees in their reporting lines.
5. Senior executives shall encourage employees in their reporting lines to improve themselves and apply their potential in their best interests and those of the company.

6. Senior executives shall support sustainable corporate growth under good corporate governance principles with due regard to environmental stewardship and social responsibility.
7. Senior executives shall act as IRPC DNA role models for all employees in their reporting line.

Management Committee

The president has established the Management Committee (MC) to ensure operational systematicity and efficiency, as well as to bolster the interconnected and good co-operation between the company, its subsidiaries, its joint ventures, and other companies within the IRPC Group. In addition to the president, the Management Committee consists of Senior Executive Vice Presidents and Executive Vice Presidents of all business units. The executive vice president of the Office of Corporate Affairs serves as its secretary.

With meetings scheduled once a week on every Monday for the entire year, the Management Committee met 49 times in 2019.



Duties and Responsibilities

Members of the Management Committee consult with one another. Their collective recommendations lead to informed decisions about matters of significance to IRPC's strategies, directions, operational plans, corporate performance, investment plans, budgets, resource management and allocation within IRPC and its affiliates, and alignment of all business operations under the one coherent direction. The Management Committee provides the president—or the board if the matter is beyond the president's authority—with the information needed to make a decision. Below are its duties and responsibilities:

1. The Management Committee shall review and evaluate investment management, investment budget allocation. It shall support the operations of IRPC and its affiliates.
2. The Management Committee shall review and assess essential business matters that require the board's approval.
3. The Management Committee shall examine the company's key operation directions based on accurate and complete information.
4. The Management Committee shall stay vigilant of corporate, national, and global situations that may impact the company's business.
5. The Management Committee shall oversee the progress of operations under IRPC's major strategies.
6. The Management Committee shall review and approve important investment budgets within the authority of the president.
7. The Management Committee shall oversee human resource management policies and mechanisms.
8. The Management Committee shall examine risk management.
9. The Management Committee shall inspect environmental, social, and governance (ESG) activities.
10. The Management Committee shall review occupational health and safety and environmental activities, including accident and whistleblowing reports. The committee shall provide solutions and foster mutual awareness and development.
11. The Management Committee shall review internal audit assessment results and solutions proposed by the Audit Committee to bring about organization-wide improvements.
12. The Management Committee shall monitor the progress and performance of IRPC and its affiliates, as well as offer beneficial recommendations.
13. The Management Committee shall present relevant and function-specific information to ensure that decisions made by the president or other senior executive officers are well informed.

Management-Level Committees and Working Groups

The president has established other committees and working groups that suit the needs of IRPC's strategic plan and present situation. They manage, advance, evaluate, and operate according to specific purposes.



- 1) The Rayong Management Committee (RMM) serves as an integrated management team for all IRPC plants in Rayong. The committee aligns the operations of these plants with the corporate vision and mission, facilitating the achievement of goals
- 2) The Section 9 Licenses Committee is in charge of managing the use of public properties. It also oversees how community complaints are handled, ensuring transparency and bringing about benefits not only to IRPC but also to surrounding communities.
- 3) The Environmental Management Committee (EMC) oversees environmental management and corporate social responsibility programs, ensuring their alignment with the Quality, Security, Safety, Occupational Health, and Environment (QSSHE) Policy.
- 4) Vice President meetings are scheduled in advance on every last Friday of the month. They allow vice presidents of the company to keep track of all aspects of operational results, jointly consider other business and employee issues or other matters, and review matters of significance to be presented at the MC Meetings.

Company Secretary

In conformity with the Securities and Exchange Act, B.E. 2535 (1992), its B.E. 2551 (2008) amendments, and the Corporate Governance Code, the Board of Directors has appointed the executive vice president of the Office of Corporate Affairs as company secretary, tasked with performing the duties outlined the aforementioned law and announcements of the Capital Market Supervisory Board.

Duties and Responsibilities

With great care, accountability, and integrity, the company secretary shall:

- provide directors with preliminary legal and regulatory advice, monitor compliance, and report significant changes to the board;
- arrange board and shareholder meetings in accordance with the law, IRPC's Articles of Associations, and general practices;
- prepare the minutes of board and shareholder meetings and ensure compliance or execution of board and shareholder resolutions;
- oversee that information and data are disclosed to regulators in conformity with rules and regulations;
- prepare and catalog important documents, board of directors' roster, board meeting notices, board meeting minutes, annual reports, shareholder meeting invitations, shareholder meeting minutes, directors' and management's conflicts of interest reports, and other duties required by the Capital Market Supervisory Board and related laws;
- prepare information and reports pertaining to the board and corporate governance, which are needed to apply for membership certification, demonstrate good corporate citizenship, and illustrate compliance with national and international standards;
- conduct anti-corruption activities under board policies and measures;
- acquire information, knowledge, and best practices relating to the post's responsibilities and corporate governance at national and international levels and apply them appropriately by attending training programs and seminars to keep abreast of the ever-stricter regulations and management directions; and
- facilitate one- and two-way communication about good governance with IRPC's stakeholders-including investors, shareholders, the media, and the public.

Mrs. Peyada Chongpayuha

Company secretary from October 1, 2018, to November 30, 2019. Her biography appears in page 44.

Miss Arisara Suthasut

Company secretary since October 1, 2019. Her biography appears in page 41.



Compensation

Director Compensation

The Board of Directors has appointed the Nomination and Remuneration Committee to determine compensation guidelines for the board and board committee members. The compensation guidelines proposed to the board are as follows:

1. Director compensation shall consist of two components: cash retainer and meeting allowance. There shall be no other benefits, whether monetary or non-monetary.
2. Director compensation amounts shall be based on directors' responsibilities and performance and IRPC's operating results. They shall be comparable to those paid to directors in other companies with similar sizes and business risks to attract directors whose qualifications suit the company's business needs. The compensation survey of the Thai Institute of Directors (IOD) and the Stock Exchange of Thailand shall also be taken into account.

The compensation amounts proposed for 2019 were comparable to the mean of the compensation amount per month per person of other companies from the 2018 survey of directors' cash retainer prepared by the IOD in December 2018.

3. The scope of duties and responsibilities of the board and board committees shall also be considered.
4. The compensation amount for board and committee chairpersons shall be about 30% higher than that of a director.
5. Meeting allowance for each member of board committees—namely the Audit Committee, the Nomination and Remuneration Committee, the Risk Management Committee, and the Corporate Governance Committee—shall be subject to the number of meetings they attend.
6. Compensation for the board and its committee shall be subject to shareholders' approval.

At the Annual General Meeting of Shareholders (AGM) held on April 3, 2019, shareholders voted to approve the proposed compensation amounts for the board and its committees. These were the same amounts offered in 2018.

6.1 Compensation for the board and its committees in 2019 is summarized below. (IRPC has used the same rates since 2006)

Directors	Monthly Compensation/ Person	Meeting Allowance/ Person
1. Board		
Chairman	60,000 Baht	60,000 Baht
Director	45,000 Baht	45,000 Baht
2. Sub-committees: Audit Committee, Nomination and Remuneration Committee, Risk Management Committee, Corporate Governance Committee, and other committees yet to be established		
Chairman	None	60,000 Baht
Director	None	45,000 Baht

6.2 Director Bonuses

The Nomination and Remuneration Committee also proposed director bonuses, which were based on IRPC's performance. At the AGM held on April 3, 2019, shareholders voted to award directors of the company a total bonus of 23 million baht (0.30 percent) based on the net profit of 2018. Amounts allocated were subject to each director's meeting attendance. In addition, the chairman of the board received an amount of 30% higher than that of other directors.

Below is a summary of the 2019 compensation of every director.

(Unit: Baht)

Name	Cash Retainer	Board Meeting Allowance	Committee Meeting Allowance	Bonus (2018 Performance)	Total
1. Mr. Chansin Treenuchagron ⁽¹⁾	720,000	780,000	-	1,728,875	3,228,875
2. Mr. Woothisarn Tanchai	540,000	585,000	600,000	1,669,259	3,394,259
3. Mr. Nuttachat Charuchinda	540,000	585,000	420,000	1,550,026	3,095,026
4. Mr. Somnuk Bomrungsalee	540,000	585,000	720,000	1,669,259	3,514,259
5. Mr. Anusorn Sangnimnuan	540,000	585,000	360,000	1,669,259	3,154,259
6. Mr. Ekniti Nitithanprapas	540,000	540,000	270,000	1,550,026	2,900,026
7. Mr. Kris Imsang	540,000	540,000	360,000	1,550,026	2,990,026
8. Mr. Worawat Pitayasiri	540,000	585,000	270,000	476,931	1,871,931
9. Air Mrshl. Boonsuib Prasit	400,500	450,000	270,000	-	1,120,500
10. Miss Siriwan Chierapong	400,500	450,000	405,000	-	1,255,500
11. Mr. Charcrie Buranakanonda	328,065	315,000	135,000	-	778,065
12. Gen. Nattaphon Narkphanit	279,000	225,000	135,000	-	639,000
13. Mr. Wattanapong Kurovat	195,968	135,000	135,000	-	465,968
14. Mr. Jumpol Sumpaopol	113,226	90,000	90,000	-	293,226
15. Mr. Noppadol Pinsupa	495,000	540,000	315,000	-	1,350,000

Retired or Resigned Directors in 2019

16. Mr. Sukrit Surabotsopon ⁽²⁾	43,548	45,000	-	1,669,259	1,757,807
17. Mr. Preecha Pocatanaawat ⁽³⁾	90,000	90,000	135,000	476,931	791,931
18. Miss Ruenvadee Suwanmongkol ⁽⁴⁾	139,500	90,000	45,000	1,430,793	1,705,293
19. Gen. Sasin Thongpakdee ⁽⁵⁾	181,452	225,000	135,000	1,550,026	2,091,478
20. Gen. Sasin Gen. Theppong Tippayachan ⁽⁶⁾	181,452	225,000	135,000	1,073,095	1,614,547
21. Mr. Jessada Promjart ⁽⁷⁾	405,000	450,000	405,000	1,669,259	2,929,259
22. Mr. Tevin Vongvanich ⁽⁸⁾	-	-	-	1,240,021	1,240,021
23. Mr. Chavalit Punthong ⁽⁹⁾	-	-	-	119,232	119,232
24. Miss Jiraponr Khaosawas ⁽¹⁰⁾	-	-	-	596,163	596,163
25. Miss Nantika Thangsuphanich ⁽¹¹⁾	-	-	-	1,311,560	1,311,560
Total	7,753,211	8,115,000	5,340,000	23,000,000	44,208,211

There were no other benefits, whether monetary or non-monetary, provided to directors.

Notes:

- (1) Mr. Chansin Treenuchagron reimbursed his compensation to PTT Public Company Limited in compliance with the PTT's President Employment Agreement.
- (2) Mr. Sukrit Surabotsopon resigned on January 31, 2019.
- (3) Mr. Preecha Pocatanaawat resigned on March 1, 2019.
- (4) Miss Ruenvadee Suwanmongkol retired on April 3, 2019.
- (5) Gen. Sasin Thongpakdee resigned on May 2, 2019.
- (6) Gen. Theppong Tippayachan resigned on May 2, 2019.
- (7) Mr. Jessada Promjart resigned on October 1, 2019.
- (8) Mr. Tevin Vongvanich resigned on August 31, 2018.
- (9) Mr. Chavalit Punthong resigned on January 31, 2018.
- (10) Miss Jiraponr Khaosawas resigned on August 21, 2018.
- (11) Miss Nantika Thangsuphanich resigned on November 6, 2018.



Presidential Compensation

The Nomination and Remuneration Committee has calculated the president's compensation based on well-defined, transparent, fair, and reasonable criteria, taking the role's duties, responsibilities, and performance assessment, as well as IRPC's operating results, into consideration. The presidential compensation proposal was submitted to and approved by the board.

The process is as follows:

1. The Nomination and Remuneration Committee proposes the presidential compensation components and criteria to the board for consideration at the beginning of the year.
2. The board approves the proposal and notifies the president of the performance assessment criteria.
3. The Nomination and Remuneration Committee evaluates the president's performance based on the established criteria and other factors throughout the year, such as business contexts, challenges, problem-solving skills, crisis communication, social responsibility, environmental stewardship, corporate governance risk management, and the ability to promote good corporate image.

4. The Nomination and Remuneration Committee presents the results of its assessment of the president's performance, along with the proposed annual compensation adjustment rate, to the board for approval in December.

Management Compensation

IRPC annually evaluates the performance of every level of management. Its Performance Management System (PMS) consists of three components:

- 1) Key Performance Indicators (KPIs): KPIs are vital missions set at the corporate level each year. They are in line with corporate goals, performance, and financial performance, which are the duties and responsibility of the management
- 2) Competency; and
- 3) Desired Behavior: The company expects its management and employees to behave in a certain way while at work to ensure that IRPC achieves its goals qualitatively and sustainably.

In 2019 there were seven executive officers, including one who resigned, according to the Securities and Exchange Commission's definition. They received a total of 56.23 million baht in monthly salaries, bonuses, provident fund contributions. Below is a summary:

Compensation Components	2017 (16 Persons)	2018 (18 Persons)	2019 (7 Persons)
Cash			
Monthly Salary	77.30	81.45	40.05
Bonus	32.08	39.05	12.87
Others			
Provident Fund Contribution	6.87	7.53	3.31
Total	116.25	128.03	56.23

Director of Subsidiaries

1. IRPC Oil Co.,Ltd.

Name	Position (s)
1 Mr. Noppadol Pinsupa	Chairman
2 Mrs. Nidcha Jirametthanakij	Member
3 Miss Wanida Utaisomnapa	Member
4 Mr. Vichit Nittayanonte	Member
5 Mr. Chalermchai Somboonpakorn	Member
6 Mr. Somkiat Lertritpuwadol	Acting Managing Director

* Mr. Vichit Resigned 1 January 2020

2. IRPC Technology Co.,Ltd.

Name	Position (s)
1 Mr. Noppadol Pinsupa	Chairman
2 Mr. Veerawat Srinoradithlert	Member
3 Miss Arisara Suthasut	Member
4 Mr. Surachai Toaphicharttrakul	Member
5 Mrs. Kanokphorn Rodrungleeng	Member
6 Mr. Phothiwat Paopongchuang	Managing Director

3. IRPC A&L Co., Ltd.

Name	Position (s)
1 Mr. Noppadol Pinsupa	Chairman
2 Mrs. Nidcha Jirametthanakij	Member
3 Ms. Wanida Utaisomnapa	Member
4 Mr. Woravuth Sivapetranart	Member
5 Mr. Vichit Nittayanonte*	Member
6 Mr. Toshiro Kojima	Member
7 Mr. Hideyuki Tokimasa	Member
8 Mr. Kengo Shiba	Member
9 Mr. Takayuki Mano	Member
10 Mr. Somkiat Lertritpuwadol	Acting Managing Director

* Mr. Vichit Resigned 1 January 2020

4. Rakpasak Co., Ltd.

Name	Position (s)
1 Mr. Songklod Chareonporn	Member
2 Mr. Surachai Toaphicharttrakul	Member
3 Mr. Vichit Nittayanonte*	Member
4 Mr. Somboon Sadsin	Managing Director

* Mr. Vichit Resigned 1 January 2020

5. iPolymer Co., Ltd.

Name	Position (s)
1 Mr. Sukrit Surabotsopon	Chairman
2 Mr. Somkiat Lertritpuwadol	Member
3 Mrs. Nidcha Jirametthanakij	Member
4 Mr. Hu Jiezhong	Member
5 Ms. Liu Yuhong	Member


Position Table of Directors and Executives (as of 31 December 2019)

No	Name	IRPC PLC	Subsidiaries					Joint Venture		Associated Companies			Related Companies			
			IRPC Oil Co., Ltd.	IRPC Technology Co., Ltd.	IRPC A&L Co., Ltd.	Rakpasak Co., Ltd.	IPolymer Co., Ltd.	IRPC Polyol Co., Ltd.	WHA Industrial Estate (Rayong) Co., Ltd.	PTT Energy Solutions Co., Ltd.	UBE Chemical (Asia) PLC	IRPC Clean Power Co., Ltd.	PTT PLC	Business Services Alliance Co., Ltd.	PTT Exploration and Production PLC	Sport Services Alliances Co., Ltd.
1	Mr. Chansin Treenuchchagron	x										/, //	/			
2	Mr. Woothisarn Tanchai	/														
3	Mr. Nuttachat Charuchinda	/										/				
4	Mr. Somnuk Bomrungsalee	/														
5	Mr. Anusorn Sangnimnuan	/														
6	Mr. Ekniti Nitithanprapas	/														
7	Mr. Kris Imsang	/										//				
8	Mr. Worawat Pitayasiri	/										//		x		
9	Air Marshal Boonsuib Prasit	/													x	
10	Miss Siriwan Chierapong	/														
11	Mr. Charcrie Buranakanonda	/														
12	General Nattaphon Narkphanit	/														
13	Mr. Wattanapong Kurovat	/														
14	Mr. Jumpol Sumpaopol	/														
15	Mr. Noppadol Pinsupa	/, //	x	x	x		x	x		/	/		//			
16	Mr. Woravuth Sivapetranart	//			/			/	/		/					
17	Mr. Somkiat Lertritpuwadol	//	/		/		/		/		/					
18	Mrs. Nidcha Jirametthanakij	//	/		/		/	/	/		/	/	//			
19	Miss Wanida Utaisomnapa	//	/		/			/			/					
20	Mr. Veerawat Srinoradithlert	//		/												
21	Mr. Vichit Nittayanonte ^(*)	//	/		/	/										

Remark : X = Chairman / = Director // = Management Team * under the registration with Ministry of Commerce

Directors' and Executives Shareholding Report

Directors' shareholding as of December 31, 2019

No.	Name	Shareholding Percentage/ Number of Shares as of Dec. 31, 2018	Shareholding Percentage/ Number of Shares as of Dec. 31, 2019	Number of Shares Increased (Decreased) During the Year	WARRANT/ NVDR/ TSR/ DW (2019)	Notes
1.	Mr. Chansin Treenuchagron	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Underage Child(ren)	None	None	No Change	None	
2.	Mr. Woothisarn Tanchai	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Underage Child(ren)	None	None	No Change	None	
3.	Mr. Nuttachat Charuchinda	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Underage Child(ren)	None	None	No Change	None	
4.	Mr. Somnuk Bomrungsalee	0.00024% 50,000	0.00024% 50,000	No Change	None	
	Spouse	None	None	No Change	None	
	Underage Child(ren)	None	None	No Change	None	
5.	Mr. Anusorn Sangnimnuan	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Underage Child(ren)	None	None	No Change	None	
6.	Mr. Ekniti Nitithanprapas	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Underage Child(ren)	None	None	No Change	None	
7.	Mr. Kris Imsang	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Underage Child(ren)	None	None	No Change	None	
8.	Mr. Worawat Pitayasiri	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Underage Child(ren)	None	None	No Change	None	
9.	Air Mrshl. Boonsuib Prasit	N/A	None	No Change	None	New director appointed on April 3, 2019, at the AGM
	Spouse	N/A	None	No Change	None	
	Underage Child(ren)	N/A	None	No Change	None	
10.	Miss Siriwan Chierapong	N/A	None	No Change	None	New director appointed on April 3, 2019, at the AGM
	Spouse	N/A	None	No Change	None	
	Underage Child(ren)	N/A	None	No Change	None	
11.	Mr. Charcrie Buranakanonda	N/A	0.00027% 55,000	No Change	None	New director appointed on May 22, 2019
	Spouse	N/A	None	No Change	None	
	Underage Child(ren)	N/A	None	No Change	None	



No.	Name	Shareholding Percentage/ Number of Shares as of Dec. 31, 2018	Shareholding Percentage/ Number of Shares as of Dec. 31, 2019	Number of Shares Increased (Decreased) During the Year	WARRANT/ NVDR/ TSR/ DW (2019)	Notes
12.	Gen. Nattaphon Narkphanit	N/A	None	No Change	None	New director appointed on June 24, 2019
	Spouse	N/A	None	No Change	None	
	Underage Child(ren)	N/A	None	No Change	None	
13.	Mr. Wattanapong Kurovat	N/A	None	No Change	None	New director appointed on August 21, 2019
	Spouse	N/A	None	No Change	None	
	Underage Child(ren)	N/A	None	No Change	None	
14.	Mr. Jumpol Sumpaopol	N/A	None	No Change	None	New director appointed on October 16, 2019
	Spouse	N/A	None	No Change	None	
	Underage Child(ren)	N/A	None	No Change	None	
15.	Mr. Noppadol Pinsupa	N/A	None	No Change	None	New director appointed on February 1, 2019
	Spouse	N/A	None	No Change	None	
	Underage Child(ren)	N/A	None	No Change	None	
Retired or Resigned Directors						
1.	Mr. Sukrit Surabotsopon	0.04894% 10,000,000	N/A	N/A	N/A	Resigned on January 31, 2019
	Spouse	None	N/A	N/A	N/A	
	Underage Child(ren)	None	N/A	N/A	N/A	
2.	Mr. Preecha Pocatanawat	None	N/A	N/A	N/A	Resigned on March 1, 2019
	Spouse	None	N/A	N/A	N/A	
	Underage Child(ren)	None	N/A	N/A	N/A	
3.	Miss Ruenvadee Suwanmongkol	None	N/A	N/A	N/A	Retired on April 3, 2019
	Spouse	None	N/A	N/A	N/A	
	Underage Child(ren)	None	N/A	N/A	N/A	
4.	Gen. Sasin Thongpakdee	None	N/A	N/A	N/A	Resigned on May 2, 2019
	Spouse	None	N/A	N/A	N/A	
	Underage Child(ren)	None	N/A	N/A	N/A	
5.	Gen. Theppong Tippayachan	None	N/A	N/A	N/A	Resigned on May 2, 2019
	Spouse	None	N/A	N/A	N/A	
	Underage Child(ren)	None	N/A	N/A	N/A	
6.	Mr. Jessada Promjart	0.00002% 5,000	N/A	N/A	N/A	Resigned on October 1, 2019
	Spouse	0.00010% 20,000	N/A	N/A	N/A	
	Underage Child(ren)	None	N/A	N/A	N/A	

Note : N/A means not applicable. The director was either not yet appointed at the time or had resigned or retired by rotation.

Executives shareholding as of December 31, 2019

No.	Name	Shareholding Percentage/ Number of Shares as of Dec. 31, 2018	Shareholding Percentage/ Number of Shares as of Dec. 31, 2019	Number of Shares Increased (Decreased) During the Year	WARRANT/ NVDR/ TSR/ DW (2019)	Notes
1.	Mr. Noppadol Pinsupa	None	None	No Change	None	New executive officer appointed on February 1, 2019
	Spouse	None	None	No Change	None	
	Underage Child(ren)	None	None	No Change	None	
2.	Mr. Woravuth Sivapetranart	0.00137% 279,351	0.00137% 279,351	No Change	None	
	Spouse	None	None	No Change	None	
	Underage Child(ren)	None	None	No Change	None	
3.	Mr. Somkiat Lertritpuwadol	0.00145% 295,580	0.00145% 295,580	No Change	None	
	Spouse	0.00008% 15,900	0.00008% 15,900	No Change	None	
	Underage Child(ren)	None	None	No Change	None	
4.	Mrs. Nidcha Jirametthanakij	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Underage Child(ren)	None	None	No Change	None	
5.	Miss Wanida Utaisomnapa	0.00103% 210,440	0.00103% 210,440	No Change	None	
	Spouse	None	None	No Change	None	
	Underage Child(ren)	None	None	No Change	None	
6.	Mr. Veerawat Srinoradithlert	0.00005% 10,579	0.00005% 10,579	No Change	None	
	Spouse	None	None	No Change	None	
	Underage Child(ren)	None	None	No Change	None	
7.	Mr. Vichit Nittayanonte	0.00163% 333,394	0.00163% 333,394	No Change	None	Retired on December 31, 2019
	Spouse	None	None	No Change	None	
	Underage Child(ren)	None	None	No Change	None	

Note: N/A means not applicable. The executive was either not yet appointed at the time or had resigned or retired.

In 2019 and throughout the past five years, no directors and executive officers have any records of wrongful activities under the Securities and Exchange Act B.E. 2535 (1992) or Derivatives Act B.E. 2546 (2003) or any of the following:

- dishonesty or severe negligence;
- disclosure or dissemination of false information or messages that may cause misunderstanding, or concealing essential facts that should be disclosed, both of which might have affected the decisions of shareholders, investors, or concerned parties; or
- unfairness or taking advantage of investors in the sale and purchase of shares or derivatives or playing a part in supporting such activities.





IRPC intends to operate within the framework of the Corporate Governance Policy, which will bring operational excellence, transparency, accountability, and benefits to shareholders.





Corporate Governance Report



Good Corporate Governance Policy

On behalf of IRPC Public Company Limited (IRPC), the Board of Directors has issued the Corporate Governance Policy. It applies to every IRPC executive officer and employee, including every person working at an IRPC subsidiary or joint venture or an organization in which IRPC has a controlling stake. These individuals must abide by the policy and use it as a framework that guides their day-to-day operations. Their adherence to the policy will bolster the company's effectiveness and allow it to excel in an ethical, transparent, corruption-free, and accountable manner.

The policy has come into effect since September 2007. The Board of Directors has provided a Corporate Governance Handbook to every director, executive officer, and employee. Everyone within IRPC has acknowledged the policy and applied it to their respective role as if it were second nature. The handbook has since received several revisions, which have kept them in line with the most current situation and context. IRPC's Corporate Governance Policy is based on good corporate governance principles, best practices from the Securities and Exchange Commission and the Stock Exchange of Thailand, opinions and suggestions from the Corporate Governance Assessment Reports of Thai Listed Companies from the Thai Institute of Directors, international benchmarks—such as the Organization for Economic Cooperation and Development, the ASEAN CG Scorecard, and the Dow Jones Sustainability Index - and best practices of leading global companies to ensure its robustness and long-lasting applications.

Corporate Governance Policy

The Board of Directors intends for IRPC Public Company Limited (IRPC) and every subsidiary within the IRPC Group to steadfastly operate within the framework of the Corporate Governance Policy, which will bring about operational excellence, transparency, accountability, and benefits to shareholders without infringing upon the rights of stakeholders. On that account, IRPC has adopted the six pillars of good corporate governance of the Stock Exchange of Thailand as guidelines in the day-to-day operations of the company for IRPC directors, executive officers, and employees.

1. Creation of long-term value
2. Responsibility
3. Equitable treatment
4. Accountability
5. Transparency
6. Ethics and code of conduct

These pillars have ensured the sustainability of shared value and bolstered faith in the company among shareholders and investors. Furthermore, the Board of Directors has refined its corporate governance guidelines to improve competitiveness and profitability with due regard to long-term effects, ethical operations, respect and responsibility towards shareholders and stakeholders, benefits to society, environmental development, environmental impact minimization, and the ability to adapt to changing factors. To this end, IRPC has adopted the Thai Corporate Governance Code for Listed Companies 2017 issued by the Securities and Exchange Commission as a benchmark for its Corporate Governance Policy. The following principles apply to IRPC's Board of Directors:

- Principle 1: Establish clear leadership role and responsibilities of the board
- Principle 2: Define objectives that promote sustainable value creation
- Principle 3: Strengthen board effectiveness
- Principle 4: Ensure effective CEO and people management
- Principle 5: Nurture innovation and responsible business
- Principle 6: Strengthen effective risk management and internal control
- Principle 7: Ensure disclosure and financial integrity
- Principle 8: Ensure engagement and communication with shareholders

1. Corporate Governance Report

In 2019 IRPC further elevated and strengthened its corporate governance according to the 2019 Corporate Governance Plan approved by the Corporate Governance Committee. Below is a summary of key developments:

1.1 Duties of the Corporate Governance Committee

- The Corporate Governance Committee scheduled all of its meetings in advance for the entire year. A total of six meetings took place in 2019. The committee approved, consented to, and acknowledge major corporate governance issues—including the scope of the Corporate Governance Report, amendments to the Anti-Corruption Policy and anti-corruption guidelines for IRPC and the IRPC Group, extension of the membership to the Thai Private Sector Collective Action Coalition against Corruption, criteria for updating the Corporate Governance Handbook and Code of Conduct Manual, the 2020 Corporate Governance and Compliance plans, the Compliance Framework and Charter, company representatives to serve on the Board of Founding Members of the Global Compact Network Thailand, corporate governance report of listed companies, complaints report, PTT Group Way of Conduct compliance report, IRPC Group Way of Conduct, and much more.
- The Board of Directors submitted to an independent assessment performed by KPMG Phoomchai Business Advisory Limited. An independent assessment takes place at least once every three years. The 2019 assessment was IRPC's second. The first was conducted in 2015 by Governance Matter Thailand.
- The Board of Directors and its committees underwent an annual performance assessment. Their performance assessment forms were reviewed and fine-tuned. The evaluation of board meeting effectiveness was also made more comprehensive.
- In terms of director development, every board member attended a lecture entitled "Measure the ROI of Digital Transformation Strategy, KPIs for Digital Transformation Success" by experts from KPMG Phoomchai Business Advisory Limited.



1.2 Shareholder Rights and Equitable Treatment of Shareholders

- IRPC allowed and encouraged minority shareholders to propose agenda items and nominate director candidates before the annual general meeting of shareholders from September 2, 2019 to January 31, 2020. This opportunity conformed to the criteria of the Thai Institute of Directors for good corporate governance, which stipulates that Thai listed companies should afford their shareholders a period of at least 90 days before the end of the fiscal year to propose agenda items and nominate director candidates. IRPC notified the Stock Exchange of Thailand of this opportunity in writing and made a similar announcement on its website.

1.3 Policy, Framework, and Guidelines for Compliance, Code of Conduct, Transparency, and Anti-Corruption Activities

- The Corporate Governance Handbook received an update, which further aligned it with the most recent corporate governance guidelines for listed companies from the Stock Exchange

of Thailand, the Securities and Exchange Commission, and the ASEAN CG Scorecard. Other anti-corruption measures and international best practices that IRPC has adopted include the UN Global Compact, the UN Sustainable Development Goals, and other UN declarations, especially those pertaining to human rights and their relevance in business operations.

- The Anti-Corruption Policy was revised to better comply with the PTT Group Way of Conduct.
- The Corporate Governance Policy received a revision. Principles from the Corporate Governance Code for Listed Companies 2017 issued by the Stock Exchange of Thailand were adapted and applied to the revised text, making it suitable for the company's business context.
- The Compliance Policy also underwent a revision, which rendered it more inclusive of notable issues per international standards. The revision was aimed at bringing about effective implementation, sustainability, and compliance excellence, as well as bolstering stakeholders' confidence.

The Audit Committee and the President presented "Diamond Award" to the departments with excellent internal control and focus on fostering effectiveness to the organization.





1.4 Employee Awareness Activities in 2019

Ethics

- IRPC and other PTT subsidiaries organized the PTT Group CG Day 2019 under the concept of “Digitalization: Challenge for the Governance.” The event demonstrated the PTT Group’s good governance spirit and expressed its commitment to “CG 4.0” to stakeholders in a most sincere and transparent manner. CG 4.0 is the concept in which corporate governance is driven by technology, creativity, and innovation without compromising business ethics. Many business partners and customers attended the event at IRPC’s invitation. The company hoped to expand the scope of its corporate governance to its business partners throughout the entire supply chain.
- The company organized the IRPC CG Day 2019 under the concept of “The Creation of TRUST: SUSTAINABILITY FOR ALL.” The event’s goal was to bring IRPC executives, employees, business partners, and customers onto the same page about the vital role a good global corporate citizen plays in the following four dimensions: human rights, labor rights, the environment, and the fight against corruption. With everyone on the same page, the organization could move towards excellence in a sustainable manner. At the event, there was a discussion panel led by Prasit Vaiyavatjamai of ERM Siam Co., Ltd. on the topic of “Sustainable Value Chain & Human Rights.” Participants included Nareelak Paechaipoom (director of the International Human Rights Division, Department of Rights and Liberties Protection, Ministry of Justice), Prakairat Pukkaprema (IRPC, Vice President, Procurement Department), and Pongsak Wattanakarunwong (IRPC, Vice President, Petrochemical Sales Department). Additionally, there were two other speakers. Dr. Seree Nonthasoot, a former Thai representative to the ASEAN Intergovernmental Commission on Human rights, gave a lecture on “Human Rights and Good Corporate Governance.” Meanwhile, Pana Ratanabanangkoon, project director to Thailand’s Collective Action Coalition against Corruption (CAC) under the Thai Institute of Directors (IOD), spoke about the private sector’s anti-corruption role. More than 180 people were in the audience.
- The company launched the IRPC CG Roadshow and Corporate Compliance Academy under the concept of “Opening the GRC Gift Box” to enhance business integrity and ethics, both of which would result in the utmost operational efficiency.





Anti-Corruption and Ethics-Promoting Activities

- IRPC applied to extend its membership to Thailand's Private Sector Collective Action Coalition against Corruption for the second time in December 2019.
- A conflict of interest reporting line has been made available online. All executive officers and employees at every level are required to disclose any transaction that could be a conflict of interest. This project was launched in 2015 and has just reached its fifth-year mark with a 100% success rate.
- IRPC and the PTT Group attended the "National Anti-Corruption Day 2019" organized by the Anti-Corruption Organization of Thailand on September 6, 2019. The theme was "Unite and Fight against Corruption." IRPC reaffirmed that it operated on the foundation of professionalism, transparency, good corporate governance, and social responsibility.
- IRPC and the PTT Group attended the "International Anti-Corruption Day (Thailand)" organized by the Office of the National Anti-Corruption Commission on December 9, 2019. The concept was "Zero Tolerance: Thai People Do Not Tolerate Corruption." The event expressed a collective push for transparency in a society that would not stand for corruption. It also promoted integrity within Thai society under the theme "Zero Tolerance and Clean Thailand." By attending the event, IRPC fulfilled its obligation for four of the Ten Principles of the UN Global Compact—namely, human rights, labor, the environment, and taking action against corruption—which IRPC has been a part of since 2011.



Global Compact Network Thailand

IRPC is a founding member of the Global Compact Network Thailand (GCNT). All 15 founders are leading Thai private companies and members of the UN Global Compact. The goal of GCNT is to encourage the Thai private sector to operate in a way that conforms to human rights principles and the 17 Sustainable Development Goals of the United Nations. Below is a summary of activities led by IRPC to fulfill its role as a GCNT member:

- The company attended a conference on the UN Guiding Principles on Business and Human Rights and the National Action Plan on Business and Human Rights (remedial action for individuals affected by business operations). The conference's objectives were to promote a better understanding of the principles, disseminate information about the national action plan, and prepare for its enactment, especially in regard to remedial action for those affected by business operations. The conference took place on September 9, 2019.
- IRPC attended the Third National Conference on Business and Human Rights on "Must-Knows for Businesses." Its objectives were to promote an understanding of the United Nations Development Program (UNDP), as well as to disseminate information about the National Action Plan for Business and Human Rights and the link between sustainable financial principles and responsible business practices and respect for human rights. The conference took place on September 13, 2019.
- IRPC attended the public announcement of the National Action Plan on Business and Human Rights, Phase 1 (2019–2022), by the Department of Rights and Liberties Protection, Ministry of Justice, in conjunction with the UNDP. Its objectives included raising awareness in every

sector, encouraging implementation, and demonstrating the intention, commitment, and participation of the government, state enterprises, private organizations, and civil society. The plan conforms to the framework of the UNDP, which underlines the following three pillars: protect, respect, and remedy. The event took place on December 16, 2019.

1.5 Awards of Success for Good Corporate Governance 2019

IRPC has always emphasized the significance of good corporate governance and its continuous betterment. The awards granted to IRPC in recognition of its governance excellence in 2019 are testaments to its dedication and commitment to transparent and ethical business operations. These accolades are a source of pride and encouragement for IRPC to do even better. Further details on this subject matter appear under Milestones & Awards of Success on pages 10-13

2. Compliance with Good Corporate Governance Principles

IRPC observes the OECD Principles of Corporate Governance, Principles of Good Corporate Governance for Listed Companies of the Stock Exchange of Thailand, ASEAN CG Scorecard criteria, and Corporate Governance Report of Thai Listed Companies of the Thai Institute of Directors. Moreover, the board has adopted Thai Corporate Governance for Listed Companies 2017 (CG Code) as a benchmark for its corporate governance policy. However, in 2019, there are performance in some categories, which were inconsistent with CGR principles. The company had considered the replacement measures as follows:



CGR inconsistencies	Company Performances
Prescribing and disclosing employee compensation policy that are consonant with the company's long-term performance more (such as conferring ESOP, EJIP).	IRPC has a standardized employee compensation management system for both current and future employees, with flexibility in compensation management to be consonant with the same business group, along with staff performance management system by prescribing corporate indicator (Corporate KPI) based on Balanced Scorecard that are consonant with the short-term and long-term strategic plans, associate company turnover and employee performance.
The chairman is not an independent director.	IRPC stipulates that the chairman and the president (the top executive officer) shall not be the same individual to ensure a clear separation of duties. The chairman is not participated in management, which results in balancing the power of corporate governance and business management.
The remuneration committee shall consist of independent director (more than 50 percent).	There are currently 3 members of the nomination and remuneration committee, namely two independent directors (66 percent) and one director.
The nomination committee shall consist of independent director (more than 50 percent).	There are currently 3 members of the nomination and remuneration committee, namely two independent directors (66 percent) and one director.
The Board of Directors shall consist of 5 – 12 members.	According to IRPC's articles of association, the Board of Directors shall consist of 5 – 15 members. There are currently 15 members of the Board of Directors, comprise eight independent directors (53.33 percent), six directors and one executive director, which suit the sizes, types and complexity of its businesses. As IRPC is a large organization operate in the business of petroleum, petrochemical and utilities to support the industry. The company is necessary to have directors with diversities knowledge and competence in order to encourage the directors and sub-committee for efficiency performance.
How many independent directors of the Board of Directors?	There are currently 15 members of the Board of Directors, consist of eight independent directors (53.33 percent), six directors and one executive director.

In 2019, IRPC Corporate Governance encompasses these five aspects:

1 Rights of Shareholders

The rights of shareholders are of the utmost significance to IRPC. As co-owners, they are entitled to appoint directors to act on their behalf and in their best interest. They also have the right to decide on crucial changes to the company. IRPC respects and protects these rights. The company encourages shareholders to attend shareholder meetings, express their opinion freely, vote,

nominate director candidates and propose agenda items before a meeting, appoint or dismiss directors, approve or reject director and auditor remunerations, and approve or reject their shares of the profit or dividends. Moreover, shareholders have the right to quick, sufficient, and complete information through a variety of channels. This right affords them enough time to understand the stake and decide on the most appropriate action. In 2019 IRPC promoted shareholder rights through the following means:



Annual General Meeting of Shareholders

Per board resolution, the 2019 Annual General Meeting of Shareholders (AGM) was held on Wednesday, April 3, 2019, at the Bangkok Convention Center on the fifth floor of CentralPlaza Ladprao. This location offered transportation convenience. In addition to the use of private vehicles, shareholders could get to the meeting via the MRT, the BTS, and public buses. The 2019 AGM format satisfied the AGM Checklist of the Thai Investors Association, as well as other guidelines provided by the Thai Listed Companies Association, and the Securities and Exchange Commission. It was organized as a “green meeting” to maintain the Green Meetings Certification that the company had received from the Thailand Business Council for Sustainable Development and the Thai Environment Institute for seven consecutive years. The meeting itself exemplified resource optimization and environmental impact minimization. Shareholders in attendance answered a questionnaire designed to assess the organizational quality of the meeting. Their opinions and suggestions will serve to improve the next meeting, allowing the company to better meet their needs. (IRPC did not hold any extraordinary meetings of shareholders in 2019.)

Preparation

To ensure smoothness, transparency, effectiveness, and compliance, IRPC requested the Board of Directors to issue a notice of the 2019 AGM at the February 2019 Board Meeting. The company disclosed this meeting’s resolutions and agenda via the SET Portal within the same day as soon as the meeting concluded.

Per company policy, IRPC encouraged every minority shareholder or group of minority shareholders with at least 4 percent of all issued shares to propose agenda items and to nominate director candidates in advance of the 2019 AGM from September 3, 2018 to January 31, 2019, but none was made.

The company sent meeting invitations and relevant meeting documents by mail. The invitation letter was also made available via different means-namely, the SET Portal, IRPC Newsletter Vol. 29/2019 (Thai and English), and daily newspapers (Thai and English). Additionally, IRPC also invited shareholders and investors to the meeting via a public relations campaign. Below is the summary of the timeline:



- September 3, 2018–January 31, 2019 Agenda item proposal and director nomination by minority shareholders
- February 12, 2019 Disclosure of board resolution on the date of 2019 AGM and board-meeting agenda items via the SET Portal
- February 27, 2019 Record date
- March 1, 2019 Dissemination of the invitation to the 2019 AGM (Thai and English) at least 30 days in advance
- March 5, 2019 Mailing of the invitation to the 2019 AGM and relevant documents, including the annual report, sustainability report, integrated report, financial statements at least 21 days in advance via a securities registrar (Thailand Securities Depository Co., Ltd. or TSD)
- March 20–22, 2019 Public announcement of the 2019 AGM in daily newspapers published in Thai and English (Khao Hoon and the Bangkok Post) 3 days in a row before the date of the meeting
- April 3, 2019 The 2019 AGM at the Bangkok Convention Center on the fifth floor of CentralPlaza Ladprao

As for the 2020 AGM, which will take place in April 2020, every minority shareholder or group of minority shareholders with at least 4 percent of all issued shares have been able to propose agenda items and/or to nominate director candidates since August 30, 2019, until January 31, 2020. Information regarding this matter appear on the website: www.irpc.co.th.

Invitation

The Board of Directors specified seven items on the agenda of the 2019 AGM. Under each of these agenda item were an explanation of its objective and the board's comments. (The approval of the minutes of the 2018 AGM was not one of the agenda items because a copy of the minutes had previously been sent to every shareholder on April 21, 2018. Shareholders had had time to verify the correctness and completeness of the minutes, as well as to dispute any inaccuracies. Since no shareholders had voiced their concerns, the minutes were considered approved.) Below is a short summary of the details of the 2019 AGM:

(1) 2019 Performance Reports and Financial Statements

The company's 2019 performance reports and financial statements were put before the assembly. Both had received approval from the Audit Committee and had been audited and certified unconditionally by the authorized auditor.

(2) Dividend Payments Based on 2018 Performance

The company disclosed its dividend payment policy and revealed that it had been able to maintain a financial liquidity ratio that suited its operations. Sources of the profits to be distributed as dividends and tax benefits to shareholders were explained in detail. The proposed dividend payment rate, date, reasons, and other pertinent information were also included.

(3) Appointment of Directors in replacement of those retiring by rotation

The company provided detailed information about director nominees, including their name and last name, age, education level, work experience, and vision. The number of companies for which they currently served as directors was also disclosed. With this information, shareholders were able to decide which nominees could best represent them as directors.

(4) Directors' Remunerations for 2019

The company presented its current directors' remuneration policy, which includes a monthly salary, meeting allowance, and monetary and non-monetary bonuses. No other forms of compensation or privileges would be offered apart from those aforementioned.

(5) Appointment of and Remuneration for 2019 Auditor

The company provided detailed information about the auditor, including name, affiliated firm, experience, capabilities, independency, audit fee, non-audit fees, and other services.

On the Day of the Meeting

The 2019 Annual General Meeting of Shareholders (AGM) took place on Wednesday, April 3, 2019, at the Bangkok Convention Center on the fifth floor of CentralPlaza Ladprao, No. 1695, Phahon Yothin Road, Chatuchak, Bangkok. It commenced at 9:30 a.m. The conference hall was large enough to accommodate all shareholders in attendance. Refreshments were available to all.

In front of the conference hall was a pop-up exhibition with key information about IRPC. At the Investor Relations Corner, staff were available to provide information and assistance to shareholders. In addition, IRPC continued to show its support for underprivileged children and people with disabilities as part of its corporate social responsibility by

inviting relevant organizations and foundations to set up exhibitions and donation booths. Participants included the Prostheses Foundation of H.R.H. Princess Mother and the Pediatric Cardiac Surgery Foundation. Furthermore, the company donated 100,000 baht (one hundred thousand baht) to the Pediatric Cardiac Surgery Foundation.

The company provided a sufficient number of welcoming and registration staff, as well as registration points. Registration began approximately 2 hours before the meeting was due to commence. Shareholders were made aware of this process from the invitation. A barcode reader was used for registration and vote counting, enhancing the efficiency, accuracy, and speed of the process. Shareholders who were delayed were allowed to enter the conference hall even after the meeting had already commenced. These shareholders were able to vote on the remaining agenda items as long as the votes had not been cast. The number of shareholders present during the discussion of each agenda item was adjusted once they had joined.

Before the meeting, IRPC showed a video presentation on the conference hall's safety features, including emergency exits, to shareholders. The chairman then presented the Board of Directors, the management team, the auditor, and legal advisors in attendance.





• Directors in Attendance

(All 13 directors were present, accounting for 100 percent of the board; however, the company's articles of association stipulate that the Board of Directors should comprise 15 members.)

1. Mr. Chansin Treenuchagron Chairman
2. Mr. Somnuk Bomrungsalee Independent Director/
Chairman of the Audit Committee
3. Ms. Ruenvadee Suwanmongkol Independent Director/
Member of the Audit Committee
4. Mr. Jessada Promjart Independent Director/
Member of the Audit Committee
5. Mr. Anusorn Sangnimnuan Independent Director/
Chairman of the Corporate Governance Committee
6. Gen. Sasin Thongpakdee Independent Director/
Member of the Corporate Governance Committee
7. Gen. Theppong Tippayachan Independent Director/
Member of the Corporate Governance Committee
8. Mr. Nuttachat Charuchinda Director/ Chairman of
the Risk Management Committee
9. Mr. Worawat Pitayasiri Director/ Member of the
Risk Management Committee
10. Mr. Ekniti Nitithanprapas Director/ Member of the
Risk Management Committee
11. Mr. Woothisarn Tanchai Independent Director/
Chairman of the Nomination and Remuneration Committee
12. Mr. Kris Imsang Director/ Member of the
Nomination and Remuneration Committee
13. Mr. Noppadol Pinsupa Director/ Member of the
Risk Management Committee/ President

(A total of seven independent directors)

• Executive Officers in Attendance

1. Mr. Woravuth Sivapetranart Senior Executive Vice
President of Petrochemical &
Refinery Operation
2. Mr. Somkiat Lertritpuwadol Senior Executive Vice
President of Corporate Strategy
3. Mrs. Nidcha Jirametthanakij Senior Executive Vice
President of Corporate Accounting & Finance
4. Miss Wanida Utaisomnapa Senior Executive Vice
President of Corporate Commercial and Marketing
5. Mr. Vichit Nittayanonte Senior Executive Vice
President of Innovation and Operation Excellence
6. Mr. Veerawat Srinoradithlert Senior Executive Vice
President of Corporate Organization Effectiveness
7. Mrs. Peyada Chongpayuha Executive Vice President,
Corporate Affairs/
Company Secretary

Moreover, senior executive vice presidents, executive vice presidents, and members of the management team were available at the front of the stage to provide explanations whenever relevant questions arose.

• Auditor in Attendance

Permsak Wongpatcharapakorn, CPA Reg. No. 3427, of Deloitte Touche Tohmatsu Jaiyos Audit Company Limited

• Legal Advisors in Attendance

1. Mr. Manit Suthaporn
2. Mr. Supot Laosuarpha
3. Mrs. Veeranuch Thammavaranucupt

(These legal advisors were present throughout the meeting to provide legal consultation and to review the voting process in the event of a dispute.)

• Independent Vote Counting Witnesses

1. Miss Rattanachat Tiptoo shareholder volunteer
2. Miss Chortip Isradeth shareholder volunteer

- **Shareholders in Attendance (at the Close of the Meeting at 12:40 p.m.)**

A total of 4,099 shareholders were considered to be present at the meeting. Of this number, 1,794 attended the meeting in person, while 2,305 attended by proxy.

These shareholders represent 13,714,966,318 shares or 67.12 percent of all issued shares.

- **Notable Procedures**

- Before introducing the first agenda item, the chairman informed the meeting of the voting and vote-counting process. IRPC only has one class of shares. Each share is equal to one vote.
- Regarding director appointments, IRPC allowed shareholders to vote to appoint directors individually or as a panel of directors. Director nominees were presented to shareholders one by one.
- During the meeting, the chairman afforded every shareholder equal opportunity and sufficient time to pose questions and speak their mind. The chairman also tasked relevant directors and executive officers with answering these questions with the utmost clarity. Questions, answers, suggestions, and opinions were recorded in the minutes in detail for record-keeping purposes and especially for shareholders who were unable to attend the meeting in person.



- The chairman informed the meeting of each agenda item, including the exact number of “for,” “against,” and “abstain” votes. These figures also appear on the large projector screen for all to see.

- The chairman strictly led the meeting through all agenda items specified in the invitation. No impromptu items were allowed.

Conflict of Interest Management at Meetings

IRPC’s policy regarding the management of any conflict of interest that might occur at a meeting is as follows:

At any board or committee meeting, if a director has a vested interest in a particular agenda item, he or she must inform the meeting of a potential conflict of interest and must leave the meeting. The director in question cannot vote on the said agenda item and must refrain from voicing his or her opinion unless an explanation is required to satisfy any questions that the rest of the board or committee may have and only when such an account is necessary for the benefit of the company. Permission to speak in this instance must be granted by the chairman of the respective meeting. Nonetheless, the director in question still has no right to vote on that particular agenda item. The company secretary and/or committee secretary will make a note of the conflict of interest in the minutes of each meeting.

Similarly, if a director has a vested interest in a particular agenda item at a shareholder meeting, he or she must inform the meeting of a potential conflict of interest and must leave the meeting.

IRPC requires all directors, executive officers, and employees to report all potential conflicts of interest annually and during the year if the event of a change. The reports are submitted to the Chairman of the Board of Directors, the Chairman of the Audit Committee, and the company secretary.

Meeting Minutes and Disclosure of Resolutions

IRPC published the resolution of each agenda item of the 2019 Annual General Meeting of Shareholders (AGM) in both Thai and English on its website and via the SET Portal within the same day (April 3, 2019) as soon as the meeting concluded.

The quality of meeting minutes is of great importance to IRPC. The company requires that minutes be recorded wholly and thoroughly. They always include names of directors and executive officers in attendance, details of each agenda item, voting process, vote-display method, questions from



shareholders, explanations from directors or executive officers, resolutions, number of votes per each agenda item, and types of votes (for, against, abstain) for each agenda item that requires voting. The company's practice is in line with good corporate governance principles and legal requirements. IRPC disclosed the resolutions of the 2019 AGM soon after the close of the meeting. The minutes were made available on April 16, 2019, which was within 14 days following the meeting, on the IRPC website and via the SET Portal. Furthermore, the minutes were included in the special edition IRPC Newsletter Vol. 31/2019, which was printed and mailed to every shareholder on May 15, 2019. Also included in the minutes distributed was a note informing shareholders that they could dispute any inaccuracies by notifying the company secretary by June 10, 2019. Without any disputes, the company considered the minutes approved.

2 Equitable Treatment of Shareholders

IRPC recognizes the paramount importance of respecting and treating all shareholders equitably regardless of their status as a majority, minority, institutional, or foreign shareholder. The company treats all of its shareholders equitably, with the utmost fairness and without discrimination.

The Right to Vote

- IRPC only issues one class of shares. Every share is the equivalent of one vote.



Agenda Item Proposal and Director Candidate Nomination

- IRPC provides all pertinent information to shareholders in advance of a shareholder meeting. It also affords every minority shareholder or

group of minority shareholders with 4 percent of all issued shares with a voting right to propose agenda items and/or nominate director candidates.

- For the 2019 Annual General Meeting of Shareholders (AGM), IRPC allowed shareholders to propose agenda items and/or nominate director candidates in advance from September 3, 2018 to January 31, 2019. The company specified relevant criteria and procedures on its website, as well as notified shareholders via the SET Portal. No proposals or nominations were made throughout the period aforementioned, a fact which the company secretary informed the Board of Directors.
- As for the 2020 AGM, IRPC allowed shareholders to propose agenda items and/or nominate director candidates in advance from August 30, 2019 to January 31, 2020.

Promotion of Shareholders' Attendance

- IRPC takes the convenience of all shareholders and investors, including institutional investors, into consideration because it wants to encourage them to attend every shareholder meeting. The company's chosen location for the 2019 AGM offered transportation perquisites. AGM attendees could get there via the BTS, the MRT, and public buses in addition to using private vehicles. The event was staffed by apposite personnel, such



as welcoming staff, public relations staff, registration staff, security staff, and first-aid staff, to facilitate the entire process for all shareholders, especially senior adults and wheelchair users. Refreshments were available to all shareholders in attendance. Security preparations were made, and an emergency plan had been rehearsed, bringing peace of mind to those in the audience.

- IRPC opened the registration booth two hours before the meeting was due to commence. Institutional investors and custodians had the option of mailing relevant documents to the company early to ensure registration preparedness.
- At registration booths, the company had staff available to assist shareholders with photocopying, document verification, duty stamps, and registration. The company also employed digital technology to facilitate registration and vote counting. There were 30 registration booths available for optimal efficiency, which included designated lanes for individual shareholders attending in person, those who had forgotten their registration documents and proxy authorization letters, proxies, and representatives of institutional investors and custodians.
- IRPC had a secondary hall prepared, with a live stream of the main event. These measures allowed all shareholders access to the meeting. There were also Thai-English interpreters on-site to interpret questions, answers, and opinions for foreign shareholders.

Appointment of Proxy

- In the event that shareholders were unable to attend the AGM in person, they could appoint a proxy to participate in the meeting and exercise their voting right on their behalf using Proxy Form A or B enclosed with the invitation letter. To facilitate the process further, the company had included detailed specifications of the documents and other forms of proof required for the proxy in the invitation packet, as well as detailed instructions regarding the matter. By following these instructions carefully, a proxy should encounter no trouble at the meeting. Shareholders could assign any person to attend and vote on their behalf. There were no complicated conditions for appointing a proxy. Moreover, shareholders could also download proxy forms A, B, and C (for custodians) from the company's website.
- In the event that shareholders were unable to attend the AGM in person and would like to authorize an independent director to act as their proxy, IRPC had provided a choice of four

independent directors—namely, Mr. Woothisarn Tanchai, Mr. Anusorn Sangnimnuan, Mr. Somnuk Bomrungsalee, and Mr. Jessada Promjart. Their names appeared on the proxy forms provided. Their rsums were included in the invitation packet. These independent directors have no vested interest in any of the AGM agenda items, posing no risks of a conflict of interest. Furthermore, with the invitation packet the company had enclosed other relevant documents, such as a location map, names and rsums of director nominees, the company's independent director definition, and the company's articles of association that applied to a shareholder meeting.

- The company had also prepared duty stamps, free of charge, for shareholders' proxies to ensure the legality of their documents.

3 Consideration of Stakeholders' Roles

IRPC places a great deal of importance on the rights of all stakeholders throughout the entire supply chain. Its Corporate Governance Policy comprehends the protection of stakeholders' rights, the specific treatment of each group of stakeholders, and the promotion of the co-operation between the company itself and its stakeholders. The policy provides guidelines by which the Board of Directors, executive officers, and company employees must abide. These guiding principles aim to be of the utmost benefit to shareholders, bring about prosperity, foster stability, and ensure sustainability. Moreover, IRPC's corporate key performance indicators (KPIs) have been aligned with the balanced scorecard. This management strategy takes stakeholders' perspectives into consideration as an integral part of these KPIs.

Stakeholder Treatment

Shareholders and Investors

IRPC has issued the Code of Ethics in writing to guide employees involved in shareholder and investor relations in their day-to-day operations, with a particular focus on information disclosure and security. Principles within the Code of Ethics are in line with principles of good corporate governance to which the company has always



Goby the Fish project is a campaign to promote proper garbage management and respond to the plight of plastic waste on beach and in the ocean.

adhered. The code seeks to engender confidence among shareholders, investors, and other stakeholders

In 2019 the company communicated with shareholders and investors through a number of channels and activities, including the following:



- Communication activities through print media, radio, television, online media; activities with stakeholders through other public relations channels, such as a quarterly newsletters to report company performance and major developments to shareholders.
- Domestic and overseas meetings with investors and analysts
- Interactions with the media throughout the year to disclose information to the public through their various channels
- IRPC Plant visit: Shareholders visited the IRPC Eco-Industrial Zone in Rayong on Wednesday,

October 16, 2019. The tour was part of IRPC's campaign to promote social responsibility and environmental awareness in which IRPC and its shareholders presented Goby the Fish, a metal sculpture designed to contain plastic waste, to representatives from communities around the IRPC Eco-Industrial Zone.

Goby the Fish promotes proper garbage management. It is a response to the plight of plastic waste on beaches and in the ocean. It is also considered a symbolic activity aimed at improving the quality of the environment and constructing a sustainable framework for environmental preservation and conservation. This fish-shaped wire sculpture is placed at a beach to collect plastic waste, much like similar sculptures of the same name placed in India, Indonesia (Bali), Mexico, Ireland, and Vietnam. Its installation by IRPC is the first in Rayong and a continuation of Goby the Fish in Thailand.

Customers/Consumers

The Regulations of IRPC Public Company Limited on Marketing Management provide guidance on how to align the company's customer relations management with its 2016–2022 Commercial and Marketing Strategic Plan. Its framework encompasses customer management, planning, market analysis, product shipment, and complaint management to ensure the customers' utmost satisfaction.

The IRPC 2019 strategic marketing plan described the company's conduct towards business partners, customers, and consumers. It had a particular focus on fostering sustainable growth and a commitment to researching and developing high-value-added products (HVA). This strategic plan worked in tandem with the IRPC 4.0 Policy under the GDP Strategy to enhance IRPC's competitiveness amid global economic uncertainties and to expand its ASEAN market share. In addition to HVA research and development, the company also reconfigured its production process, advancing towards the Zero Waste Goal. The company has combated industrial plastic waste problems through reducing, reusing, and recycling (the 3 Rs). So far, IRPC has been able to reuse polymer waste to manufacture a number of products, such as boxes for brand-name watches and jewelry. Its other customer- and consumer-oriented activities and developments throughout the year were as follows:

- IRPC developed a database management system for each group of customers to ensure fairness and transparency.
- IRPC developed innovations and policies that played an essential role in creating value-added to its products while lowering costs and better meeting market demands. Moreover, consumer demand for sustainable everyday products encouraged IRPC to continue developing eco-friendly products and to resort to local raw materials as much as possible to ensure the sustainable growth of the local economy and society.
- IRPC organized annual activities that promoted relations with customers and partners, such as technical development activities and customer relations activities. The company also conducted

satisfaction surveys, the results of which would be used for further improvements, fostering an even stronger bond with customers.

- IRPC penned a deal with Tecsa Energy Co., Ltd. and VA Energy Co., Ltd. to buy an average of 300,000–400,000 liters of crude oil per month from the two producers. This contract is considered a part of IRPC's corporate social responsibility because this fuel comes from processing plastic waste with an advanced technology called pyrolysis, allowing them to reduce it by about 560 tons per month. The deal also supports circular economy principles for sustainability. The company plans to expand the scope of its corporate social responsibility in similar manners in the future.
- IRPC, the National Research Council of Thailand, and Kasetsart University began collaborating on developing a zero plastic waste model, aptly named the Eco Solution Model, that would tackle plastic waste problems at their sources. Under this closed-loop model of proper and efficient recycling, other manufacturers in the supply chain would make use of their peers' polymer waste. As a result, no waste would ever leave the production ecosystem and affect local communities and society at large. The collaborators hope to see the eventual inclusion of other manufacturers throughout the plastic-industry supply chain, leading Thailand into a zero plastic waste society.
- The company organized the "IRPC Exclusive Trip 'The Unseen of Kansai Heritage'" for domestic customers who had met the sales target to thank them for the trust they had always placed in IRPC products and services and to build rapport between customers and IRPC management.



IRPC Collaborates with the National Research Council of Thailand, and Kasetsart University on developing a zero plastic waste model.



Partners, Competitors, and Creditors

IRPC operates on the foundation of morality and integrity, upholding fairness, honesty, and mutual benefits. It also strictly abides by ethical practices, relevant laws, and contractual terms and conditions. The company constantly seeks new trade partners and fosters good relations with all parties, including competitors and creditors. There are guidelines and systems of control in place to prevent it from obtaining and using competitors' trade secrets through dishonest means. IRPC never attempts to destroy a competitor's reputation with malicious accusations or attacks. The company advocates fair competition, which brings about sustainable business and industrial development for the benefit of Thailand and Thai society.

Partners: IRPC has regulations and policies concerning the procurement process in place. It also conducts a due diligence investigation on its business partners throughout the supply chain to guarantee sustainable procurement excellence. Its Code of Ethics regarding business partners and procurement include ethical business practices, human rights, environmental protection, safety and security, occupational health, conflict of interest management, and trade secret management. IRPC conducts a risk assessment on all of its partners per the Sustainable Supplier Code of Conduct.

The company has continuously improved upon its procurement process, including the adoption of a digital procurement and e-auction platform. Its

demand-management scheme analyzes its business units' actual needs, which helps it plan a more effective use of resources. Additionally, a satisfaction survey has played a role in improving and enhancing the quality and efficiency of its procurement system. IRPC organizes annual activities to foster good relations with its partners. It also provides development training to partners to augment their safety standards, improve their anti-corruption measures, cultivate their respect for human rights, and prepare them for ISO standard certification.

In 2019 IRPC received a plaque of honor from H.E. Prof. Dr. Kasem Watanachai, a member of the Privy Council, at the "Thai Chamber of Commerce's Outstanding Ethics Awards 2019" for its corporate governance excellence. The award was a testament that IRPC had operated ethically based on good corporate governance principles and had contributed to sustainable development. The awards have been bestowed to the Thai private sectors for 17 years now (since 2003). They double as incentives to encourage private organizations to aim for corporate governance excellence to gain trust and acceptance from customers, partners, employees, and stakeholders. The awards focus part particularly on ethical business practices, responsibility for consumers and partners, and being a role model.

The marks that IRPC received from the award's 2019 assessment are as follows:

Marks from the Deciding Round

Topic of Assessment	Customers/ Partners No = 60, Max = 10	Employees N = 60, Max = 3	Mark
1. Fairness	8.55	2.91	75%
2. Disclosure & Transparency	8.67	2.80	75%
3. Responsibility for customers	8.60	2.83	75%
4. Honesty	8.72	2.88	85%
5. Ethics Promotion	8.74	2.79	75%
6. Corporate Social Responsibility	8.56	2.92	75%
7. Environmental Protection	8.60	2.78	75%
8. Liberty	8.80	2.81	75%
9. Risk Management	8.62	2.84	75%
10. Excellence Promotion	8.60	2.84	75%
Overall	8.65	2.84	75%

Employees' Satisfaction	N = 60, Max = 7
1. Work	6.43 (0.647)
2. Colleagues	6.23 (0.676)
3. Supervisors	6.28 (0.904)
4. Compensation	6.48 (0.567)
5. Career Advancement	6.12 (0.958)
Overall	6.33 (0.143)

Note : N is the number of surveys. Max is the maximum score.

Competitors : IRPC's treatment of its competitors is in conformity with the international framework of free competition and relevant competition laws. The company competes fairly and never seeks a competitor's trade secrets through dishonest or improper means. It also never attempts to destroy a competitor's reputation through malicious accusations or attacks. Moreover, IRPC never agrees with a competitor or any person to circumvent or limit free competition.

Creditors : IRPC strictly complies with all obligations it has with accounts payable and financial institutions. The company has never attempted to conceal facts or information that ought to be public knowledge in any manner that could cause damage to its creditor. IRPC has implemented many policies and guidelines that govern matters

of creditors-especially the terms of guarantee, capital management, and defaults-to prevent payment failures and breaches of contract. Nonetheless, in the event that the company learns of its inability to fulfill any obligation, it will always notify its creditor quickly and work with the creditor to find a suitable solution. The company is committed to maintaining a long-lasting relationship with all creditors.

Employees

A major contributing factor to the success of a company is its employees. With this understanding, IRPC is committed to creating a proper human resource management system with fair performance assessment. The IRPC work environment promotes career growth. In addition to providing education



and development training, the company also applies stringent international standards to its operations to ensure a safe work environment and support a good work culture and atmosphere. In addition, it regularly extends its “Care & Share” corporate social responsibility campaign to employees’ families.

As stipulated in the Human Rights Policy, IRPC respects labor rights, women’s rights, children’s rights, human dignity, liberty, and equality as guaranteed by Thai and international laws. The UN Guiding Principles on Business and Human Rights serves as a framework for its operations. The company will not stand for any activity throughout the supply chain that constitutes a violation of labor or human rights. According to its Good Corporate Citizenship Policy, IRPC will never tolerate any form of illegal labor, overtime work without employee consent, or intimidation. Moreover, the company offers relevant training to foster equal opportunity without discrimination.

IRPC fully supports its employees’ freedom of association. Employees of IRPC and the IRPC group have formed seven executive and labor unions to ensure fairness and increase their bargaining power. The company allows and encourages union activities. It even distributes union news to every person within the organization via the intranet.

IRPC has issued human resource management regulations and related guidelines to afford every employee fairness under employment conditions that conform to legal requirements. Employees regularly have a chance to talk to the management team in person at the quarterly meetings with the

president and at local business unit meetings (Bangkok, Rayong, and every oil depot). The company also organizes productivity-enhancing activities and heeds employees’ suggestions, both of which contribute to organizational development.

Through knowledge management, IRPC uses its information technology system to pass on a wealth of knowledge from one employee to another. The Knowledge Management department is in charge of efficiently operating this system to ensure that the knowledge learned is genuinely applicable. Furthermore, the company places a great deal of importance on the safety of life and property of every employee of every level. To this end, IRPC has formulated an Occupational Health and Safety Policy in conformity with international labor laws. It has communicated this policy to all involved via various communication channels, including emails, internal magazines, business unit supervisors, and HR champions (representatives from each business unit). By using all of these channels, IRPC has ensured that everyone had quickly, transparently, and equally received the information.

The guidelines for human resource management, which have been developed for IRPC and the IRPC Group, draw from principles of good corporate governance, as well as other rules and regulations. Honestly, respect for human rights, employer benefits, and employee rights have all been considered. The guidelines encompass the following:

- Commissioning and hiring
- Workdays, work hours, breaks, holidays, and leave
- Compensation and benefits
- Employee development
- Discipline, disciplinary action, appeal, and grievances
- Employment termination
- Penalties

The safety of life and property of every employee of every level is important to IRPC; therefore, the company has formulated and issued an occupational health and safety policy and guidelines in conformity with international labor laws.

Communities, Society, and the Environment

Per company policy, IRPC operates with due regard to corporate social and environmental responsibility. The company always pays close attention to the safety and quality of life of people living in nearby communities, as well as society at large. In its daily operations, IRPC takes measures to either prevent or minimize its impacts on local communities and the environment. The company also repays society through numerous activities that foster mutual growth. Valuing effective and efficient use of natural resources and energy, IRPC undertakes a wide range of activities to promote sustainable environmental preservation and energy conservation, contributing to the fight against climate change and to green-energy development.

IRPC has implemented corporate social responsibility (CSR) strategy, policy, and goals. The company allocates about 3 percent of its past three years' average profit to three groups of CSR activities—namely, educational projects, community projects, and nationwide social projects—to assure stakeholders of sufficient funding. Furthermore, the company has set up funding to promote healthcare for communities around the IRPC Eco-Industrial Zone. For transparency, this fund is managed by three groups of people—namely, community representatives, IRPC representatives, and local civil servants—which also allows it to genuinely meet people's needs. Further details of the company's CSR activities and sustainable development management appear in the 2019 annual report under "Corporate Social Responsibility" on pages 221-239.

Legal Compliance and Respect for Human Rights

Corporate Compliance Policy

The current organizational structure of IRPC facilitates regulatory compliance supervision. In addition to Corporate Governance and Risk Management departments, which have been active since 2006, the Board of Directors has established Corporate Compliance to uphold matters of compliance with laws, rules, and regulations. This department reports directly to the company secretary and the president. It is also under the supervision of the Corporate Governance Committee. The board also enacted

the Corporate Compliance Policy for IRPC and the IRPC Group on November 17, 2015.

Intellectual Property Policy

The company's policies and guidelines for the ethical use of its assets, information, technology, and intellectual property, as well as their care, appear in the Corporate Governance Handbook. In terms of corporate compliance, IRPC requires all parties involved to abide by relevant laws and regulations on company information technology (IT). IRPC does not tolerate any copyright, patent, or trademark violation. The company controls and limits access to information and computer applications based on the need of each position. It also monitors compliance with the law and its IT and communications policies. The company employs various means of data security. For instance, the password used to access company data is confidential and cannot be revealed without expressed permission, which allows its anti-intellectual-property-violation measures to function efficiently and adequately.

Human Rights Policy

The Human Rights Policy of IRPC Public Company Limited and the IRPC Group came into effect in 2017. It has since been mandatory for IRPC Board of Directors, executive officers, and employees to adhere to its principles in their everyday conduct. The policy comprehends all groups of known stakeholders, such as employees, communities, society, business partners, and customers within the IRPC Group supply chain. It even covers matters of environmental protection. The policy ensures that IRPC's businesses will always operate with prudence and great care without violating or impacting the rights of humankind, whether directly or indirectly. IRPC will also never encourage or be involved in any instance of human rights violation.

Conflicts or Disputes with Stakeholders

IRPC has no significant disputes with its stakeholders. Details of other legal disputes appear under "Legal Disputes" in the annual registration statement 2019 (Form 56-1).



4 Disclosure and Transparency

IRPC has established a policy and best practice for the disclosure of vital corporate information, including financial and non-financial information, via easy-to-access channels to ensure correctness, thoroughness, timeliness, transparency, credibility, and equality of access. The policy also applies to data security, data use, and trade-secret protection.

Disclosure

It is mandatory for IRPC to disclose any information that may affect investors' decisions or shareholders' rights and benefits. The information unveiled must be correct and sufficient. The disclosure itself must be on time and conform to disclosure guidelines for listed companies of the Stock Exchange of Thailand (SET). Any information deemed to affect investment decisions will first become available via the SET Portal before being disclosed to a specific person or the general public. Furthermore, IRPC cannot divulge trade secrets, incorrect information, estimates, speculations, or promotional information that is unnecessary for investment decisions.

IRPC discloses all information of this nature on its website, www.irpc.co.th, under the Investor Relations tab and via the SET Portal, affording all stakeholders equality of access. Its information disclosure activities in 2019 are summarized below.

- (1) The company submitted financial reports to the Securities and Exchange Commission (SEC) and the SET on time. The auditor expressed his opinion unconditionally on all entries.
- (2) The company thoroughly disclosed information in the annual registration statement (56-1), the annual report (56-2), and on its website. The information released included company performance, financial statements, the Corporate Governance Policy, the Code of Ethics, the Corporate Social and Environmental Responsibility Policy, details of the annual general meeting of shareholders, management structure, and the list of majority shareholders. The company also communicated all of this via the SET Portal, print media, online media, and many other channels. An integrated report containing a summary of all information

disclosures had been prepared and delivered to shareholders, along with the invitation to the upcoming annual general meeting. Investors may learn more about IRPC via its website, www.irpc.co.th, or contact Investor Relations via one of the following channels:

E-mail	: ir@irpc.co.th
Telephone	: 02-765-7380
Fax	: 02-765-7379

- (3) The company's remuneration criteria for its directors and executive officers were specified clearly in the annual report.



- (4) The company also disclosed directors' and executive officers' shareholding information per company policy. This disclosure conformed to regulations of the SEC and of the SET.
- (5) The SEC and the SET never asked-and has never asked—the company to correct any of its financial statements.
- (6) The company's current auditor was appointed by shareholders at the 2019 Annual General Meeting of Shareholders. This licensed auditor possessed none of the prohibitions that the SET had announced. His audit and non-audit fees were presented to and approved by shareholders at the meeting as well.
- (7) The company's financial statement was certified unconditionally by the auditor.
- (8) Information about the company's directors and executive officers-including their names, current position(s), education, experience, ownership of shares in the company, photograph, directorship at other listed companies, and inauguration date-was made available on the company's website.

- (9) The company published the Corporate Sustainability Report 2019, detailing its management directions and its economic, social, and environmental performance. The report's preparation adhered to the G4 Sustainability Reporting Guidelines of the Global Reporting Initiative. Its contents conformed with international best practices and met core option requirements. The report was audited by an external agency, further enhancing its credibility. It was delivered to shareholders, along with the annual report, and made available on the company's website.
- (10) The company also presented a Communication on Progress report to the UN Global Compact (UNGC). IRPC has been a member of the UNGC since 2011 and has an obligation to advance towards the established goals and report its progress. Since 2014 the company has attained the highest reporting level known as GC Advanced. The report has been made available on the company's website. An electronic copy was submitted to UNGC via www.unglobalcompact.org.
- (11) The company publishes all critical information in Thai and English on its website (www.irpc.co.th). It also keeps these web pages up to date. It has so far disclosed the following: vision, nature of business, financial statements, press releases, shareholding structure, organizational structure, business unit structure, information about directors and executive officers, investor relations information, company registration certificate, articles of association, memoranda, annual reports, invitations to the annual general meeting (AGM), AGM minutes, annual registration statements (Form 56-1), documents for analyst meetings, the Corporate Governance Policy, and information about other business-related activities such as corporate social responsibility, stakeholder treatment, and sustainable development projects.
- (12) The company communicated with stakeholders via print media, radio, television, and other public relations channels, including newsletters, to inform them of its performance and key developments.

Internal Data Protection

- (1) IRPC does not reveal any information about its performance to investors and analysts and does not accept appointments with analysts during the silent period of seven days before reporting its performance to the Stock Exchange of Thailand.
- (2) Per company policy, IRPC employees must keep trade secrets confidential. They may not use insider information for the benefit of their own or of another person.
- (3) IRPC employees are required to refrain from commenting on its stock price under all circumstances.
- (4) IRPC employees are required to strictly comply with all relevant laws, regulations, and company policies on internal data protection.

Fair and Equitable Disclosure

- (1) IRPC requires information presented at a private group meeting, such as an analyst meeting, to be made available on its website after the meeting has taken place to afford fairness and equality of access to the public.
- (2) IRPC makes all reasonable efforts to allow any stakeholder to access pertinent information. Stakeholders may write to the company via ir@irpc.co.th or call 02-765-7380. The company affords equality of access to all groups of stakeholders.
- (3) IRPC is cautious about information disclosure on social media. If necessary, the company will only provide an explanation to investors and the general public via the SET Portal.





Media and Investor Relations

IRPC prepares annual strategic and communication plans to manage its information disclosure to each group of stakeholders, adhering to principles of good corporate governance behind fair disclosure of information. These plans encompass domestic and international roadshows to attract investors, quarterly analyst meetings, press conferences, plant

visits for shareholders, plant open house for local communities, and much more. Investor Relations, Public Relations, and Community Relations are in charge of information disclosure and promoting an understanding and awareness among investors, the media, local communities, and society at large.

Overview of Disclosure Activities for Investors and Shareholders in 2019

2019 Investor Relations Activities)	Times/ Year
13 Roadshows	
- International roadshows	2
- Domestic roadshows	11
Quarterly Analyst Conference Calls	4
Quarterly Analyst Meetings	4
Company Visits (Appointments)	21
4 Opportunity Days	
- At the Stock Exchange of Thailand (Quarterly)	4
3 Site Visits	
- Domestic	2
- Overseas	1
SET in the City	
- "SET in the City 2019" (the 15th event) during November 14–17, 2019	1

Overview of Interactions with the Media in 2019

Activities	Times/ Year
1. Press Conferences / Interviews	11
2. Press / Photo Releases	40
3. Print Media / TV / Radio	100

Whistleblowing, Access to Information, and Whistleblower Protection

The Anti-Corruption Policy of IRPC Public Company Limited and the IRPC Group details whistleblowing channels and protection for internal and external whistleblowers. The company accepts submissions about any activity that violates the law or code of conduct, or any corruptive behavior or inappropriate conduct of any person at any corporate echelon—including directors, executive officers, and employees of IRPC and the IRPC Group, as well as any party involved in IRPC's business. The policy also clearly specifies the ensuing investigative procedures to ensure

impartiality and transparency. All whistleblowers and witnesses will always be afforded protection and non-retaliation.

Whistleblowing Channels

- E-mail : auditor@irpc.co.th
- Mail : Chairman of the Audit Committee
IRPC Public Company Limited
555/2 Energy Complex, Building B,
Floor 6
Vibhavadi Rangsit Rd., Chatuchak,
Chatuchak, Bangkok 10900
- P.O. Box : P.O. Box 35, Sun Tower Post Office,
Bangkok 10900

The investigative procedure begins with Office of Corporate Internal Audit. This department is directly responsible for supervising the investigation and monitoring its progress. It also prepares a detailed report of all known wrongdoings or violations of the Code of Conduct to be submitted to the Audit Committee and the Board of Directors every month and every quarter. In practice, Corporate Internal Audit has the power to determine whether each

whistleblowing submission has grounds. If the submission is of sound reason, Corporate Internal Audit will set up an investigation panel. If the accused is found guilty, they will be subject to the corresponding disciplinary action. All whistleblowers and witnesses will be afforded protection.

In 2019 Office of Corporate Internal Audit received the following submissions via the following channels:

Explanation			Channels		Types of Submission		
	1. President (letter via BoD / CEO / CAE/ employee / department)	2. Email address: auditor@irpc.co.th (emails to Internal Audit)	P.O. Box 35 Sun Tower Post Office (letter mailed via Thai Post)	A: Employee's Conduct	B: Operation	C: Corruption	D: Suggestion
Total	4	2	37	11	11	-	21

5 Board Duties and Responsibilities

The Board of Directors plays a pivotal role in governance for the benefit of IRPC. Members of the board have a duty to shareholders and act independently from the executive branch of IRPC. They strive to fulfill their missions, roles, duties, and responsibilities and to protect the interests of shareholders and stakeholders. The Board of Directors determines which business directions and strategies the company should pursue based on their suitability and effectiveness. In addition, the board ensures the transparency and sustainable growth of IRPC's business.

The Board of Directors relies on eight principles from the Corporate Governance Code for Listed Companies 2017 issued by the Securities and Exchange Commission as guidance. These principles appear in the Corporate Governance Policy. The following is a summary of board duties and responsibilities:

- **Business sustainability:** To bring about business sustainability, the board bases its decisions on various factors, including the creation of value-added, economic growth, and corporate social and environmental responsibility. Board members act as role models and impart business sustainability principles to the company, letting them trickle down from the president and other executive officers to the rest. The board also

discusses the company's multifaceted performance reports regularly at their meetings.

- **Corporate governance:** The board establishes and oversees the Corporate Governance Policy, which is available on the company's website, to guide everyone at IRPC and its stakeholders. The board oversees communications to promote a genuine understanding of the policy, as well as awareness-raising activities to facilitate its organization-wide adoption. The board also urges IRPC's business partners throughout the supply chain to adopt similar principles.
- **Board and committee charters:** The board determines what its responsibilities and duties-including those of its committees-should be, basing them on laws, regulations, and IRPC's Corporate Governance Handbook. These are specified in their respective charters. Furthermore, the board oversees the suitability of its structure and determines the remuneration of the president and company employees, which serves as an incentive for them to help IRPC reach its objectives and goals.
- **Code of conduct:** The board ensures that its members, along with company executive officers and employees, abide by the Code of Conduct. It also regularly monitors compliance with the code and facilitates its adoption as part of the corporate culture.



- Vision, mission, directions, and strategies: The board establishes and reviews all of these to steer all of operations towards a common goal. It also lays down the scope of responsibilities for management but never interferes with their roles and duties.
- Corporate KPIs and budgets: The board oversees corporate KPIs and budgets, ensuring that the company has sufficient resources to achieve its goals.
- Investments: The board meets every month to consider and give its approval to major investment projects whose scopes exceed the power and authority of the executive branch. It also determines which subjects will be presented to shareholders for their approval.
- Management structure: The board ensures that the management structure is efficient, sufficient, and suitable for the operation of the company.

Further details about board responsibilities appear in the 2019 Annual Report under “Management Structure” on page 60

Board Committees, Assessment, Orientation, and Development

Board Committees

The Board of Directors is at the heart of good corporate governance. In addition to having the Audit Committee, which is a requirement of the Stock Exchange of Thailand, the Board of Directors has established three other committees for the sake of good corporate governance with the approval of shareholders and in conformity with the company's articles of association. These committees play a role in fine-tuning board performance. Below is a summary of IRPC's committees:

1. The Audit Committee comprises at least three board members, all of whom must be independent directors. Their qualifications and scope of duties are as stipulated by the Stock Exchange of Thailand. They must possess sufficient experience and be able to ascertain the reliability of the company's financial statements. Their other duties include superintending the standardization of the company's operations, aligning different corporate components towards

a common goal, and ensuring reliable reporting and appropriate internal control systems, which will benefit all parties involved.

2. The Corporate Governance Committee comprises at least three board members, one of whom must be an independent director. They are in charge of good corporate governance best practices, superintending management's compliance with corporate governance principles and action plan. They also oversee the Corporate Governance Policy and anti-corruption measures.
3. The Nomination and Remuneration Committee comprises at least three board members, at least one of whom must be an independent director. They oversee the corporate structure, nominate director candidates and presidential candidates, and determine board and management remunerations per corporate best practices.
4. The Risk Management Committee comprises at least three board members who are considered experts in petroleum, petrochemical, or other fields that may benefit IRPC's risk management.

Details of these committees, as well as the names and roles of committee members, appear in the 2019 Annual Report under “Management Structure” on pages 69

2019 Board Performance Assessment

• Board Assessment

IRPC evaluated the performance of its Board of Directors in 2019 and used the results to devise a director development plan. There were two types of assessment:

1. Independent Assessment: The board is independently evaluated every three years. KPMG Phoomchai Business Advisory Limited conducted an independent assessment on the board and its committees in 2019, employing a practical and tangible process that met international standards. The process included a questionnaire and an interview of board members. IRPC used the feedback and recommendations to improve board performance, ensuring transparency and accountability, as well as bolstering its good corporate governance.

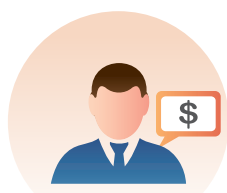
Key Components of Board Performance Assessment



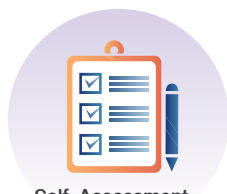
Structure & Qualifications

Chairman's Responsibilities
& Duties

Nomination and Appointment



Remuneration

Roles, Responsibilities
& DutiesPolicies on & Governance of Subsidiaries
and Other Investment Projects

Self-Assessment

Development of Knowledge
& SkillsInformation Management
& Company Secretary

Results of 2019 Independent Assessment of the Board of Directors

Components	Standard Criteria Met			
	All**	Thorough Compliance*	Partial Compliance	Non- Compliance
1. Structure & Qualifications	10	9	1	-
2. Chairman's Responsibilities & Duties	5	5	-	-
3. Nomination and Appointment	6	6	-	-
4. Remuneration	4	2	2	-
5. Roles, Responsibilities & Duties	59	56	3	-
6. Policies on & Governance of Subsidiaries and Other Investment Projects	3	2	1	-
7. Self-Assessment	7	6	1	-
8. Development of Knowledge & Skills	7	7	-	-
9. Information Management & Company Secretary	29	28	1	-
Total	130	121	9	-

* Whether the company thoroughly or partially complies with a standard criterion is subject to the standard's complexity and the company's nature of business.

** From a total of 130 standard criteria, the assessment reveals that IRPC complies thoroughly with 121 criteria (93%) and partially with 9 criteria (7%). The result is classified as "excellent."



2. Self-Assessments: The Board of Directors performs a series of self-assessments every year—namely a self-assessment of the board as a whole, a self-assessment of each director, and a self-assessment of the four board committees (the Audit Committee, the Nomination and Remuneration Committee, the

Corporate Governance Committee, and the Risk Management Committee). These self-assessments enable board members to collectively review each other's performance and provide solutions to each other's problems, augmenting their overall strength.

2.1 Self-Assessment of 2019 Board Performance

Criteria	2019 Score
1. Structure and Qualifications	97.14%
2. Roles and Responsibilities in Effectuating Major Business Policies	95.58%
3. Conduct	96.79%
4. Meetings	98.00%
Total	96.88%

2.2 Self-Assessment of Individual Directors

Criteria	2019 Self-Assessment Score	2019 Cross-Assessment Score
1. Qualifications	94.29%	98.00%
2. Ownership of Decisions and Actions and Ability to Explain Decisions Made	96.67%	97.62%
3. Capabilities and Efficiency	94.71%	98.42%
4. Equitable Treatment of Stakeholders and Ability to Explain Actions	94.76%	97.38%
5. Transparency, Accountability, and Disclosure	96.79%	98.75%
6. Creation of Long-Term Value	95.71%	96.67%
7. Ethics / Code of Conduct	98.10%	100%
Total	95.86%	98.12%

2.3 Chairman's Assessment of the Audit Committee's Performance

Criteria	2019 Assessment Score
1. Independence	100%
2. Financial Statement Audit	100%
3. Review of Connected Transactions	100%
4. Internal Control Audit	100%
5. Risk Management Supervision	100%
6. Supervision of Compliance with SET & SEC Regulations	100%
7. Other Tasks	100%
8. Regular Progress Reported to the Board	100%
Total	100%

2.4 Self-Assessment of the Audit Committee

Criteria	2019 Assessment Score
1. Structure and Components	100%
2. Duties & Responsibilities	100%
3. Relations with Internal Auditor and Financial Auditor	100%
4. Relations with Management	100%
5. Reports	100%
6. Quality Control	100%
Total	100%

2.5 Performance Assessment of the Audit Committee member individually

Criteria	2019 Assessment Score
1. Business knowledge	100%
2. Expertise in performing duties	100%
3. Authority and duties assigned	100%
4. Independence and fairness	100%
5. Understanding of duties and responsibilities	100%
6. Performing work and meeting	100%
Total	100%

2.6 Self-Assessment of 2019 Sub-Committee Performance

Criteria	Nomination & Remuneration Committee	Corporate Governance Committee	Risk Management Committee
1. Structure	100%	93.33%	100%
2. Policies	95.00%	95.25%	99.00%
3. Conduct	97.50%	98.10%	98.67%
4. Meetings	100%	96.67%	100%
Total	98.13%	95.83%	99.42%



• Performance Review of the President

The Board of Directors has stipulated that the president of IRPC shall submit to an annual performance review by the Nomination and Remuneration Committee. The board then determines the remuneration of the president based on the results of this review; however, these results are considered undisclosable private information. The criteria are based on the president's job components and goals. They reflect the president's performance in a tangible, transparent, fair, and suitable manner. The review is divided into two parts:

Part 1: Four Corporate KPIs

1. Financial Perspective
2. Stakeholder Perspective
3. Internal Process Perspective
4. Learning & Growth Perspective

Part 2: Three Sustainable Growth Factors

1. Leadership
2. Corporate Governance
3. Promotion of Growth and Reputable Image

The president's annual salary adjustment and bonus are dependent on the results of this performance review and are subject to the approval of the Board of Directors.

In 2019 the Board of Directors approved the president's performance review criteria at Board Meeting No. 4/2019, held on April 3, 2019. In addition to challenging goals, these criteria comprehend financial and non-financial key performance indicators per short- and long-term goals of the strategic plan and the company's vision; corporate responsibilities for communities, society, and the environment; and the balanced scorecard. Having acknowledged these criteria, the president steered IRPC towards the established goals. He demonstrated his ability to lead; solve problems affecting IRPC and stakeholders quickly, correctly, and successfully; and ensure a reputable corporate image and good corporate governance.

Moreover, every director completed an assessment form that evaluated the president's performance, ensuring transparency and fairness. Their participation

reflected IRPC's continued change for the better. The president reportedly excelled at both parts of the review. The remuneration of the president is comparable to that of the others within the same industry or similar industries. His remuneration is part of the executive remuneration budget per criteria of the Securities and Exchange Commission that appears in the 2019 Annual Report under "Management Structure" on pages 60.

Director Orientation

The company required all newly appointed directors in 2019 to attend an orientation session before they could participate in their first board meeting. The session allowed these new directors to acquaint themselves with the company's business nature and their duties and responsibilities, which had been prescribed by law and international principles of good corporate governance. The president himself provided them with an introductory report, an organizational overview, pertinent rules and regulations, and director's handbooks.

- Directors appointed in 2019 were as follows:

1. Mr. Noppadol Pinsupa
Director/ Member of the Risk Management Committee/ President/ Secretary of the Board of Directors/ The Director who is authorized to sign on behalf of the Company
2. Air Marshal Boonsuib Prasit
Independent Director
3. Miss Siriwan Chierapong
Independent Director
4. Mr. Charcrie Buranakanonda
Independent Director/ Member of the Corporate Governance Committee
5. General Nattaphon Narkphanit
Independent Director/ Member of the Corporate Governance Committee
6. Mr. Wattanapong Kurovat
Independent Director/ Member of the Risk Management Committee
7. Mr. Jumpol Sumpaopol
Member of the Audit Committee

- Orientation in detail:
 1. The president gave an overview of the company, including its vision, policies, organizational structure, business overview, performance, and other pertinent information. The presentation lasted about an hour, followed by a questions and answers session that had no time limit.
 2. The company secretary provided new directors with a comprehensive range of relevant documents, including director's handbooks 1–3, Corporate Governance Handbook, Code of Conduct, company registration certificate, company objectives, articles of associate, names of board members, duties and responsibilities of committees, AGM minutes from 2016 to 2019, annual reports of the Board of Directors from 2016 to 2019, reports from the committee on which the new directors would be serving, annual registration statement (Form 56-1), 2018 annual report, 2018 sustainability report, and curriculum of the Thai Institute of Directors. The company secretary also instructed new directors on how to retrieve information from the IRPC Board Portal.

Development of Directors and Executive Officers

IRPC encourages its directors and executive officers to partake in training programs that will benefit their role, business management, and knowledge of the industry. Every director has received the fundamental training. Further details appear in the 2019 Annual Report under “Directors’ Biography” on page 16-31.

Moreover, the company secretary regularly works with all directors to find time for them to attend new training sessions at the Thai Institute of Directors. IRPC’s directors attended the following programs in 2019:

- Every director attended a seminar entitled “Measure the ROI of Digital Transformation Strategy: What the Board of Directors Should Know,” conducted by an expert from KPMG Phoomchai Business Advisory Limited.
- A director (Mr. Ekniti Nitithanprapas) attended “RCL—Risk Management for Corporate Leaders” at the Thai Institute of Directors.

Nomination and Appointment of Directors and the President

Board policy mandates that members of the Board of Directors must come from a diverse range of backgrounds. Priority is given to needed competencies that will fulfill the composition of the board. Qualifications, experience, and expertise are also considered; however, gender, religion, ethnicity, and nationality play no role in the process. Further details on this matter appear in the 2019 Annual Report, under “Management Structure,” “Composition and Qualifications of the Board of Directors” on page 65.

As for the nomination of a director candidate, IRPC will consider suitable and deserving individuals. Both majority and minority shareholders, in addition to the Nomination and Remuneration Committee, have the right to propose director candidates. All nominations must be approved by the Nomination and Remuneration Committee according to the established criteria before being presented to either the board or the shareholders for the final approval (whichever the case may be).

1. Director Nomination

Details of director nominations appear in the 2019 Annual Report under “Management Structure,” “Director Nomination” and “Appointment of Directors” on page 63-69.



- Independent Directors

The Board of Directors has aligned the company's required qualifications for an independent director with announcements of the Securities and Exchange Commission (SEC) and the Corporate Governance Handbook; however, the company mandates that its independent director cannot possess more than 0.5 percent of the company's issued shares, which is more stringent than the 1 percent prescription of the SEC. The definition of an independent director appears in the Corporate Governance Handbook and the company's website. Independent directors serve a three-year term, much like other directors. They can be re-appointed, according to the law and the company's articles of association (up to nine years, unconditionally).

Further details about the company's independent directors and their duties and responsibilities appear in the 2019 Annual Report under "Independent Directors," "Management Structure" on page 65.

- Distinct Roles of the President and the Chairman

Although the Public Limited Company Act allows one person from holding the offices of the president and the chairman of the board simultaneously, having the top executive officer double as the board's leader would create a conflict of interest. The board would be unable to independently determine the executive branch's directions and policies and monitor its conduct. Information reported to the board could be selective or concealed. The president and chairman could also influence the board to rule in favor of management.

To ensure good corporate governance and separation of powers, the Board of Directors of IRPC Public Company Limited has mandated that its chairman and the president of the company cannot be the same person. Their roles are separate and distinct.

Further details about the duties and responsibilities of the chairman and the president appear in the 2019 Annual Report under "Management Structure," "Authority of the Chairman" on page 69 and "Duties and Responsibilities of the President" on page 79.

2. President Nomination and Succession Planning

The Board of Directors has tasked the Nomination and Remuneration Committee with nominating a qualified and capable individual for the office of the president. The nominee is presented to the board for appointment. The president of the company also serves as a member of the board. The nomination and appointment process conform with the company's articles of association and all legal requirements. The candidate must possess the necessary experience and a profound understanding of the petroleum and petrochemical sector, in addition to a good reputation, leadership, and a track record of corporate governance compliance. Candidates for senior executive vice president offices must also similarly pass the consideration of the Nomination and Remuneration Committee and gain approval from the Board of Directors.

Executive Succession Planning: IRPC selects senior executive vice presidents to undergo the IRPC Group's executive development program. After completion, they will be subject to a leadership assessment by a leading consultancy. The company will use the results of this assessment to further develop their potential. When an opportunity arises, one of these leaders will be nominated and appointed per the established process.

3. Executive Succession Planning and Development

The Board of Directors charges the Nomination and Remuneration Committee with succession planning for N-1 and N-2 senior executives, preparing candidates for pivotal management positions efficiently. Succession planning also helps manage risks, ensures business continuity, and encourages mutual growth for executives and IRPC itself.

To ensure business continuity, IRPC has a systematic executive succession plan in place, the progress of which is periodically reported to the Nomination and Remuneration Committee. It assesses and develops the capabilities of senior executives that are necessary for the company to achieve its objectives and strategic goals. The process is as follows:

- 1) Succession Planning
- 2) Criticality of Target Roles
- 3) Prioritization of Target Group
- 4) Succession Readiness
- 5) Successor Candidate)

Furthermore, IRPC worked with a leading consultancy in 2019 to develop a training program entitled “Development of Next Generation Leaders (Top 30 Leaders),” which comprises three phases:

- Phase 1 Pre-Succession Planning: World Class Competency & Leadership Potential Assessment.
- Phase 2 Succession Planning Actually Happens: Match Demand & Supply.
- Phase 3 Gap Closing & Value Delivery: Implement Development Program & Gap Closing.

Governance of Subsidiaries and Joint Ventures

Organizational Structure

The Board of Directors ensures that IRPC’s organizational structure is adequately efficient and suitable for governance under the leadership of the president. In 2019 the board approved the restructuring of IRPC, which took into account the present strategic plan and goals for future growth achieved through new business opportunities, mergers and acquisitions, and the creation of long-term value-added. Details on the matter appear in the 2019 Annual Report under “Organizational Structure” on page 31.

Governance Mechanisms

In addition to the president and other senior executive officers, the Board of Directors oversees the management of subsidiaries, joint ventures, and affiliates through representatives whom they have appointed to serve as directors or executives of these companies. Further details on this subject appear in the 2019 Annual Report under “Management Structure” on page 87. The decisions on significant investments and business developments that these representatives make require the approval of the Investment Board, the Management Board, or the Board of Directors, whichever the case may be. They must also report the progress of these projects to the company periodically.

Outside Interests Policy

The Board of Directors has established these rules on outside interests, which apply to the president, other executive officers, and every employee of the company. In addition to clarity, these rules also ensure good corporate governance, compliance with international standards, and conformity to IRPC’s business nature and the practice of its majority shareholder.

1. In the event that the president has been assigned a position external to the company’s affairs by royal command or lawful order of the cabinet, the president shall inform the board as soon as the command or order was received, whichever the case may be.
2. In the event that the president has been requested to serve as a director, committee member, specialist, expert, consultant, or any other position external to the company’s affairs by a government agency, state enterprise, independent organization, or state-owned institution of education, the president shall seek approval from the board first.



3. In the event that an executive officer from the executive vice president level upward has been requested to serve as a director, committee member, specialist, expert, consultant, or any other position at a company or juristic entity external to the company's affairs and outside the provision of Rule 2, board approval is required before accepting the offer. For employees from the vice president level downwards, permission must be obtained from the president instead.
4. For all executive officers and employees whose outside interests fall under the provision of Rule 1 or 2, they must inform or ask for permission from the president before accepting the offer, whichever the case may be.
5. The appointment of a director to serve in a subsidiary or joint venture, according to the shareholding ratio or agreement made between shareholders, is the authority of the Board of Directors

Insider Information

The Board of Directors has introduced guidelines on the disclosure of information, confidentiality, information technology, and communication in the Corporate Governance Handbook. Directors, executive officers, and employees alike are to exercise caution when dealing with private information and providing information to an outsider to safeguard IRPC's trade secrets. Information is categorized according to its level of confidentiality; access to information is limited. Company policy prohibits the use of insider information, that which has yet to be revealed to the public, for the benefit of one's own or of another person, especially for IRPC securities trading. Rules governing insider information are part of the Compliance Policy, which was introduced in 2016. It is currently under revision.

Code of Conduct

IRPC's good corporate governance best practices guide its directors, executives, and employees. These appear in the Corporate Governance Handbook. Its contents include human rights; treatment of employees, society, communities, the environment; occupational health and safety; giving or accept assets or other benefits in a way that may influence one's decision; conflicts of interest in a transaction; trading company securities; insider information; compliance; the use and care of assets, information, information technology, and intellectual property of IRPC; treatment of customers; product quality; marketing communication; treatment of contractual partners (business partners and creditors); and treatment of competitors.

Conflicts of Interest

IRPC requires that its directors, executives, and employees, as well as those of its subsidiaries, joint ventures, and companies in which IRPC has a controlling stake, disclose any potential conflict of interest in any transaction of IRPC or the IRPC Group, using the specified method. Disclosures enhance operational efficiency, governance and management excellence, ethics, freedom from corruption, transparency, and accountability.

Conflicts of Interest Report

In addition to disclosing its directors' and executives' conflicts of interest according to the regulations of the Securities and Exchange Commission, IRPC also mandates that all IRPC-Group executive officers and employees must report all of their (potential) conflicts of interest with the company to the Corporate Governance Committee. Reporting is done online. The system has been available for five years now (since 2015), raising an anti-corruption and transparency awareness within the organization.

The company saw a 100-percent adoption of the online reporting system in 2019. Failing to do so would have resulted in disciplinary action per Section 8 of the Workplace Policy, which prohibits workers from neglecting or not complying with the company's lawful order or assignment or concealing a fact.

Reporting Conflicts of Interest of Directors, Executives, and Related Persons

Every director submits a conflicts of interest report, which the board uses as the basis for the supervision of its members' conflicts of interest. Every senior executive officer prepares a similar report annually. The company secretary files these away after presenting their copies to the chairman of the board and the chairman of the Audit Committee, who use them to oversee matters of conflicts of interest.

Whenever there is a position change or a new director, IRPC will present a report of the change to the Office of the Securities and Exchange Commission, keeping its directors' information up to date.

Reporting Securities Holding

To oversee insider trading, it is mandatory for board members and executive officers, including their legal spouse, cohabiting partners, and underage children, to report any changes in their holding of IRPC securities to the company, the Stock Exchange of Thailand, and the Office of the Securities and Exchange Commission-according to Section 59 of the Securities and Exchange Act B.E. 2535 and any ensuing amendments-within three business days from the date of the transaction. Moreover, company policy obliges board members and executives to report any changes in their holding of IRPC securities to the board at the monthly board meeting. In fact, the report is an integral part of every board meeting's agenda.

IRPC has never received any warning regarding this subject from any of the regulators. In 2019 board members collectively held less than 25 percent of the company's issued shares, complying with regulations of the Stock Exchange of Thailand.

The company also has a blackout period-45 days before the release of the financial statement and the 2 ensuing days-during which its stock cannot be traded. This blackout period enables board members, executives, and any employees with insider information to thoroughly and strictly abide by pertinent regulations.

Moreover, the company has requested that all board members and executive officers inform the company secretary of their intent to trade IRPC securities at least one business day before the date of the transaction.

Connected Transactions

- Connected Transactions Policy and the Necessity for Connected Transactions

The IRPC Group operates a complete range of petrochemical and refinery businesses, sharing the sector with fellow companies within the PTT Group. As a result, transactions between IRPC and other PTT Group companies are commonplace. These transactions include the exchange of crude-oil and petrochemical products, related services, and other activities that support each other's everyday operations. The prices and terms and conditions of these transactions are no different from those agreed upon with companies outside the PTT Group with no additional benefits. IRPC considers every connected transaction carefully, rationally, and independently in its own best interest.

Measures for connected transactions, policies for future connected transactions, and opinions of the Audit Committee on past connected transactions appear in the 2019 Annual Registration Statement (Form 56-1), Part 2, under "Connected Transactions."



Appointment and Remuneration of the Auditor

IRPC Public Company Limited

The Audit Committee nominated Deloitte Touche Tohmatsu Jaiyos Audit Company Limited (Deloitte) as the 2019 auditor for IRPC. The nomination was approved at the 2019 Annual General Meeting of Shareholders. Deloitte is an independent auditor with a long-standing reputation. It has no relations and/or vested interest in IRPC, its subsidiaries, directors, executives, majority shareholder, or related persons. Its fees were as follows:

The audit fee for 2019 was 3,100,000 baht, which was the same rate for 2018. This fee, however, did not include other accrued expenses, such as traveling allowance, that did not exceed 120,000 baht, which were billed to IRPC according to customary practice.

Subsidiaries and Joint Ventures

Deloitte also proposed another audit fee of 950,000 baht in 2019 for five IRPC subsidiaries and one IRPC joint venture, which was an increase of 10,000 baht from its 2018 fee. The increase was due to the incorporation of I Polymer Co., Ltd. (a subsidiary) in November 2018.

Other Corporate Governance Activities

Corporate Citizenship

The Board of Directors ensures that IRPC is a good corporate citizen, serving as a role model for stakeholders throughout the supply chain and encouraging them to adopt and uphold similar principles. To this end, the board has issued the Good Corporate Citizenship Policy, which was developed in conformity with the UN Global Compact, for IRPC and the IRPC Group. The policy has been available for retrieval on the company's website since 2017. Its contents comprehend the four pillars-namely, human rights, labor rights, the environment, and anti-corruption activities.

Fee (Unit: Baht)	2018 (Auditor: Deloitte)	2019 (Auditor: Deloitte)
Audit Fee	3,100,000	3,100,000
Non-Audit Fees	4,883,085 Fees for* 1. Verification of BOI privileges 2. Financial consultancy 3. Development and installation of the Continuous Control Monitoring System (CCMS)	3,623,085 Fees for** 1. Verification of BOI privileges 2. Remaining balance from 2018 for financial consultancy and CCMS



IRPC joined business and human rights international meeting.

Human Rights

Thailand is a member state of the United Nations. The kingdom has ratified the Universal Declaration of Human Rights and is a signatory to many human rights treaties with binding obligations. The Royal Thai Government has adopted the National Human Rights Plan as a framework of operations. Its primary goals are to serve as a device for human rights protection used by a network of human rights agencies from all sectors and to provide human rights guidelines for Thai people.

IRPC promotes the Protect, Respect, and Remedy principles, which supports the National Business and Human Rights Action Plan. To demonstrate the IRPG Group's commitment to human rights, IRPC entered the "Human Rights Role Model Organization Project" contest for private companies and state enterprises in 2019. The contest was organized by the Department of Rights and Liberties Protection, Ministry of Justice, to select an organization with an exemplary track record of human rights to serve as a role model for others, enabling Thai organizations to have human rights excellence as the foundation of their operations.

IRPC's human rights successes are attributed to the following:

1. Top-down human rights commitment ("Tone at the Top" campaign)
2. Solid structure of the human rights department
3. Effective management, preventive measures, and monitoring



IRPC joined the National Human Rights Plan announcement.

4. Awareness promotion and regular networking
5. Collaboration with partners and stakeholders
6. Independent human rights due diligence investigation
7. Sustainable operation with corporate social responsibility and mitigation measures for potential impacts
8. Whistleblowing, protection, and remedy

Thanks to its earnest and regular activities, IRPC was awarded the title of the Private Sector Winner of the Human Rights Role Model Organization Project 2019. IRPC President Noppadon Pinsupa represented the company at the ceremony, accepting a plaque issued in the name of Prime Minister Prayut Chan-ocha from Justice Minister Somsak Thepsuthin on November 20, 2019.



“We, the directors of IRPC Public Company Limited, perform our duties to the best of our abilities in the best interest of the company. We work with the management team to develop solutions to all problems that have arisen. We make sure that the company’s risk management and auditing processes are adequate and sufficient. We also oversee the company’s corporate governance, social responsibility, fair treatment of stakeholders, and respect for human rights.”

Chansin Treenuchgorn
Chairman



“At the core of IRPC is its respect for human rights. The company attaches a great deal of importance to the three human rights pillars: protect, respect, and remedy. In doing so, we hope to assure all stakeholders throughout the supply chain that our business is based on a solid foundation of human rights. We never violate or adversely affect human rights, whether directly or indirectly.”

Noppadol Pinsupa
President

- IRPC’s treatment of its employees and related parties in the supply chain, as well as the surrounding communities, conform to international principles of human rights and human rights laws. The company affords freedom and equality to individuals, which are guaranteed and protected by Thai and international laws. It never violates or takes part in the violation of human rights, whether directly or indirectly. IRPC respects human dignity and provides equal opportunity without any form of discrimination based on ethnicity, religion, gender, skin color, belief, disability, or social status.
- To ensure the freedom from human rights violation in all company activities, the Board of Directors introduced the Human Rights Policy to the IRPC Group in 2017; it has been available on the company’s website since.
- The company protects the rights of its employees and contractors, abiding by labor laws, implementing workplace safety regulations, and providing good welfare per company policy. It offers safety training to both employees and contractors equally. In addition, IRPC issues a safety manual specific to plant turnarounds and strictly enforces its measures. It also oversees the safety of every outsider who has entered its plants’ premises. The Safety Department reports safety statuses both during and after work hours. It also forwards all environmental complaints from surrounding communities to the Management Committee for prompt and appropriate remedial action, as well as to prevent a repeat.
- IRPC conducts due diligence investigations on human rights risks, for which the company has adequate mitigation measures. There are also environmental-impact evaluation and remedy processes in place. These include accepting complaints 24 hours a day, having a team on standby to investigate problems and provide solutions as soon as possible, and disclosing information about an activity that has an environmental impact potential both before and during the operation.
- IRPC representatives have continuously attended human-rights seminars and activities to ensure their thorough understanding before passing on their knowledge to IRPC employees, partners, and stakeholders. In doing so, the company has ensured widespread and tangible applications and results. For instance, Dr. Seree Nonthasoot, a former representative of Thailand to the

ASEAN Intergovernmental Commission on Human Rights, gave a lecture on “Human Rights and Good Corporate Governance” in 2019. There was also Nareelak Paechaipoom, director of the International Human Rights Division of the Rights and Liberties Protection Department of the Ministry of Justice, who joined a discussion panel on the topic of “Sustainable Value Chain & Human Rights” with company executives.

Labor

- The company respects its employees’ fundamental rights and personal freedom, which are guaranteed by Thai labor laws and conventions of the International Labor Organizations. Its treatment of employees conforms to labor laws. It encourages employees to exercise their freedom of association per labor relations law and complies with relevant state regulations. IRPC never uses its power to coerce employees to enter into an agreement that deprives them of their fundamental labor rights, as well as never engages in the use of illegal labor. Moreover, the company complies with the Convention on the Elimination of All Forms of Discrimination against Women and UNICEF’s Children’s Rights and Business Principles. Furthermore, employment at IRPC is free from discrimination based on ethnicity, religion, gender, or skin color. The company promotes equal opportunity and decent work with rightful liberty and human dignity.

Legal Compliance

- With corporate governance and sustainable co-existence in mind, IRPC took a proactive approach to legal compliance in 2019 by incorporating the legal department in the initial stages of investment projects, such as the UHV Catalyst Cooler Project, the E4E or EVEREST Forever Project, and the IRPC 4.0 Project. In each of these projects, the legal department was involved from the beginning, assisting in procurement negotiation, contractor hiring, and agreement drafting. Its involvement reduced risks from the lack of legal knowledge or understanding of the wording, either of which could lead to a breach of contract. In doing so, IRPC was able to minimize the possibility of legal disputes.

Information Technology

- IRPC’s digital transformation goal seeks to enhance the efficiency of its operations. The process has begun, starting from aligning its strategies with technological growth with a focus on generating value-added. Data governance principles have been applied for maximum benefits, including the use of Machine Learning and Big Data to help direct business decisions with data analysis. The infrastructure has been upgraded to support digital technology. The security of the network has been augmented with protection against natural and cyber threats. Further details appear in the Risk Management Report on page 135.

The Environment

- IRPC expresses its committed to the protection of the environment from any impact that its operations may cause through its action and its environmental protection measures and guidelines. The company conducts an environmental impact assessment before investing in a project or business. It employs applicable technologies to bolster its environmental protection measures and methods. It also encourages the development of eco-friendly innovations and technologies. IRPC always promotes an awareness of environmental responsibility and occupational health and safety among its employees and related parties.

Anti-Corruption Activities

- Ethics permeate through every fiber of IRPC’s operations. The company thoroughly adhere to anti-corruption and anti-bribery laws and international best practices. It does all within its power to eradicate corruption, bribery, and coercion. It also educates every person within its corporate structure, including related parties within the supply chain, about its anti-corruption and anti-bribery measures. Its whistleblowing channels are appropriate, effective, and convenient.



- In the fight against corruption, the Board of Directors has introduced the following policies: the Anti-Corruption Policy, the Anti-Bribery Policy, the No Gift Policy. These policies apply to every person at every level of IRPC and the IRPC Group. Training and seasonal campaigning are used to raise awareness. These policies are publicly available on the company's website and via other communication channels. Additionally, the Board of Directors endeavors to expand the IRPC anti-corruption network to include stakeholders, such as other IRPC Group companies, joint-venture partners, and contractors. The company's anti-corruption practices have been disclosed to all of its partners. Many of these activities have been going on since 2016.
- The Audit Committee includes corruption risk management and assessment on Corporate Internal Audit's agenda. The committee also requires corruption risks to be controlled, monitored, assessed, and reported to the board continuously.
- IRPC was among the first group of listed companies (no. 40) to express their intentions to join Thailand's Private Sector Collective Action Coalition against Corruption (CAC) when it was first launched in 2010. The company became a certified member on April 4, 2014. Each certification lasts three years. Its first re-certification was confirmed on March 9, 2017. The company just submitted its second re-certification application on December 9, 2019.
- According to the Anti-Corruption Policy introduced by the board, internal and external whistleblowers may report any activity deemed to be in violation of the law or code of conduct or any act suspected to be of corruptive nature of any person of any corporate echelon or any stakeholder. The policy also outlines a clear investigative procedure that is impartial and transparent. Adhering to this policy, IRPC affords protection and non-retaliation to whistleblowers and witnesses. Corporate Internal Audit oversees and monitors every investigation, as well as reports relevant matters to the Audit Committee and the Board of Directors every month and every quarter. The company received no ethical violation reports in 2019. Further details about whistleblowing channels and reports appear in the 2019 Annual Report under "Whistleblowing, Access to Information, and Whistleblower Protection" and in the Sustainability Report.
- IRPC representatives have continuously attended human-rights seminars and activities to ensure their thorough understanding before passing on their knowledge to IRPC employees, partners, and stakeholders. In doing so, the company has ensured widespread and tangible applications and results. For instance, Pana Ratanabanangkoon, project director to Thailand's Collective Action Coalition against Corruption (CAC) under the Thai Institute of Directors (IOD), gave a lecture on the private sector's anti-corruption role to executives, employees, partners, and customers of IRPC.



- The company requires all executive officers and employees to report their (potential) conflicts of interest with the company. Reporting is done only, a feature that has been available for five years now (since 2015). Compliance with this requirement in 2019 was at 100 percent.

Corporate Compliance

Compliance is vital to IRPC. The company endeavors to incorporate compliance into its organizational culture to prevent compliance risks and to garner trust from shareholders and other stakeholders. The Board of Directors first introduced the Compliance Policy in November 2015. The Corporate Governance Committee oversees matters of compliance and reports compliance activities and progress to the board at least twice a year. Meanwhile, Corporate Compliance is responsible for strategizing and managing the corporate compliance system. It also oversees the organization-wide implementation of its strategies, as well as in other IRPC-Group companies. It is also in charge of compliance communications, education, and supervision. Its ultimate goal is the highest level of corporate governance excellence.

Corporate Compliance Activities in 2019

The Board of Directors, the Corporate Governance Committee, and senior executives of IRPC ensure the concrete implementation of the Corporate Compliance Policy. The company's major compliance developments in 2019 are as follows:

Compliance Policy, Process, and Procedure

1. The Corporate Governance Committee approved the Corporate Compliance Framework on April 23, 2019. It is suitable for the nature of the company's business and comparable to international practices. With a focus on compliance effectiveness, the framework has created the three lines of defense:
 - a. All operative functions within the company are the first line of defense. They are responsible for the compliance of their own tasks and projects, including compliance risk management.
 - b. The second line of defense refers to all central assurance functions. Their three roles are as follows: (1) to provide an effective

compliance management system, including support for compliance management self-assessment and compliance risk assessment; (2) to ensure compliance through education, proactive campaigns, and advice; and (3) to oversee correction and prevention of repeated offenses through reviewing issues and reporting them to executives, the Corporate Governance Committee, and the Audit Committee.

- c. Corporate Internal Audit serves as the third line of defense. It reviews the effectiveness of the first and second lines independently, as well as collaborates with an independent auditor.
2. IRPC assesses its legal and compliance risks per its short- and long-term strategic operations plan. The company has also adopted the concept of integrated governance, risk management, and compliance (GRC).
 3. The E-Compliance Library has been developed to host a wide range of compliance-related information from every operation within IRPC. Its creation supports the IRPC 4.0 Policy and facilitates the corporate compliance self-assessment by providing correct and accurate information. The library also hastens the preparation of reports-per the established framework-for the Corporate Governance Committee and the Risk Management Committee.

Also, the Dos and Don'ts for Anti-Trust and Trade Competition Law guidelines were distributed to every employee through Compliance News and filed away in the E-Compliance Library for ease of access. The Merger and Acquisition Due Diligence Checklist was also developed with help from Business Development, preparing IRPC for future business expansion and investment.
 4. On December 17, 2019, the Corporate Governance Committee assented to the revision of the Compliance Policy. The amended policy will better guide company personnel, allowing them to support IRPC's vision and mission more earnestly and effectively, meeting the company's expectations.



5. As the top executive officer, the president expressed his commitment to compliance and to serving as a role model for all others. This was part of the “Tone at the Top” campaign.

Integration of GRC

The integration of governance, risk management, and compliance (GRC) is another device the company employs to garner trust from all stakeholders. It assures them that IRPC operations are legally sound, transparent, accountable, and well aligned. At this initial stage, the company's integrated GRC allows assurance functions—namely, Corporate Governance, Risk and Internal Control, and Corporate Compliance—to share information and co-host activities. IRPC's integrated GRC now focuses on resource maximization and redundancy elimination, allowing time for more information and activities. GRC developments in 2019 were as follows:

- The three departments met regularly to discuss work and craft action plans. Corporate governance and compliance criteria were added to the internal control assessment to improve the company's risk assessment and internal control. These inclusions have saved time and eliminated redundancy. Furthermore, they combined their communication activities into one. The event was called “Opening the GRC Gift Box” to simultaneously raise GRC awareness. It took place on December 11, 2019, at the Bangkok head office. At the event, there was an academic discussion panel on the principles and benefits

of GRC. In addition, an external expert was invited to the company to talk about privacy protection law. Applicable and practical ideas were exchanged. The activity underlined employees' participation in IRPC's efforts to be a good corporate citizen.

Compliance Communication & Information Dissemination

- IRPC informed its executives of the compliance guidelines on three separate occasions, promoting their understanding and awareness of compliance. The company also evaluated its compliance pilot program of two laws—namely, the Securities and Exchange Act and the Fuel Trade Act. The program's goal is to serve as a practical demonstration model for related parties.
- “Message from the President” was delivered to every person within IRPC to remind them that the company's senior executives were genuinely committed to business ethics and transparency according to the Corporate Compliance Policy. The message was the first step of the Tone at the Top campaign.
- Compliance training became mandatory. All personnel, especially new hires, underwent a face-to-face lecture on “Compliance & Governance of IRPC.” Meanwhile, mid-level executives were subject to an annual training program entitled “Corporate Compliance Overview” for the second time. It was led by an expert on international standards of corporate compliance and ethics. The training augmented their understanding of the Corporate Compliance Policy and the contents of the Code of Conduct manual. It was supplemented by a Q&A session with examples to facilitate their understanding and tangible policy adoption, which would enable them to oversee their teams' implementation. These training programs have been added to the company's training scheme for 2020 to ensure continuity and repetitions, complying with both the short-term and the long-term plans. Furthermore, other training methods have been added, including video and e-learning platforms.





IRPC co-organized Workshop/ Study Tour on Anti-Bribery Compliance for representatives from Office of the National Anti-Corruption Commission from 11 Asian countries on 8 October 2019. They joined 15th Principles Meeting of the South-East Asia Parties Against Corruption : SEA-PAC Thailand

- IRPC developed Corporate Compliance News and a GRC article in the intranet magazine I-Oon. Within the Corporate Compliance Framework, these forms of internal communications provide employees with pertinent knowledge, information, and case studies regardless of their location (Bangkok headquarters, Rayong plants, or other operations warehouses). These are also accessible by other companies within the IRPC Group.

Compliance Advice

- IRPC added compliance@irpc.co.th as another communication channel, allowing compliance officers to offer advice to employees more easily.
- The use of the Employee Compliance Survey has allowed IRPC to better understand its employees' needs. Their suggestions have helped improve the efficiency and effectiveness of Corporate Compliance. For instance, they have asked the company to share case studies to help improve their understanding. They have also asked for legal advice on specific matters, such as contract and competition laws.
- Pertinent departments worked closely with every business function to improve the compliance aspect of their operations. Compliance was made an integral part of everyday activities.
- IRPC made sure that its employees were aware of and could access all of the whistleblowing channels.

Compliance Evaluation, Monitoring, Auditing, and Reporting

- Various levels of executives completed the corporate compliance health check questionnaire and corporate compliance risk assessment, which helped IRPC determine the adequacy of its internal control. The results also contributed to the improvement of the corporate compliance program, as well as other related evaluations and assessments, such as the internal control assessment. The company made sure to integrate these different assessments to eliminate redundancy.
- To genuinely integrate governance, risk management, and corporate governance, various departments were asked to work closely together. They exchanged information, opinions, and suggestions, all of which contributed to the betterment of the corporate compliance program.
- To build a public-private network of collaboration, IRPC hosted the Workshop/ Study Tour on Anti-Bribery Compliance on October 8, 2019, for representatives of anti-corruption agencies from the 11 ASEAN member states. These individuals were in Thailand to attend the 15th Principles Meeting of the Southeast Asia Parties against Corruption (SEA-PAC), which was held during October 8–10, 2019. IRPC was invited as an expert to participate in the discussion entitled “Anti-Corruption Compliance & Corporate Compliance Program.” It was a great honor to the company and a testament to its ability to meet standards and gain acceptance from the public sector.



Risk Management

IRPC firmly believes in the effectiveness of its organization-wide risk management in preventing and mitigating internal and external risk factors. With appropriate risk management, IRPC minimizes the likelihood of risks and their adverse effects while seeking business opportunities and ensuring sustainable growth. Armed with this understanding, the company covers all bases with three risk managing bodies:

1. Risk Management Committee: Established and appointed by the board, the Risk Management Committee oversees the risk management policy and its implementation. It ensures that IRPC has an appropriate risk appetite, which bolsters stakeholders' confidence in the company's ability to achieve its goals. The committee meets at least once every quarter.
2. Risk Management and Internal Control Committee: The president serves as the chairperson of this committee. Its members are IRPC's senior executive officers.
3. Hedging Committee: The Hedging Committee is responsible for market analyses and managing risks relating to prices, the availability of crude oil as feedstock for petroleum and petrochemical products, transportation expenses, and financial transactions.

Risk Management Standards

IRPC has adopted the ISO 31000: Risk Management Principles and Guidelines and COSO's Enterprise Risk Management Integrated Framework as part of its risk management system. It also makes use of good corporate governance principles, internal control, business continuity management, anti-corruption guidelines, sustainability management, and operational excellence management. Moreover, the company has developed several tools to improve the effectiveness of its risk management. For instance, key risk indicators warn IRPC of impending risks, and value at risk (VaR) calculations enable the company to measure how much is at stake and devise an appropriate risk management plan.

Risk Management as Part of IRPC DNA

IRPC strives to make risk management an integral part of its organizational culture. The company regularly conducts activities that improve its directors', executives', and employees' awareness and understanding of the importance and necessity of adopting risk management measures and framework, which will allow IRPC to grow and advance stably and sustainably. The following activities took place in 2019.

- The committee devised a risk management framework and principles to guide executive officers and employees. It also monitored the progress of implementation at the board, management, and operations levels. The committee also reviewed risk management guidelines to ensure their applicability to the current business context.
- Regular communication bolstered the understanding of risk management within IRPC. Communication channels included board meetings, executive meetings, department meetings, function risk management workshops, email, e-learning, internal magazine, and training.
- By integrating governance, risk management, and compliance functions, IRPC significantly improved the efficiency of its risk management and eliminated overlaps. These three departments began sharing information for the benefit of the company.
- IRPC used PESTLE analysis to identify political, economic, social, technological, environmental, and legal external risk factors that may impact its businesses. The company also analyzed international risk factors, including corporate structure, strategies, human resources, skills and competencies, operational systems, organizational culture, and stakeholders' expectations. IRPC also assessed the likelihood and impacts of risks, placed risks in an order, established risk mitigation measures. The company also monitored and reported its risk management progress and effectiveness regularly.

Summary of Risk Management Activities and Major Risk Management Guidelines in 2019

Economic and Price Risk



Economic uncertainties and financial volatility in Thailand and overseas, the US–China trade war, the US–Iran conflict, natural disasters, violent geopolitical issues, and terrorist attacks across the globe were factors that affected the crude-oil demand and supply equilibrium. The company imported a large amount of crude oil as feedstock to manufacture petroleum and petrochemical products. The demand and supply fluctuations directly and significantly affected IRPC's profitability. The company employed the following measures to mitigate economic and price risk:

- IRPC purchased crude oil from different sources. This flexibility also lowered its costs. IRPC also relied on linear programming (LP) to find feedstock from the most suitable source.
- IRPC minimized its production costs through various means of energy efficiency maximization. For instance, the company improved the efficiency of its industrial furnaces' heat transfer and storage and adopted the use of refuse-derived fuels. These measures decreased IRPC's annual expenses by millions of baht.
- IRPC closely monitored and analyzed pricing situations and prepared a price forecast report for its executive officers every week. Doing so allowed its management and related departments to prepare for various scenarios.



- IRPC maintained a suitable level of crude oil, petroleum, and petrochemical stocks to minimize impacts from stock gains and losses.
- IRPC entered into hedging contracts with defined price targets and a suitable amount and duration of risk management. These contracts were in line with IRPC's business plans under the supervision of the Hedging Committee and the Risk Management Committee.
- IRPC reviewed and evaluated the crude-oil procurement process and related procedures to increase their efficiency and lower operational risks. A risk control matrix (RCM) enabled operatives to perform their duties thoroughly and efficiently.

Operations Risks

IRPC attached a great deal of importance to managing operations risks, which may affect its workforce, stakeholders, assets, and business opportunities. These risks included issues related to safety, security, health, and the environment (SSHE); the potential failure to meet production



targets; the possibility of equipment malfunctioning; threats to local communities caused by IRPC's operations; emergencies and crises beyond IRPC's control; and water management. The company used the following measures to mitigate these risks:

- IRPC promoted a safety culture through its policy and an action plan under its operational excellence strategic plan, which made safety

one of the key performance indicators for everyone within its corporate structure. The company took advantage of the OHSAS 18001 standard and process safety management. With an incident management system (idMS), IRPC analyzed data to ascertain the root cause of accidents. Moreover, IRPC educated all of its employees, contractors, and outsourcers' employees about the importance of safety through projects such as Outsource Safety Man and Goal Zero 365 Days. In addition, a specialized team monitored safety compliance with the utmost stringency. Whenever an accident happened, IRPC would form an ad hoc committee to determine the actual cause. Any knowledge gained would be disseminated among its employees as a preventive measure. Thanks to these rigorous efforts, IRPC was able to meet its accident rate reduction target, standing proud with its peers of leading gas and oil companies. The company will continue to work towards a lower goal.

- IRPC strengthened its plant reliability management to ensure smooth operations and prevent unplanned plant shutdowns. It strictly adhered to measures outlined in the Zero Unplanned Shutdown program. A repetition prevention system allowed IRPC to ascertain the root cause and devise corresponding preventive measures, as well as to conduct accident analyses. Furthermore, IRPC administered a plant health check to ensure that its machinery and equipment, especially in risk-prone areas, were in good condition. The company also continued its system-wide inspection.
- IRPC committed to integrating environmental management frameworks, including the ISO 14001 environmental management standards and the ISO 50001 energy management standards. The company also strictly complied with pertinent laws, regulations, and measures.

Furthermore, IRPC allocated a budget for the prevention and minimization of its operations' impacts on the environment based on Eco-Efficiency principles, which include air pollution management, volatile organic compound emission reduction, waste management, wastewater treatment, and energy conservation. All of this contributed to the preservation of the ecosystem's integrity and the low-carbon society efforts.

- IRPC fostered understanding and good relations with communities surrounding its industrial park, as well as maintained a favorable public image, with hopes of attaining their trust and confidence. The company followed society and community management measures such as the CSR-in-process model, social impact assessment (SIA), and social return on investment (SROI) evaluation. Through the Lam Sai Yong project, IRPC built and repaired public utilities. It even provided support to local entrepreneurs and offered scholarships to students. To improve the public's understanding of its operations, IRPC held open house events, operated field co-ordination centers, and participated in local activities. It founded health funds for 76 communities around its industrial park. It also hosted emergency drills for the surrounding neighborhoods with the help of local and national governments.
- IRPC made full use of all 12 elements of the operational excellence management system (OEMS), such as leadership, risk control, and management of change. OEMS ensured that IRPC's operations were efficient and effective. Furthermore, the company had an external expert assessed its OEMS to ascertain flaws and determine improvement methods.

- IRPC also made use of a business continuity management system (BCMS). With well-formed business continuity plans and drills, IRPC was always quick to cope with crises and emergencies. For standardization purposes, IRPC adhered to the ISO 22301 Business Continuity Management System at its headquarters in Bangkok and plants around Thailand.
- IRPC employed a water management system to ensure that it would have sufficient water for its processes despite increasing demands from other industries, the agricultural sector, the expanding urban areas, and the tourism sector. To prevent conflicts with stakeholders and to use water optimally, IRPC made use of the three Rs: reduce, reuse, and recycle. Additionally, the company had constructed a 5-million-cubic-meter reservoir for use when natural sources proved insufficient.



To improve corporate communication, IRPC required its senior executive officers to the Effective Media Handling Skills Workshop, which sought to promote their understanding of how to properly represent the company and communicate with the media during normal business operations and in times of crisis. The workshop equipped them with media-handling criteria, methodologies, and best practices. They could also apply knowledge gained to their dealings with other stakeholders.



Financial Risks

IRPC employed the following management measures:

- **Foreign Currency Exchange Risks:** The fluctuating currency exchange rate between Thai baht and US dollars affected IRPC's revenue and expenditure directly and indirectly. Although the company sold petroleum and petrochemical products and bought crude oil as feedstock in Thai baht, their prices were always subject to the global market price in US dollars. Investment loans were also US dollar-linked. To minimize the effects of currency exchange rates, IRPC employed natural hedging to ensure that its debts in US dollars were proportional to its revenue in that currency. This method of risk management fell under the oversight of the Risk Management Committee, who ensured that projects were aligned with IRPC's policy and risk appetite. The company also entered into foreign exchange swap agreements for export revenue and feedstock expenses in US dollars to minimize currency exchange differences between sales and purchases.
- **Funding Risks:** Due to its investment plans and responsibility to make loan and debenture payments, IRPC needed sufficient and timely funding with appropriate financial costs. Its

ability to source funds externally was subject to numerous factors, including its performance, financial standing, credibility ranking, current petroleum and petrochemical circumstances, and domestic and international capital market and economic conditions. The lack of liquidity, which would render cash flow insufficient, posed a risk to the company. To prevent potential dangers, IRPC always ensured sufficient funding before undertaking a project. Its defined capital structure allowed IRPC to maintain its financial ratios at appropriate levels. In addition to good corporate governance, IRPC also monitored factors affecting or pertaining to funding, which enabled it to find funds according to plan with suitable financial costs. At the time of this report's preparation, the company has the following credit lines with financial institutions: 6.05 billion baht remaining in long-term loans and 30.64 billion baht remaining in short-term loans. Furthermore, per its loan agreement with PTT Public Company Limited, IRPC enjoys a credit line of 10 billion baht and a debit line of 1.5 billion baht for cash flow management within the PTT Group.

Capital Projects Risks

IRPC's Ultra Clean Fuel (UFC) Project, which involves constructing a new plant, commenced in 2019. This large-scale investment undertaking, once completed, will allow IRPC to produce diesel that meets the Euro V standard, instead of the current Euro IV standard, by the time the government's new regulation comes into effect in 2024. In preparation, IRPC employed the following risk mitigation measures:

- IRPC devised marketing and sales plans according to the stock and demand forecasts to ensure that all of the manufactured diesel would be sold.
- IRPC made the necessary preparations-such as personnel, finances, construction site, and public utilities-that would allow the project to reach target stages efficiently.
- IRPC established systems and processes-such as project duration, budget management, project quality criteria, project safety measures, and continuous co-operation with government agencies and local communities-to closely monitor the progress of the project. They enabled the company to solve problems quickly, ensuring that the project would reach all of its goals.

Organizational Capability Risks

Through the adoption of core values, IRPC worked towards corporate excellence, including the development of competent and morally sound people. Employees of IRPC had to be ready, knowledgeable, and capable. The "Power of People" served as one of the company's strategic focuses. To ensure the achievement of corporate excellence, IRPC implemented the following Organizational Capability Risk management measures:

- IRPC sought to enhance its organizational efficiency and effectiveness through the adoption of the IRPC DNA by all of its personnel. In addition to publicizing desired behaviors, the company monitored its employees' adoption of the IRPC DNA and made it one of their key performance indicators. Moreover, it required executive officers to act as role models for their teams. Adoption and progress were continuously monitored.
- IRPC made use of succession planning for all key positions and a systematic performance assessment system. The company was able to ensure a smooth transition and business continuity.



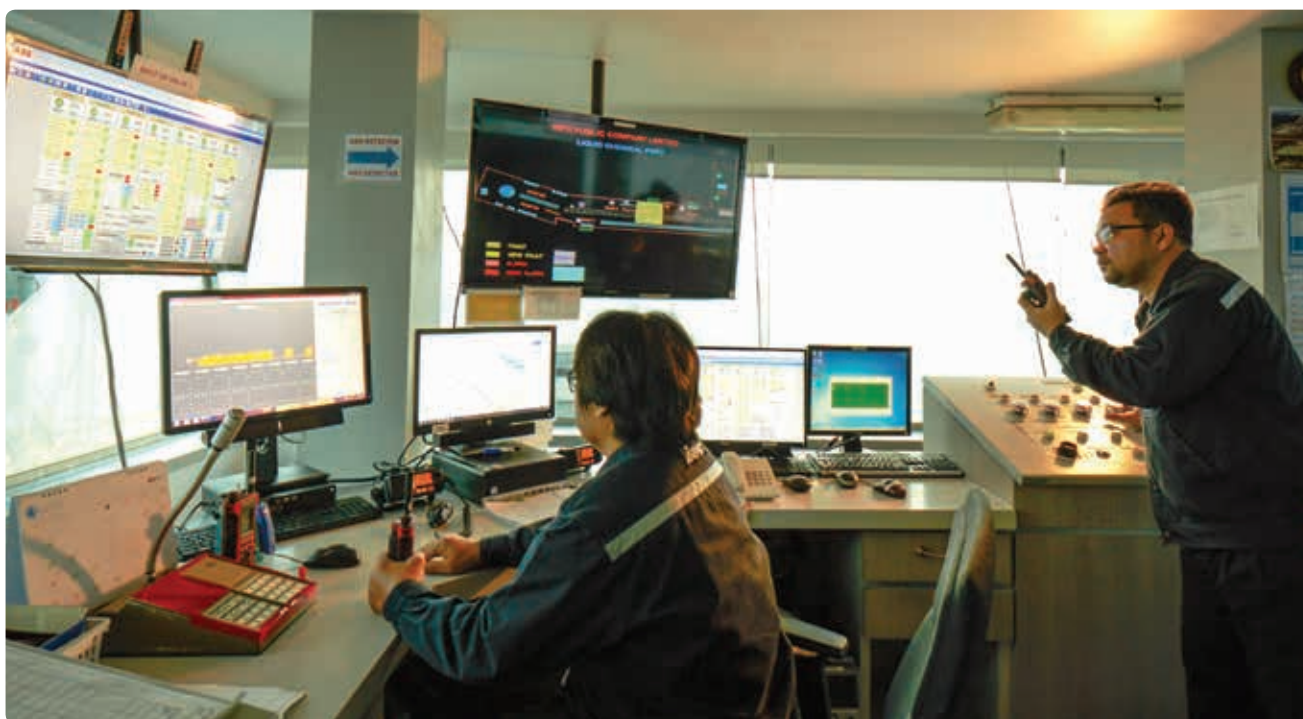


- IRPC took advantage of a knowledge management system, which ensured that essential knowledge, such as machinery operation and maintenance, would remain within the company after an employee resigned or resigned. Moreover, IRPC continued to augment its employees' work-related knowledge and skills to help them keep up with the current technology. To this end, IRPC worked with online institute SkillLane to develop and extract workers' hidden potential. The instructional videos provided enabled IRPC's employees to learn and develop their skills regardless of time zones and locations.

Compliance and Legal Risk

IRPC attached a great deal of importance to raising compliance awareness among its employees. The company monitored and prepared for new policies, laws, and regulations issued by the government-such as the Fuel Control Act, oil reserves, tax laws, labor laws, and anti-bribery guidelines-which could impact its current business and future growth. To mitigate compliance and legal risks, IRPC adopted the following measures:

- As a certified member of Thailand's Private Sector Collective Action against Corruption (CAC), IRPC was subject to a comprehensive range of corruption risk assessments and devised mitigation guidelines accordingly. Furthermore, to ensure transparency, IRPC adopted the eight anti-bribery principles from the National Anti-Corruption Commission. The company made these principles known to its executives and employees, facilitating organization-wide adoption.
- IRPC continued to develop its Corporate Compliance Program according to international standards, including the formulation of the Operational Compliance Supervision Policy, the establishment of supervision bodies with sufficient resources, and the appointment of compliance officers. IRPC ensured that its directors and executives thoroughly understood its operational compliance processes and regularly asked them for new suggestions. Furthermore, the company provided various whistleblowing channels. Violations reported would always be investigated. If proven true, the guilty party would be subject to the corresponding disciplinary action.
- IRPC monitored news of regulatory changes from the government and made all of the necessary preparations, including risk mitigation plans and guidelines. The company was confident that its measures would adequately prevent policy or regulatory changes from affecting its businesses.
- IRPC's self-assessment revealed that it appropriately complied with the internal control manual on the formulation of anti-bribery guidelines for legal entities. IRPC fostered an understanding that bribing state officials, foreign officials, or officials of intergovernmental organizations would constitute a criminal offense, leading to strict anti-bribery practice.
- IRPC disseminated the Compliance Policy to all of its employees across every corporate echelon, fostering an understanding they were expected to comply with all pertinent laws and regulations. It also built an e-compliance database to house the most up-to-date information and raised awareness through regular communication. Moreover, IRPC assessed its compliance risks and the potential impacts of non-compliance, which allowed it to devise preventive measures to ensure compliance internally and externally.
- IRPC thoroughly complied with land laws on the use of public spaces, waterways, and roads that were on its expanding premises. Compliance also allowed IRPC to avoid lawsuits and conflicts with local communities. The company appointed ad hoc working groups to oversee these matters.



IT Security Risk

The frequency and variety of cyber threats had significantly increased. Armed with this understanding that a cyber-attack could severely damage a business, IRPC adopted proactive measures to safeguard its information technology, on which it relied heavily. The following were its risk mitigation measures:

- IRPC made use of the ISO 27001: Information Security Management System. This internationally acclaimed standard bolstered the company's confidence in the efficiency and effectiveness of its information security management. Moreover, IRPC made sure to comply with all relevant laws, rules, and regulations.
- IRPC conducted its annual disaster recovery plan drill, preparing its employees for a total system failure that could happen as the result of cyber-attacks, damaged equipment, or natural disasters.
- Having founded the Security Operation Center (SOC), IRPC continued to improve its software, hardware, and personnel. SOC oversaw access to IRPC's various systems, monitoring any irregular

activities and external intrusions. SOC responded quickly to every attack. It also educated its personnel on more effective methods regularly.

- To augment their knowledge, cybersecurity staff of IRPC attended training and seminars, as well as exchange their know-how with external agencies. They also received ICT Security Certificates from ComTIA.
- IRPC educated its staff on how to safely use computers and its software to avoid cyber viruses, malware, and cyber-attacks. The tech team offered IT consultations, warnings, and solutions to all employees in need.

Emerging Risks

IRPC analyzed emerging external risk factors that could impact its business in the next five to ten years, including political, economic, social, environmental, legal, and technological factors. Having assessed their likelihood, the company devised the following measures to mitigate these emerging risks:



- **Electric vehicle risk:** Consumers could switch to electric vehicles (EVs) sooner than anticipated due to exponential improvements on the technological front and much more affordable prices. The government itself began promoting the use of electric vehicles. Understanding its sales of fuels and lubricants would decline, IRPC started to shift its focus from petroleum products to petrochemical products in 2014. This long-term strategy resulted in the Upstream Project for Hygiene and Value-Added Products (UHV), in which fuel oil could be converted into propylene, which would later be made into polypropylene products and polypropylene compounds. The UHV plant construction was completed, and commercial operation has begun. The plan to convert heavy naphtha and aromatics, components of gasoline, into paraxylene has also been put in place. This last project is expected to be completed in 2024.
- **Climate change risk:** The severity and frequency of natural disasters have increased. Droughts and floods have become commonplace. One of the causes is climate change, which has affected natural resources and all living beings on Earth. Human activities-such as driving cars; using heaters and air conditioning; and burning coal, petroleum products, and natural gas-contribute directly to climate change through the emission of greenhouse gases into the atmosphere. IRPC has devised guidelines to prevent and mitigate this risk. It has adopted carbon pricing to determine the return on investment of every future project. It has also taken measures to reduce its emissions. For example, IRPC uses the ISO 50001 standard as a benchmark to improve the efficiency of its energy use in the manufacturing process by reducing the use of fuels by 2 percent every year. IRPC also voluntarily subjected itself to a corporate carbon footprint assessment of the Department of Industries and the Thailand Greenhouse Gas Management Organization (Public Organization). IRPC has also switched to green energy sources. For instance, IRPC employees share an electric shuttle bus with their peers within the PTT Group. The company has also constructed a solar power plant. Furthermore, the company strives to reduce the effects of floods and droughts through sustainable water management projects, including the Water Resource Management Project and the Community Water Management Project.
- **Plastic ban risk:** The government's anti-plastic measures have directly impacted IRPC's polymer revenue. Currently, there is a ban on single-use plastics, but there could be related legal provisions in the future. Consumers themselves are more aware and have campaigned against single-use plastics. To cope with this emerging risk, IRPC has switched from manufacturing HDPE sheets for the production of single-use plastic bags to manufacturing HDPE pipes for construction sites, infrastructure projects, industries, and general household applications. Moreover, the company has looked into measures for other plastic products that could be banned in the future.
- **Consumer behavior risk:** Modern consumers are increasingly more adept at online transactions. They have come to rely less on traditional points of sale and authorized retailers. This behavioral change has led to lower sales through conventional means in favor of cheaper and quicker methods. This trend is likely to continue for many years to come. To rectify the issue, IRPC has ventured into a digital platform by forming a joint venture with Guangzhou Saiju Performance Polymer Ltd., an expert in the Chinese market. IRPC holds 55 percent of the stake while its Chinese partner holds the remaining 45 percent. Together, the partners have developed PLASTKET.COM, Thailand and ASEAN's first e-commerce platform for plastic products to use artificial intelligence to facilitate the procurement of plastic pellets, chemicals, and semi-finished and finished products. It was officially launched in February 2020.



IRPC has supported a wide range of skill development activities to bring about sustainability and ensured business continuity through executive succession planning and leadership pipelines. Its talent and leadership plan contributes to improved competitiveness.





People Management



IRPC has been restructured, resulting in improved efficiency and the ability to better fulfill business strategies and customer needs. Its organizational effectiveness has been enhanced by improving processes, management styles, systems, equipment, and most importantly the Diversity and Inclusion Policy. IRPC encourages its employees to always be honest, provides systematic training, and offers attractive compensation to retain capable talent. Furthermore,

IRPC promotes the acceptance and celebration of differences as part of its organizational culture. The company understands that uniqueness is the source of new outlooks, innovations, skills, and lessons. Furthermore, IRPC has supported a wide range of skill development activities to bring about sustainability and ensured business continuity through executive succession planning and Leadership Pipelines. Its talent and leadership plan contributes to improved competitiveness.



Together We Can

IRPC is subject to many adverse effects of globalization, be they political, social, technological, or economic. The company was particularly affected by the trade war between the US and China in 2019. Their trade policies inevitably impacted IRPC's performance. As a result, the company's senior executive officers asked all employees to work together to find solutions.

Throughout the duration of the Together We Can campaign, which lasted from July through December 2019, IRPC found that an average of 98 percent of its employees to be co-operative. For instance, the company found that about 95 percent of its employees understood the situation after senior executives had communicated the "Reduce, Postpone, Stop" measure to them and satisfactorily answered their questions. They suggested that management continued similar manners of communication.

People throughout the organization helped IRPC lower its operating costs.



OPEX Saving
The OPEX budget was reduced.



CAPEX Saving
Projects with no returns were postponed.



Maintenance
Machinery was regularly maintained.



Organizer
Less significant events and activities were called off.



Catering
Internal and external catering were more tightly controlled.



Outsource and Consultant
Outsourcers and consultants were hired only as needed.



Transportation and Meeting
Video conferencing and car pooling were encouraged.



Oversea Business Trip
Only crucial overseas business trips were taken.



Flight Planning
Flying required planning in advance.



Training
Training was cut to the minimum requirement.



OT
Tighter control was put on overtime work and paying allowances.



Facility
The use of facilities was optimized.



HR Digital Platform (i-Connect)

As Thailand welcomes the Fourth Industrial Revolution, in which innovation is the economic driving force, every enterprise needs to make strategic preparations and adopt new technologies to augment its competitiveness and continue to grow at a steady pace.

At IRPC, digital technology is a strategy-driving tool. It gives IRPC a modern appearance and a competitive edge. The company is making the most of digital technology, which has created value-added innovative products and services. For the highest efficiency, IRPC decided to apply "iConnect" application to support people management system. The application collects people management operations to process in the same place. Therefore digital application technology allowed management team and all employees to access all kind of informations in Real Time and can complete entirely steps of people management process such as job applications to compensation management.

i-ChEPs

i-ChEPs is a project aimed at developing integrated chemical engineering learning for production line workers. A collaboration between IRPC and the King Mongkut University of Technology Thonburi, i-ChEPs bridges the gap between chemical engineering theories and their real-life applications. The project also promotes the concept that learning is a never-ending process. After completion, program alumni will strive to build on their existing knowledge, benefitting IRPC and making it an organization of learning. Started in 2012, the project has reached its eighth year in 2019, during which there were 25 participants. The knowledge they gained is the equivalent of 367.20 million baht in revenue for IRPC, higher than 2018's value of 212.30 million baht.



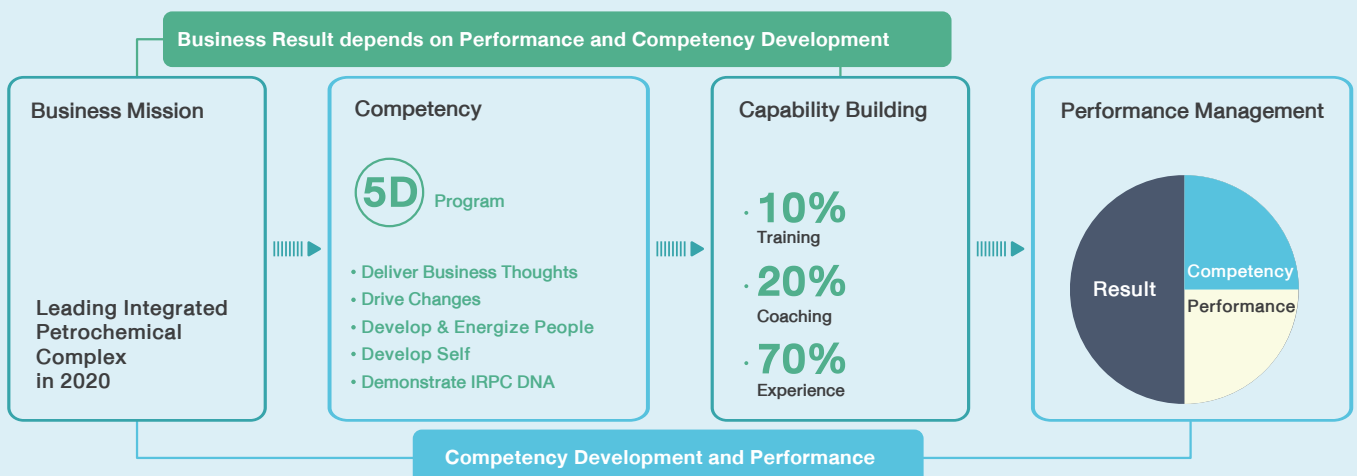
Lead Program

An organization's ability to compete depends on its people's competency, especially its leadership. It is IRPC's business mission to equip its people with the necessary skills. Its capability building guidelines follow the 10 percent training, 20 percent coaching, and 70 percent experience structure. In addition to enabling employees to achieve goals, this structure is also part of their performance management.

Leadership competency plays a vital role in the success of talent and succession management. IRPC's leadership model is known as the 5D model. Its development is based on internal and external factors, including the ability to support company strategies, leadership assessment, comparison of leadership

information from international corporations, and skills needed in future work environments. These elements form the framework of leadership competency development for each job function. As a result, IRPC employees can succeed on their own but can also work efficiently and effectively as a team. They can achieve results despite the challenging nature of their work, and their business capabilities meet the demand of company strategies. The IRPC Leadership Development Program (Lead 1–Lead5) has been grooming employees with character traits suited for a leadership role. This program follows a leadership development roadmap, which has been developed with the help of several HR partners who specialize in leadership competency development. In 2019 a total of 352 employees took part in the program.

Leadership Competency-based Development



Employees' Well-being

IRPC knows that competent employees must also have a good quality of life. Its efforts in this regard reflect the Twelfth National Economic and Social Development Plan (BE 2017–2021), which focuses on the happiness and good quality of life of workers throughout Thailand. The plan stipulates that workers need to feel stable and happy not only physically and emotionally but also spiritually and socially. The plan states that the quality of life plays a significant role in workers' performance. That is to say, if workers feel good about themselves, they will also feel good about working and about their organization. IRPC's Human Resources have laid down numerous strategies to develop a good quality of work-life in terms of job functions, peers, and work environments.

- **Thai Massage**

Understanding the importance of its staff's health and well-being, IRPC provides Thai massage service

to its employees to help combat a variety of symptoms related to prolonged hours at the office, known as "office syndrome." The service is provided by visually impaired therapists, which further contributes to the government's social equality policy, a national emergency, under the concept "No One Left Behind."

- **Happy Retirement**

In compliance with the policy of the Securities and Exchange Commission, the Happy Retirement project has been launched to help IRPC employees enjoy a good quality of life after retirement. The idea is simple: IRPC employees will save a portion of their earnings in the Provident Fund. The company's role is to educate and encourage employees to create a retirement savings account and benefit fully from the Provident Fund. Thanks to its continuous efforts, IRPC has received a silver medal prize for the Happy Retirement project.





BUSINESS STRUCTURE

Business Structure and Shareholding

Nature of Business

Integrated Refinery and
Petrochemical Complex Flow Chart

Products

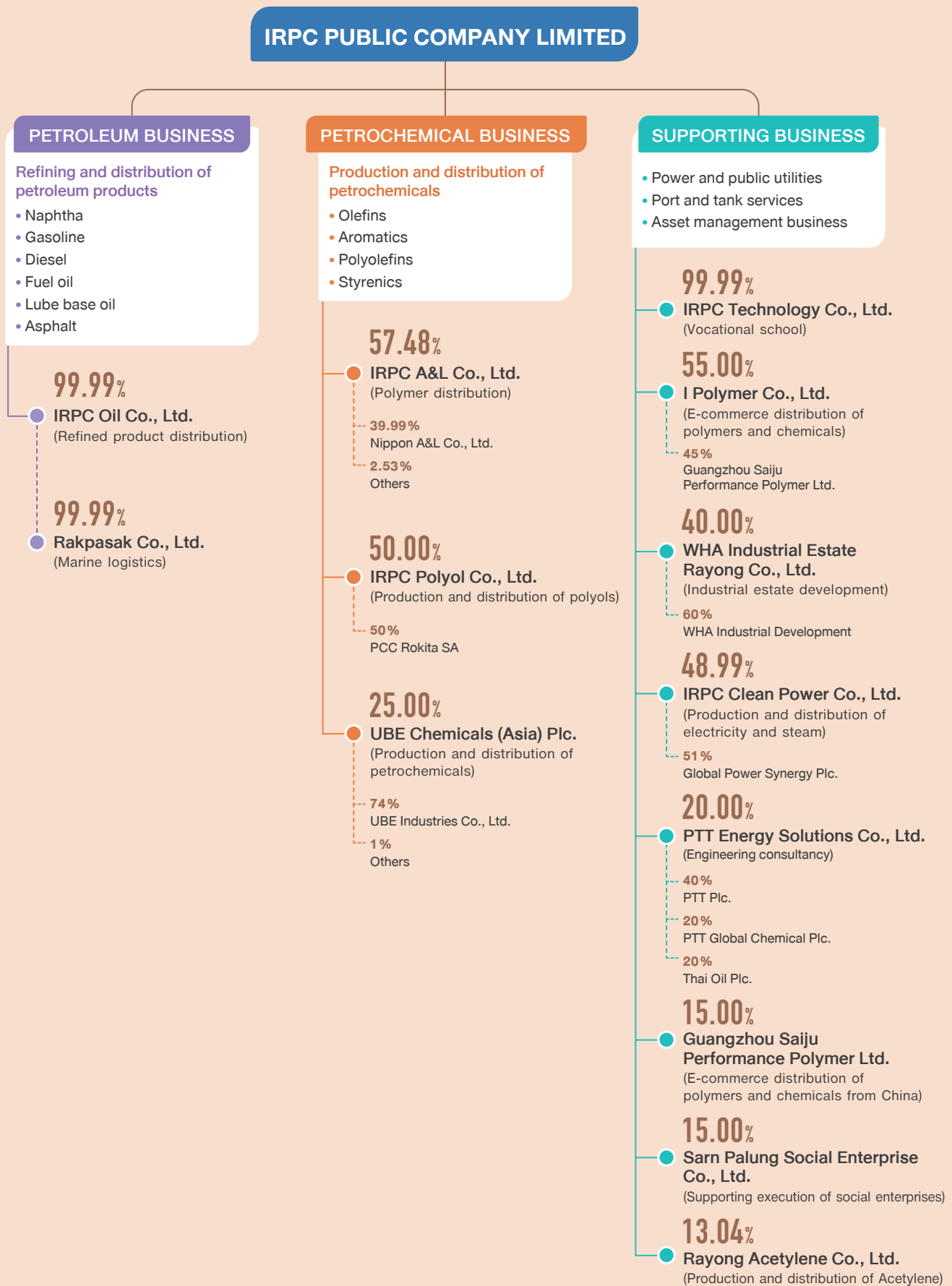
Market Overview and Industry Outlook

Revenue Structure

Connected Transactions



Business Structure and Shareholding





Nature of Business



IRPC Public Company Limited is Southeast Asia's integrated petrochemical pioneer. The company operates a refinery and Petrochemical Complex in Rayong. Its main facilities are located within the IRPC Industrial Park, which features the infrastructure needed for its business, including a deep-sea port, an oil depot, and a power plant.

Petroleum Business

IRPC's refinery has a total capacity of 215,000 barrels per day (bpd), the 3rd largest refinery in Thailand in terms of production capacity. IRPC manufactures a range of petroleum products, namely liquefied petroleum gas (LPG), naphtha, gasoline, diesel, and fuel oil. Additionally, IRPC's Lube Base Oil Group I plant has a total capacity of 320 kilotons

per annum (KTA), and the associated asphalt plant has a total capacity of 600 KTA, which are the highest domestic capacities. IRPC is also a producer of the Terramaxx branded Rubber Process Oil, whose quality has attained international quality recognition.



Petroleum Extension

The Upstream for Hygiene and Value-Added Products (UHV) project and the Residual Deep Catalytic Cracking Plant (RDCC Plant) have increased the production capacity of IRPC's refinery to 215,000 bpd. Meanwhile, its production of fuel oil has gone down from 23% to 8% because it has been replaced by higher-value products, mainly Propylene and Naphtha. IRPC's New Propylene Production capacity is at 320 KTA, adding to the existing capacity of 412 KTA, which results in a total Propylene production capacity of around 732 KTA. (Propylene products will be the feedstock for the project to increase the Propylene production capacity to 160 KTA and the plan to produce 140 KTA of Propylene Compound, which is a High Value-Added product used in the medical and automotive industries.)

The UHV project has a propylene production capacity of 320 KTA. Meanwhile, the Maximum Gasoline project increases IRPC's Naphtha production capacity from 370 KTA to 462.858 KTA, catering to the domestic market for gasoline.

Responsible for the know-how used in the Maximum Gasoline project is the France-based refining technology provider AXENS, who designed the extension's production process and updated the refinery towers.

This increase in the gasoline production capacity allowed IRPC to enjoy a larger market share in 2019, adding about 600 million baht a year to its revenue.



Petrochemical Business

IRPC is a producer of upstream Petrochemical Products-namely, Olefins and Aromatics. Their production capacities are 1,221 and 367 KTA, respectively. These upstream products are feedstocks for IRPC's downstream Petrochemical Plants: 915 KTA of polyolefins (HDPE and PP) and 352 KTA of styrenics (ABS, SAN, PS, and EPS). These downstream products are sold to producers of finished plastic products in Thailand and overseas under the brand POLIMAXX.

Focusing on the growth of its Petrochemical Business, IRPC endeavors to stay abreast of global environmental and technological changes through researching and developing new products that will increase its competitiveness. Recent innovations include paralene from natural ingredients, Recycled Compound Resin, and Acetylene Black for Li-on

Batteries (Pim-L and Pim-AL). Furthermore, through the Eco Solution project, IRPC has pioneered a closed-loop production for the Plastics Industry in which one plant's waste is efficiently used as another's feedstock. The model ensures that no waste would get out of the loop and become a burden to society.

Supporting Businesses

Power and Public Utilities

IRPC provides electricity, steam, and infrastructure, including wastewater treatment and other related services, to industrial clients, supporting their operations. The details of these services are as follows:

- **Electrical:** IRPC transmits 22 kV and 115 kV of electricity and 25 bars and 45 bars of Steam. Its Combined Heat and Power generation unit uses natural gas as fuel. IRPC also operates a 307 MW coal Power Plant. Its Power Dispatching Center ensures the stability of its electrical current and steam. The Loop Line System allows customers to continue using power despite maintenance.
- **Water:** IRPC provides filtered water, demineralized water, cooling water, raw water, and fire-fighting water from the industrial quota given by the Royal Irrigation Department. The company operates two water filtration plants: one in Ban Khai District and one in the IRPC Industrial Park. IRPC has continued to meet its customers' water demand, fostering business stability.
- **Pneumatics:** IRPC produces and provides nitrogen, instrument air, and plant air for industrial use. The company is also a business partner of pneumatics leaders.
- **Wastewater Treatment:** IRPC uses membrane bioreactor plus activated carbon adsorption (MBR Plus AC) to treat wastewater. This bioprocess is highly efficient and stable. The treated water consistently passes inspection, garnering trust and confidence from the surrounding communities.

Port and Tank Services

IRPC has a number of domestic and international ports where goods are transported. The following ports are available to outsiders:

1. IRPC Deep Sea Port, Rayong (Eastern Thailand)

- **Bulk & Container Terminal (BCT)**

The terminal is 900 meters long and 44 meters wide. It comprises 6 berths. These accommodate vessels of various sizes, ranging from 800 to 150,000 DWT. They handle commodities, such as metal, palm shells, coal, granite, sand, fertilizers, and construction materials. Currently, the terminal handles more than 1 million tons of cargo and accommodates more than 250 vessels per year.

- **Liquid & Chemical Terminal (LCT)**

This particular terminal is equipped with state-of-the-art equipment to handle liquids and gases efficiently and safely. The terminal is 1,623 meters long. It comprises 6 berths that can accommodate vessels of different sizes, ranging from 1,000 to 250,000 DWT. Currently, the terminal handles more than 15 million tons of liquids and gases and accommodates more than 2,300 vessels per year.

2. Chao Phraya Port, Phra Pradaeng Oil Depot, Samut Prakan

Wharf No. 13 can accommodate a cargo ship up to 140 meters long with a draft of up to 8.6 meters and a capacity of up to 15,000 DWT.





3. Pa Sak Port, Ayutthaya Oil Depot, Tha Ruea District, Ayutthaya

- **Bulk & Container Terminal (BCT)**

This terminal can accommodate a cargo ship up to 140 meters long with a draft of up to 6 meters and a capacity of up to 500 DWT.

- **Oil-Cargo Terminals 1A and 1B**

These terminals can accommodate a cargo ship up to 49 meters long with a draft of up to 6 meters and a capacity of up to 1,000 DWT.

4. IRPC Deep Sea Port, Sai Ri Beach, Pak Nam Sub-District, Mueang District, Chumphon (Southern Thailand)

This particular port can accommodate a cargo ship up to 85 meters long with a draft of up to 5 meters and a capacity of up to 2,000 DWT.

In addition to ports, IRPC also offers Total Service Solutions. These are a comprehensive range of Logistics Services to facilitate imports and exports, such as Wharf Service, Customs Clearance, Stevedore, and Transportation. Other related services on offer include tugboats, pilots, service boats, mooring, freshwater, bunkers, nautical charts, cranes, hopper cars, weighing, cargo yards, and warehouses.

Tank Service

Additionally, IRPC's team of experienced specialists operates 299 tanks for liquid petroleum and petrochemical products with a storage capacity of 2.9 million tons, using an efficient management system that meets international safety standards. These tanks accommodate IRPC's petroleum-based products and those of external organizations. These tanks are located in different oil depots across Thailand—namely Rayong (Eastern Thailand), Phra Padaeng (Bangkok), Phra Nakhon Si Ayutthaya (Central Thailand), and Chumphon (Southern Thailand). Each depot has a port or wharf to accommodate sea freights, which makes transportation and distribution efficient, lowers costs, and saves time.

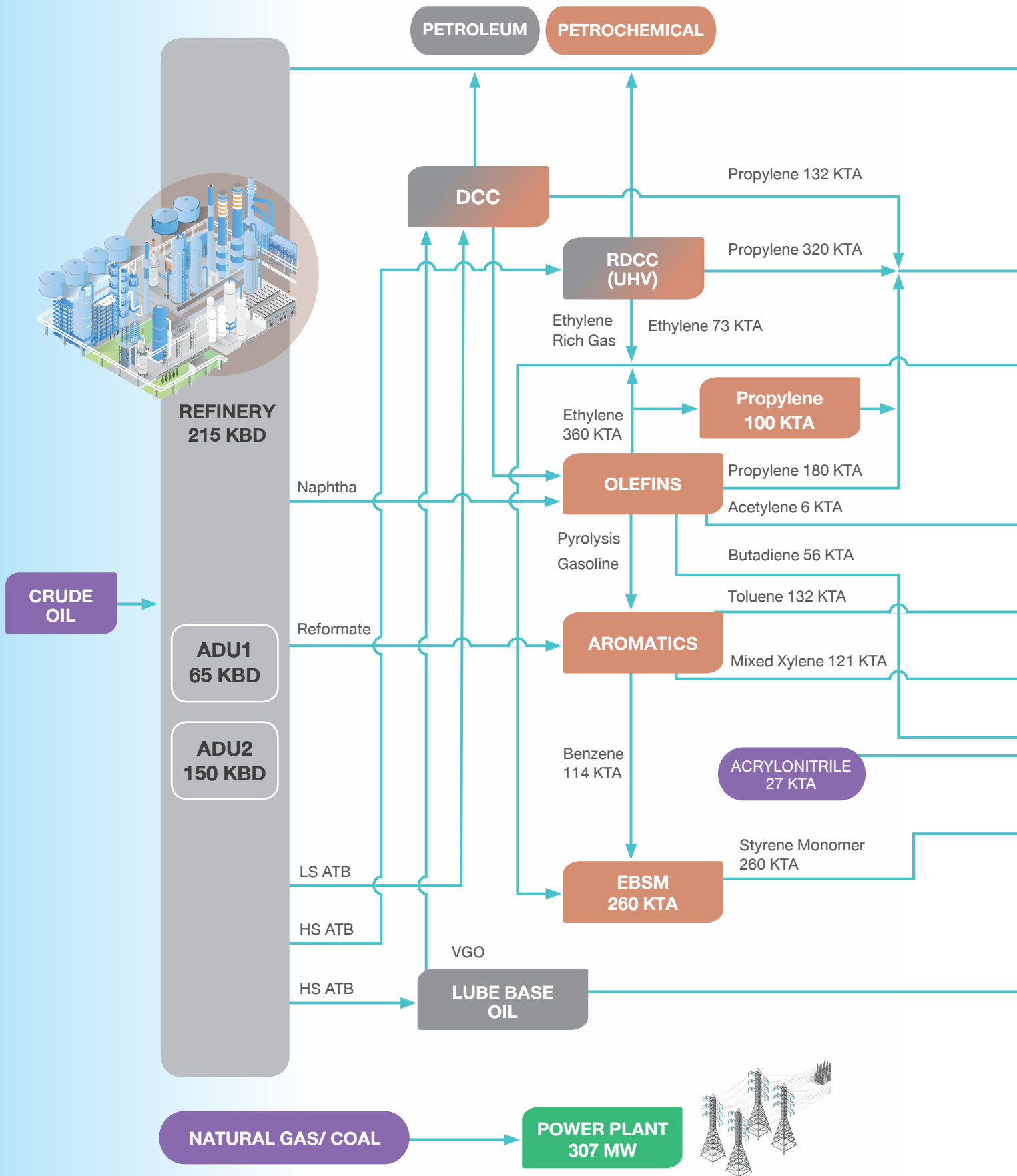
Asset Management Business

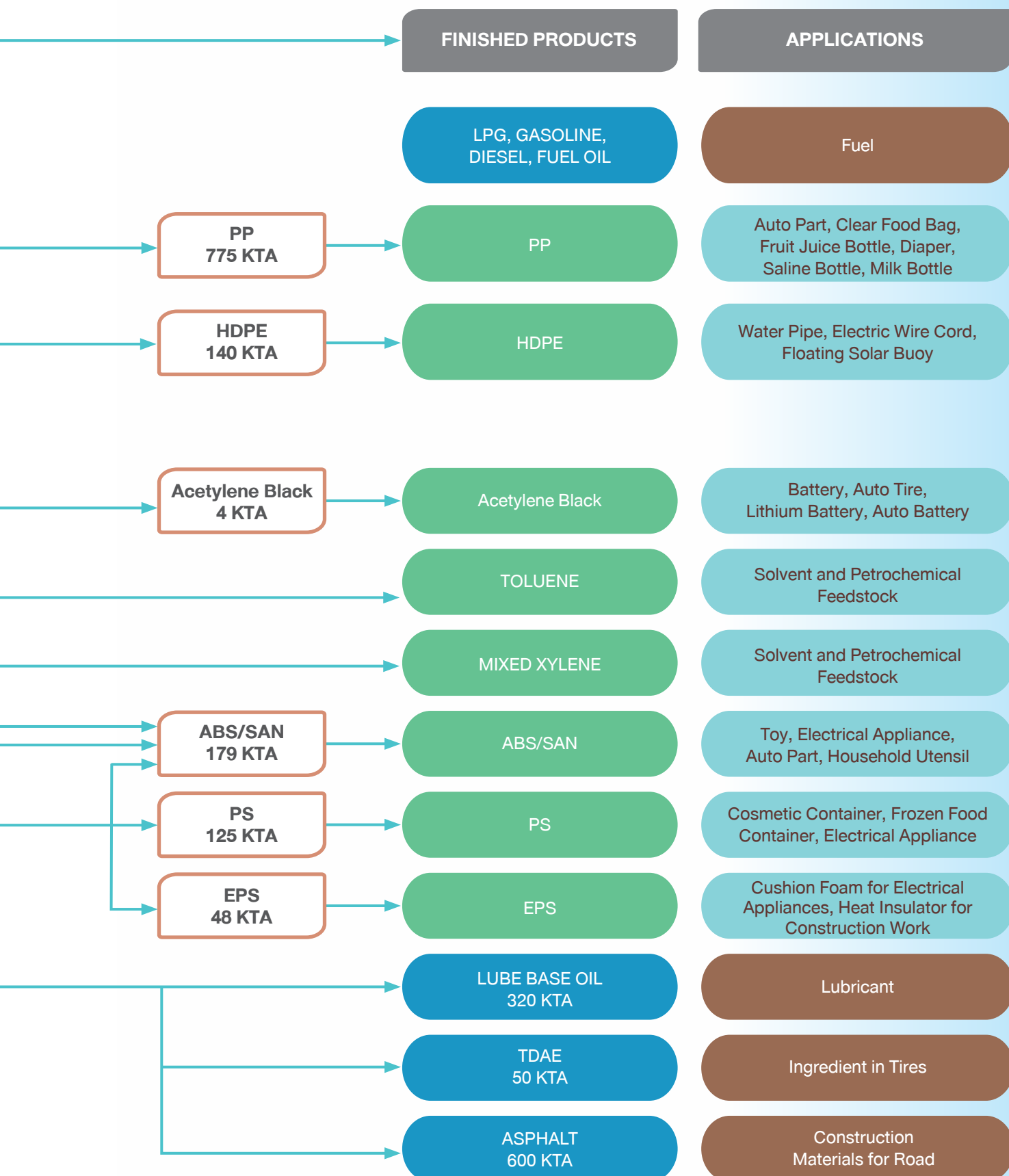
IRPC manages some 10,000 rai of high-potential land in Rayong and other provinces, including the WHA Industrial Estate Rayong (WHAIER). The company has developed these plots of land into high-potential industrial estates capable of supporting Thailand's industrial expansion, especially the development of the Eastern Economic Corridor (EEC) and other governmental policies. IRPC's asset management business is further divided into three categories:

- **IRPC Industrial Park, Mueang District, Rayong:** The IRPC Industrial Park features a complete range of infrastructure for industrial development. This industrial hub connects IRPC's upstream Integrated Refinery and Petrochemical Complex with Direct Downstream Petrochemical Plants, supporting the needs of high technology industries.
- **WHA Industrial Estate Rayong (WHAIER), Ban Khai District, Rayong:** This industrial estate is a joint venture between IRPC and WHA Industrial Development Public Company Limited (WHAID) with a shareholding ratio of 40/60, respectively. It caters primarily to the EEC and the Thailand 4.0 Policy.
- **Others:** IRPC owns a large plot of land of about 2,200 rai in Chana District, Songkhla. The company can develop it into an industrial support base or a commercial base to support a deep water port project and a power plant project of the government. IRPC also owns other smaller plots of land in Rayong, Chiang Mai, and Lamphun.

PETROLEUM

PETROCHEMICAL







IRPC attaches importance to continuous research and development, especially self-development, to cater to its customers' diverse needs and cope with economic volatility while also taking care of the environment.



Products



IRPC and its subsidiaries produce and distribute petroleum and petrochemical products. Below is a summary:

Petroleum Products

1. Fuels

- **Gasoline:** A fuel for petrol engines, gasoline is classified by its octane rating, which indicates its resistance to “knocking” or “pinging” during combustion. Under state regulations, IRPC’s gasoline is divided into ULG91 lead-free gasoline, GSH95 and GSH 91 gasohol, and gasohol base, the last of which is used to manufacture gasohol and E20.
- **Diesel:** Diesel is a fuel for high-speed diesel engines used in the industrial sector and vehicles, such as cars, trucks, fishing trawlers, passenger boats, and tractors. IRPC offers blends of 5-7% biodiesel per government policy to promote the use of alternative energy and palm oil. Furthermore, per government policy, B10 is the standard diesel in Thailand, while B7 and B20 are alternatives. IRPC began selling B20 by mid-2018; and B 10, at the end of 2019.
- **Fuel oil:** A fraction of crude oil with a high boiling point, fuel oil is widely used in the industrial sector, transportation, and power generation.
- **Liquified petroleum gas (LPG):** A mixture of hydrocarbon gases, mainly propane and butane, LPG is commonly found in household kitchens and various other industries. It can also be used as a fuel for gasoline engines.

In 2019 IRPC began manufacturing low-sulfur fuel oil (LSFO), which is used primarily by cargo ships, to comply with the International Maritime Organization’s requirement, which stipulates that the sulfur level in bunker fuel must be reduced from 3.5 percent to 0.5 percent by 2020. IRPC readily adapted and was able to sell LSFO that met this requirement by the end of 2019.

2. Lube Base Oils

- Lube base oils refer to heavy distillates used for producing different grades of lubricants. IRPC produces the following grades of base oil for various purposes:

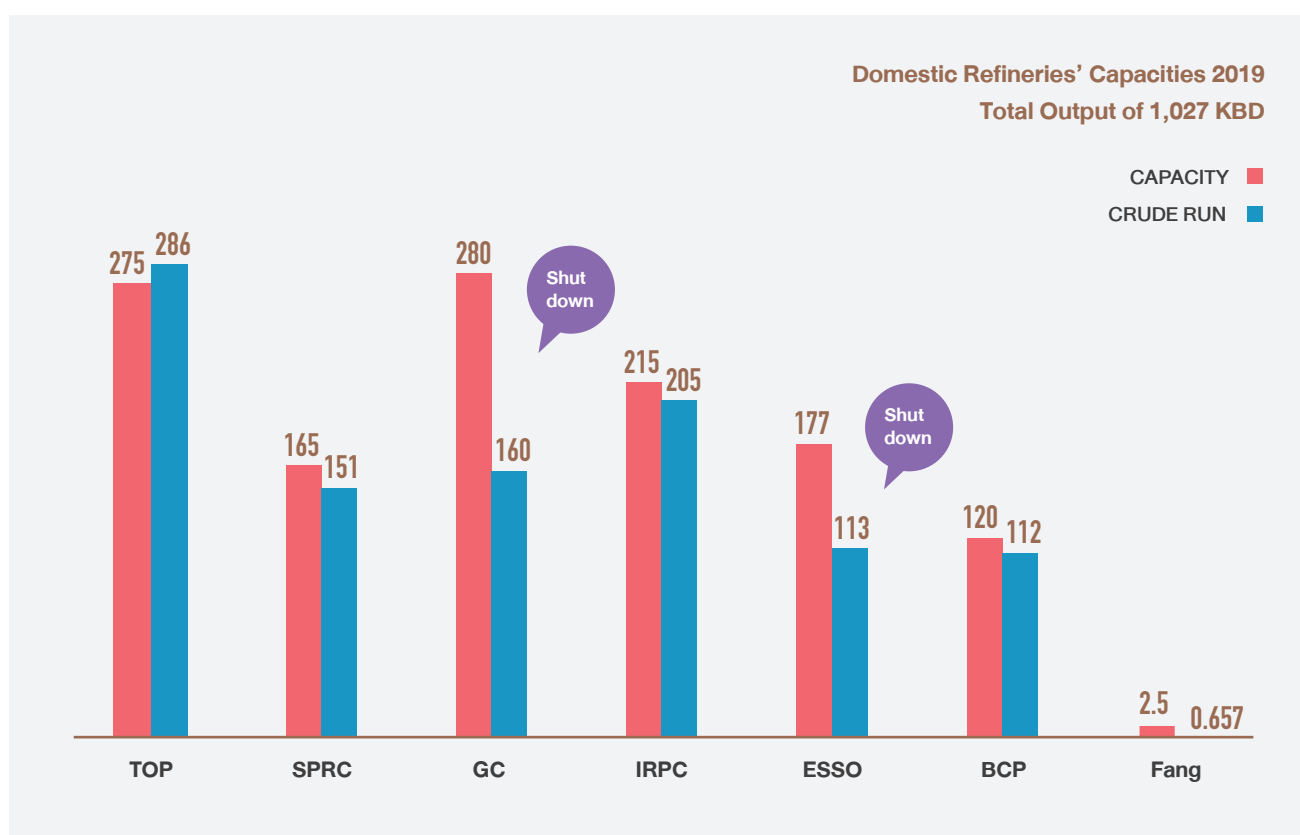
- 150 SN** is the feedstock for the automotive and transport industries, among others.
- 500 SN** is the feedstock for lubricants used in most vehicles.
- 150 BS** is used in high-friction industries and heavy-duty engines, such as those in trucks, locomotives, and cargo ships.

In addition to these products, IRPC has researched and developed other innovative base oils—namely, Treated Distillate Aromatic Extract (TDAE) and Residue Aromatic Extract (RAE). These serve as feedstocks for automotive tires with reduced Polycyclic Aromatic Hydrocarbons (PAHs), a carcinogen, which means they are a better option for consumers' health.

- Asphalt:** Asphalt, also called bitumen, is a compound of hydrocarbons and other organic substances. Thick and viscous, asphalt is the heaviest portion obtained from refining processes. It is used for road construction and waterproofing.

3. Other Petroleum Products

- Naphtha:** IRPC's naphtha refers to light distillates obtained from the oil refining process. It is a major petrochemical feedstock.



Source: Energy Policy and Planning Office



Petrochemical Products



1. Olefins

Olefin products—namely ethylene, propylene, and butadiene—are the feedstocks for the production of polymers—namely polyethylene (PE) and polypropylene (PP). IRPC produces 1,221 KTA of olefins, comprising 443 KTA of ethylene, 732 KTA of propylene, and 56 KTA of butadiene. Most of these olefins serve as feedstocks for the various manufacturing plants in the IRPC Group.

Moreover, the Olefins plant yields acetylene black as a by-product. This power-like pure black substance has high electrical conductivity; it is commonly used in the production of standard batteries and even lithium-ion batteries for electronics and electric vehicles. It is also an electrical conductivity additive for polymer and rubber products. IRPC currently produces 4 KTA of acetylene black.

2. Aromatics

Because aromatic products refer to benzene, toluene, and xylene, they are also known as BTX. Aromatics are feedstocks for the production of styrenic polymers. IRPC currently produces 367 KTA of aromatics, which are used as feedstocks for other plants in the IRPC Group and sold to other industrial operators.

3. Polymers

IRPC and its subsidiaries produce polymer products branded POLIMAXX. As downstream petrochemical products, polymers are the feedstock for various plastic products. IRPC manufactures two groups of polymers. The polyolefins group comprises HDPE and PP, while the styrenics group includes ABS, PS, and EPS. Each polymer type possesses distinct properties, serving different purposes:

3.1 High-Density Polyethylene (HDPE)

IRPC's HDPE is a high-density polyethylene product with in-line compounding. It is suitable for pipe extrusion, especially water supply pipes, electrical conduits, and drainage pipes. Moreover, IRPC has developed a special grade of HDPE, which it has used to make floatation devices for its solar farm. This particular grade of HDPE boasts exceptional weather resistance.

3.2 Polypropylene (PP)

PP is widely used in several industries, including packaging, electronic appliances, vehicle parts, and medical-grade equipment and apparatuses. IRPC produces PP Homopolymer, impact-resistant PP Block Copolymer, and extra-transparent PP Random Copolymer. It also manufactures PP Compounds, which can be customized additives and colors according to the needs of each industrial client.



Spunbonded Polypropylene
Random Copolymer
Products

3.3 Acrylonitrile-Butadiene-Styrene (ABS)

IRPC produces many grades of ABS, each with its unique properties, such as high impact and super high impact resistance, high gloss, and high heat resistance. Compatible with injection molding and sheet extrusion, ABS is commonly made into products that require durability, finesse, and shine, such as parts for electronic appliances, internal and external vehicle parts, electrical household appliances, sanitaryware, and children's toys. ABS can withstand many chemicals and solvents, such as thinner. It can be made into many different colors or even plated with a metal.

3.4 Acrylonitrile Styrene (SAN)

Transparent, hard, tough, and cohesive, SAN (or AS) has higher thermal and chemical resistance than PS. It is commonly used to manufacture lenses for headlights and taillights, some parts of turn-signal lenses, household appliances such as sanitaryware, lighters and containers, electrical appliances such as fan blades and blenders. In addition to the properties previously mentioned, SAN is particularly resistant to shear force.

3.5 Polystyrene (PS)

IRPC produces two categories of PS based on its properties. General Purpose Polystyrene (GPPS) offers transparency and hardness. It is easily molded but has low-impact strength. It is commonly used to make products that require transparency and structural integrity, such as refrigerator shelves and other household appliances. High Impact Polystyrene is so named because it can withstand more impact than GPPS, thanks to the addition of butadiene rubber. Both types of PS are compatible with injection molding and sheet extrusion.

3.6 Expandable Polystyrene (EPS)

IRPC mainly uses styrene monomer as the feedstock for its EPS, with Pentane as the blowing agent. The company uses no ozone-depleting CFCs. EPS has the following uses:

- Packaging, such as the shock-absorbing material for appliances.
- Blocks, such as insulation blocks in the fishing industry's cold storage rooms and modern constructions to reduce cooling costs and construction expenses. EPS Blocks can also be used in decorative works.



4. Specialties and Innovative Products

IRPC attaches importance to continuous research and development, especially self-development, to cater to its customers' diverse needs and cope with economic volatility. The company has developed the following products to fulfill customers' expectations while also taking care of the environment.

- **Green ABS** is an innovative polymer conceived from IRPC's corporate social and environmental responsibility awareness. The company is the world's first and only producer of green ABS, which is derived from natural rubber. Currently, natural rubber has replaced 10–40% of synthetic rubber in the production of ABS, contributing to the price stability of domestic rubber.
- **Paralene** is a 20% Bio-based Polystyrene, effectively lowering the need for oil-based raw material in the production process. It has passed FDA inspections and can be recycled, much like regular Polystyrene.
- **Chlorine Resistance Pipe** are made from polymers that can withstand the corrosiveness of chlorine. These pipes are ideal as conduits for high-pressure drinking water. They have a longer lifespan than regular pipes, which lowers maintenance costs and ensures that drinking water would be free of contaminants as a result of corrosion.
- **Ultra-High Molecular Weight Polyethylene (UHMW-PE)** is an opaque white powder with as much as 10 times higher molecular density than other PE varieties. It can be subject to a range of treatments, such as Compression, RAM Extrusion, and Gel Spinning. Thanks to superior properties to those of iron joints and gears, UHMW-PE suits assorted work that needs cohesiveness, strength, and resistance to abrasion and chemical erosion.
- **ABS Powder** is suited for manufacturers who require better polymer dispersion. It can be used alongside PVC, PC, and PC/ABS to augment their impact- and thermal-resistance.



- **Anti-dripping Additive** prevents polymer products from dripping when caught on fire. Made with nanotechnology, IRPC's anti-dripping additive disperses well in polymers. It can be stored at room temperature, which lowers storage and transportation costs. This agent can be added to a variety of polymers that need to meet the UL-94 (V.0) flame retardancy standard. IRPC has also used this anti-dripping additive to improve its flame-retardant ABS.
- **Anti-bacteria Additive** is another nanotechnology that prevents bacterial growth without adversely affecting the existing properties of plastics. It can be added to a variety of plastics, including ABS, PS, and PP.
- **Pim-L and Pim-AL** are a special grade of Acetylene Black that IRPC has developed alongside NSTDA for use as a carbon conductive additive in lithium-ion batteries.
- **Natural Color Compound** are colored polymers made from natural sources, such as green from spinach, brown from caramel, and yellow from turmeric. They overcome problems of toxicity and heavy metal residues. They also give the final product a more natural look and a long-lasting color lifespan.



Polypropylene Compound plastics for car parts under the brand POLIMAXX, ICBP001X grade for exterior components of an electric powered car.

Acetylene Black Product



Domestic Polymer Producers and Capacities in 2019

Product	Company	Capacity	Percentage
HDPE	IRPC PCL	140	7
	Thai Polyethylene Co., Ltd.	960	51
	Bangkok Polyethylene PCL	500	26
	PTT Global Chemical PCL	300	16
	Total	1,900	100
PP	IRPC PCL	775	34
	HMC Polymers Co., Ltd.	810	35
	Thai Polypropylene Co., Ltd.	720	31
	Total	2,305	100
ABS	IRPC PCL	179	65
	Ineos ABS (Thailand) Co., Ltd.	95	35
	Total	274	100
EPS	IRPC PCL	48	62
	Ming Dih Chemical Co., Ltd.	30	38
	Total	78	100
PS	IRPC PCL	125	34
	Siam Polystyrene Co., Ltd.	150	41
	Thai Styrenics Co., Ltd.	90	25
	Total	365	100





IRPC has balanced the needs of all stakeholders throughout the supply chain, as well as those of customers. As a total business solution provider, the company also focuses on creating benefits to all, improving the quality of life, and minimizing its environmental footprint.





Market Overview and Industry Outlook



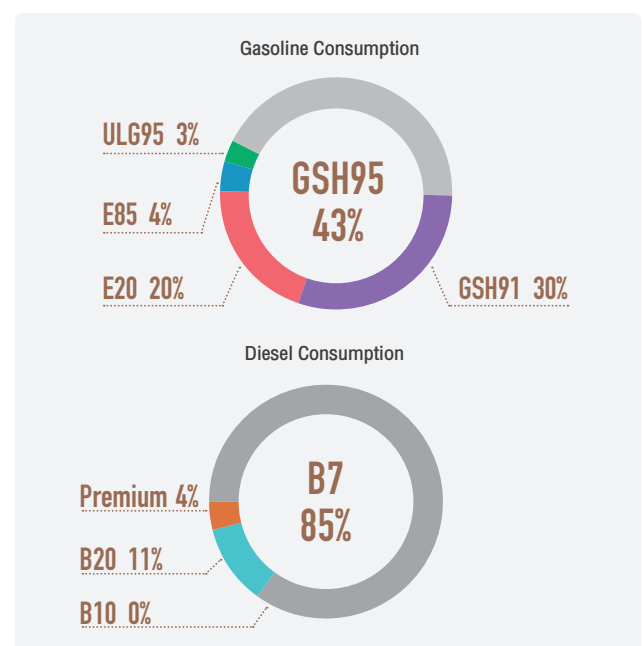
Petroleum Market and Competition

Crude Oil and Refined Petroleum Products

In 2019 the overall use of gasoline and diesel rose by 3.3% and 1.6%, respectively, thanks to 9 months of GDP growth at a rate of 2.8%. Nonetheless, this growth was considered decelerated in comparison to 2018's figure of 4.1%. The slowdown was attributed to weakened demand from overseas and the US-China Trade War. Meanwhile, the number of gasoline- and diesel-dependent vehicles in Thailand continued to grow, and electricity consumption increased by 2.3% due to expansions in the private sector and the tourism industry.

The consumption of gasoline rose by 3.35% to 32 million liters a day. Gasohol 95 was the most popular fuel, and its use grew by 6.6%, accounting for 43% of all domestic gasoline consumption. Gasohol 91 came in second with a drop of 4%, accounting for 30%. E20 consumption increased by 11% to 6.48 million liters a day, and the use of E85

climbed by 7.48%. Meanwhile, gasoline 95 was consumed at a rate of 0.96 million liters a day, a decrease of 12 %.



On the other hand, Thailand's diesel consumption grew by 1.6%. The use of regular diesel (B7) accounts for about 90% of the total domestic consumption. In comparison, premium diesel accounts for 4% and B20 for 12 percent. The distribution of B20 for trucks, passenger buses, and passenger boats began in July 2018. Its price was required to be 3 baht cheaper than that of regular diesel initially, but the difference was later changed to 5 baht to encourage its adoption. Consequently, the sales of B20 in September 2019 rose to 248 million liters. Notable oil and gas operators in Thailand are PTT, Esso, Bangchak, Shell, and Chevron. Their market shares are as follows:

Company	*Domestic Market Share
PTT	39%
Esso	13%
Bangchak	13%
Shell	11%
Chevron	8%
IRPC	5%
Others	11%

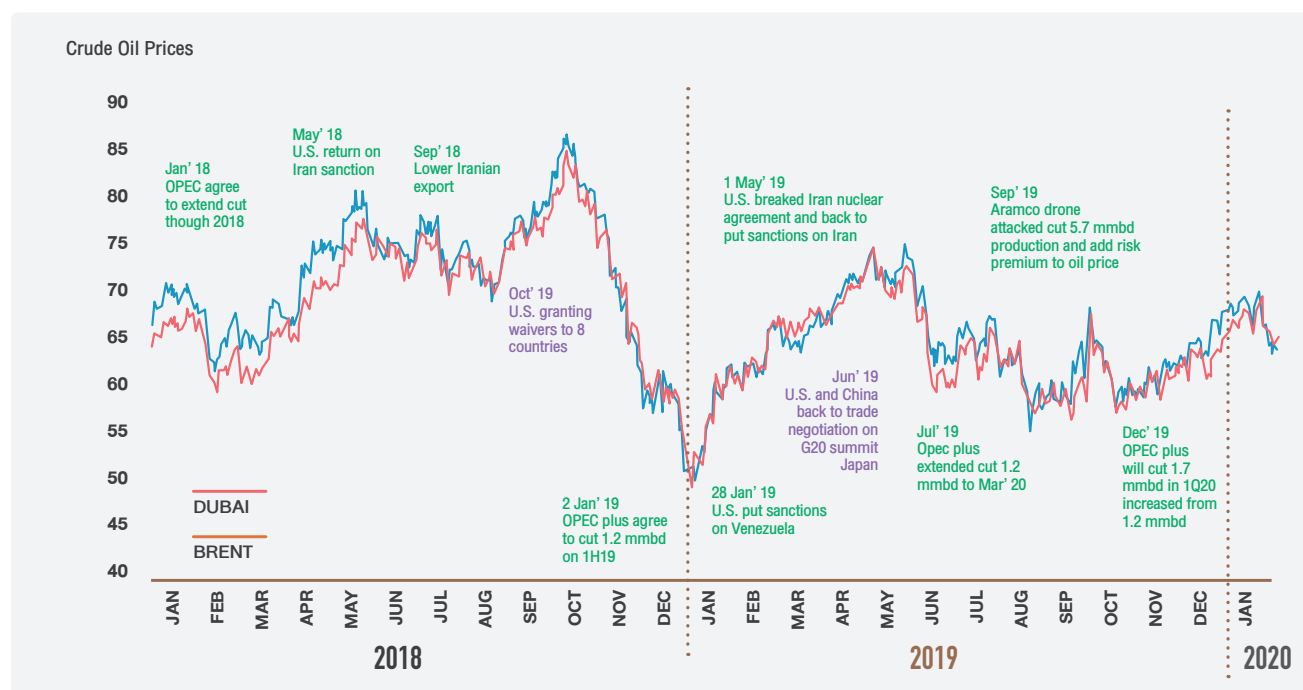
Source: Department of Energy Business

*These market shares are based on each operator's own sales, which does not include the sales through other Article 7 retailers.

Crude Oil Market in 2019

The crude oil market was somewhat volatile throughout 2019, with an average price of 63.53 US dollars per barrel. This drop of 5.89 US dollars from the previous year was attributed to the demand of only 940,000 barrels per day (bpd), which was smaller than the forecast of 1,490,000 bpd. The dwindled need was a result of the overall economic slowdown and the effects of the US-China Trade War. Refining also became less profitable. Despite the US ramping up its crude oil production and exports, OPEC countries and their allies tightened their control over production to maintain price stability. Concerns over the conflict in the Middle East was also a factor. The US sanction on Iran and Venezuela kept these two countries' production and exports tight, which played a role in determining the price of crude oil.

Factors Affecting the Price of Crude Oil in 2018 – 2019





Crude Oil Price Forecast for 2020

The Dubai crude-oil spot price will likely be within the range of 60–70 US dollars per barrel in 2020. Demand is expected to surge because newly built refineries in China will need 2,200,000 bpd for its production. The Chinese also have a new 85-million-barrel oil depot to fill, not including the capacity of the pipeline, which will also need supplies at the early stages of operations. OPEC countries and their allies will continue to reduce production, while the market will be wary of unrest in the Middle East, contributing to price stability. Nonetheless, the slowdown of the global economy will most likely result in lower demand. Meanwhile, the US production of crude oil is expected to rise by 800,000 bpd to 13,000,000 bpd, which will put pressure on the price of crude oil in 2020.

Thai Economic Outlook 2020

The Office of the National Economic and Social Development Council (NESDC) announced that Thailand's Gross Domestic Product (GDP) only grew by 2.6%, lower than the 3% forecast. It was the country's lowest growth in 5 years. Nonetheless,

the 2020 GDP is expected to grow at an average rate of 3.2%

Major players in the private sector-especially the Thai Chamber of Commerce, the Federation of Thai Industries, the Thai Bankers Association, and the Thai National Shippers' Council-share a similar outlook on the risks facing the Thai economy and export sector in 2020. They believe the continuation of the US - China trade war will pose a significant threat. The US aims not only to balance its trade deficit with China but also to prevent the Eastern economic powerhouse from replacing it as a global economic leader. This Trade War has also recently become a tech war. The end is nowhere in sight. Another risk factor is the value of Thai baht, which has steadily strengthened since 2019. It has since surpassed the strength of neighboring countries' currency, which reduces Thailand's competitiveness in the global stage. It is speculated that the Thai baht's value will not go back to 34–35 baht per US dollar, like in the past, but will continue to remain around 30–31 baht per US dollars on average. The main reason for this is the country's current account surplus.

The private sector will expect new economic stimuli from the government throughout 2020, including tourism-boosting measures and infrastructure projects in the Eastern Economic Corridor (EEC).

In terms of business trends, the worldwide digital technology disruption phenomenon means that businesses in Thailand must continue to adapt in 2020. They have to empower themselves with information technology, robotics, and automation. These technologies not only increase their competitiveness but also lower their costs. In addition, businesses will have to resort to E-Commerce Platforms to cope with the change in consumer behavior. These trends are believed to be dominant. To help Thailand keep up, the Thailand 4.0 Policy has been adopted by the government. It is aimed at restructuring the Thai economy in the long run with technology. As the policy ensures sustainability, it receives sound support from the private sector, hoping that its success will prepare Thailand for short-and long-term risks. Private enterprises, whether large or small, are watchful of technological risk factors in 2020.

Although Thailand will still be facing external economic risk factors beyond its control in 2020, the kingdom is expected to be able to rein in or minimize the effects of its internal risks. It is vital for the private sector to actively adopt modern technologies to keep up with the changing trends. At the same time, the swiftness and responsiveness of government policies and measures will play a significant role in advancing the Thai economy.

(Sources: Petroleum Refining Industry Club of the Thai Federation of Industries, PTT Group, and Office of the National Economic and Social Development Council)

Customers and Distribution Channels

IRPC focuses on producing fuels that meet the demand of its customers and comply with the standards of the Ministry of Energy. It also emphasizes distribution through the most profitable channels. The price of IRPC fuels corresponds to the market price. The company works with its subsidiaries to devise the most beneficial marketing and sales. IRPC's Customers and Distribution Channels are as follows:

- Direct sales to industrial operators, such as car companies, cargo ship operators, passenger bus operators, and construction contractors, as well as subsidiaries and joint ventures of IRPC;
- Wholesalers or Jobbers, large and small, for distribution to other wholesalers and retailers;
- Article 7 retailers-large and medium enterprises with their own oil depots-who distribute the fuels bought through their own network to downstream consumers;
- Exports—divided into marine exports to markets in Asia (Singapore, Cambodia, and Vietnam) and land exports to countries in the Indo-China Peninsula (Southern China, Cambodia, Laos, and Myanmar)-which accounted for 37% of all sales in 2016;
- Bunkers, which refers to the sales of Automotive Diesel Oil (ADO) to ships docked at one of the IRPC terminals;
- Operators of the fishing industry within the waters of Thailand (green diesel), of which IRPC has a 50% market share.

Distribution of Fuels

Channel	Percentage
1. Wholesales	21%
2. Exports	37%
3. Article 7 Retailers and Fishery Operators	40%
4. Industry Operators	2%

Source: IRPC Petroleum Business Division

Competition Strategies





IRPC's primary sales strategy is to emphasize that its high-quality petroleum products are manufactured in clean and standardized processes and come directly from the refinery. The company also boasts the region's first sophisticated purchasing system called PDA on Mobile, which operates on the IRON platform. In addition, its other strategy is to increase the number of customers and sales, while maintaining suitable marketing margins. Services of IRPC are as follows:

- **Oil Depots:** IRPC operates 5 oil depots around Thailand to cater to customers in different localities. The Rayong Oil Depot even stays open around the clock. A retail center added to the Mae Klong Oil Depot in Samut Songkhram serves customers in Western and Upper Southern Thailand.
- **Transportation:** IRPC operates oil trucks throughout the country, together with marine vessels and berthing terminals for maritime customers.
- **Service Personnel:** Customers have access to dedicated teams of sale agents, sales coordinators, and customer service agents. Purchase orders are handled with SAP software, which allows information to be updated On-line in Real-Time. SAP solutions improve accuracy and standardize processes, culminating in enhanced efficiency and eliminating redundancy. Executives and operating staff can use the data

obtained for further analysis and decision-making. The company has also introduced the IRPC Oil on Net (IRON) platform, which it had developed to manage the sales of petroleum products electronically. IRON combines the capabilities of IRPC's supply chain management with its total business solution nature. It responds to customers' transaction needs and augments IRPC's business efficiency. Meanwhile, IRPC has continued to develop systems to support new phases and deployments in other sales channels.

- **Quality control:** IRPC's technical staff provides solutions and relevant knowledge to customers. They also inspect the quality of products and services at all stations and depots, building trust.

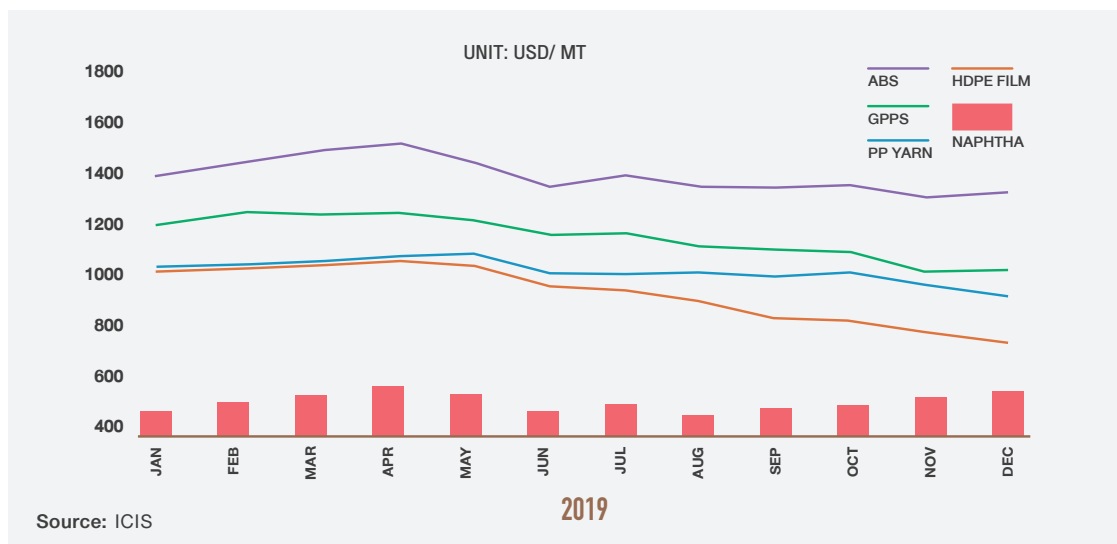
Petrochemical Market and Competition

Petrochemical Products

Thailand's Petrochemical Industry Grew at a slower rate of 1-2% in 2019. Most of the demand came from domestic downstream industries and exports to ASEAN nations, notably Vietnam, Indonesia, Cambodia, and Laos. The need for petrochemical products from these countries significantly jumped because operators were moving away from China to avoid tariffs imposed by the US against commodities produced there.

Several factors prevented Thailand's petrochemical sector from growing any faster. 1) The global economy,

The prices of petrochemical products and polymers plunged



Thailand's economy, and the economies of Thailand's primary trade partners slowed down, reducing the demand for petrochemical products. 2) The volatile price of crude oil in the global market caused the petrochemical spread to be unstable as well. 3) The climb in production capacities throughout the Asia-Pacific region, most of which came from China, Vietnam, and the Middle East, led to fiercer competition. 4) Consumer behavior began to change in response to environmental problems, most notably the plastic ban.

especially during the second half of the year. This drop was caused by the volatility in the prices of crude oil and naphtha, the dwindling demand attributed to the global economic deceleration, and the fierce competition caused by a surplus of supplies. The average price of propylene (PP) dropped by about 8% from 2019 to 1,077 US dollars per ton; high-density polyethylene (HDPE), by about 25%, to 991 US dollars per ton; and general polystyrene, by about 20%, to 1,204 US dollars per ton. Meanwhile, the price of naphtha plummeted by about 16%; and the Dubai crude-oil spot price, by about 8.5%.

Thai Petrochemical Outlook 2020

Thailand's petrochemical industry will likely face more volatility in 2020 because it relies on the global market price of crude oil and naphtha. Other factors include the International Marine Organization's fuel requirements; the increase or decrease of crude-oil production in OPEC countries, Russia, and the US; geopolitical tension in the Middle East; and the US sanction on Iran and Venezuela.

The petrochemical industry is tied to several major industries. Its growth typically follows the direction of the country's GDP. The Office of the National Economic and Social Development Council has forecast that Thailand's economy will grow at a rate of about 2.5–3.7%, a slight jump from the 2019 lean figure of 2.4%. Major supporting factors of the expected growth is the expansion of domestic demand, including household spending and public and private investment projects. The export sector will most likely perform better. Protectionist measures are likely to be more explicit. The

government's economic stimuli will probably also come into play. Nonetheless, there are a number of risk factors to monitor, including the global market growth, trade negotiations between the US and China, elections in the US, the anti-plastic trend, and environmental problems. All of this will affect global demand for petrochemical products. Additionally, there will be a surplus of supplies from Asia, notably China, Vietnam, and Malaysia. These countries have been the primary markets for IRPC's petrochemical products and polymers. Their increased production capacity will likely mean stiffer competition.

Competition Strategies

To improve its competitiveness, IRPC has developed the capabilities of its people and integrated structures and systems to bring about organizational efficiency and effectiveness in today's free market. It has also built a network of business partners in all sectors to ensure the sustainability of its operations.

Moreover, IRPC has balanced the needs of all stakeholders throughout the supply chain, as well as those of customers. To this end, the company focuses on creating benefits to all, improving the quality of life, and minimizing its environmental footprint. As a total business solution provider, IRPC offers not only products but also a gamut of complementary services, such as production and instructional consultancy, troubleshooting, and product and process research and development. All of these services create value-added. Additionally, IRPC has launched the Eco-Solution project to systematically tackle plastic waste throughout the plastic industry. This closed-loop management scheme encompasses efficient and proper recycling and repurposing. It ensures that no plastic waste would leave the production process and become a burden to society. The project's ultimate goal is to create a "zero plastic waste" society, where resources are used to their maximum potential. It is IRPC's way of solving the plastic waste problem and contributing to the sustainability of the environment.



Price Strategies

The price of polymers is subject to regional and global market prices. It directly and indirectly correlates with several factors, including the costs of feedstocks (crude oil, naphtha, and monomers), national and regional and global market conditions, product types in each industry, demand and supply, economic and commerce status, competition, laws and regulations, government policies, antitrust measures of trade partners' countries, free competition, and business ethics.

It is company policy to establish the price of IRPC products based on these factors. The price must be competitive, aligned with the market positioning of each product, and suitable for the area of distribution at the time. Products must possess qualities that meet the demand of customers. IRPC pays particular attention to product highlights, benefits to customers, and ethical business practices.

Product Quality

All of IRPC's polymer products are ISO 9001 certified. Quality checks and quality controls extend across the entire production line, from the moment the feedstocks arrive to the finishing touches before the products are handed off to customers. IRPC also works closely with its customers to research and develop new kinds of polymer that can better meet the demand of domestic and overseas downstream manufacturers. Furthermore, IRPC's technical service unit offers advice on the most suitable polymer before a sales contract is signed

and helps with aftersales support, including troubleshooting.

Additionally, IRPC takes environmental, occupational health, and safety issues seriously. It is company policy to safeguard its employees, local communities, and the environment from the potential harm of every product line. As a result, IRPC has received ISO 14001 and TIS 18001 certifications for all of its Polymer Products. Furthermore, the Ethylene, Polyethylene, Polypropylene, and Polystyrene Plants have received the Standard for Corporate Social Responsibility (CSR-DIW) from the Department of Industrial Works.

Product Diversity

IRPC produces over 1.2 million tons of polymers annually. These are divided into HDPE, PP, PS, EPS, ABS, and SAN. The company also owns and manages a plant for color compounding and creating polymer composites within the same premises. The compounding and composites plant enables IRPC to offer customers a wide range of choices with a great deal of convenience and flexibility, meeting exacting specifications required for producing electrical appliance or vehicle parts. The choice of polymer depends on several factors, such as the properties of each type of polymer, price, and available supply. Because IRPC offers a diverse range of products, it also finds more business opportunities by being able to meet a wide range of needs. In addition, this product diversity also reduces the average cost of sales (marketing cost per unit sold).



Local distributors visited IRPC Petrochemical Complex.



IRPC President Noppadol Pinsupa presided over the opening ceremony of the Zero Plastic Waste Society campaign, during which the Eco-Solution model was unveiled. IRPC had developed this model in conjunction with the National Research Council of Thailand and Kasetsart University. Taking part in the adoption of its adoption are of 15 national-level plastic manufacturers and IRPC customers. Their participation demonstrates their trust and confidence in IRPC and its ability to solve plastic problems in a sustainable manner.



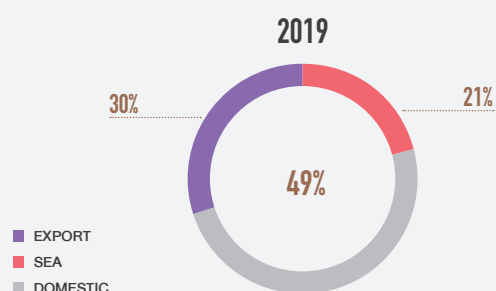
Sales Strategies

To promote sales and foster good relations with various groups of customers, IRPC conducted several activities throughout 2019. The company invited its authorized retailers to visit its petrochemical plant in Rayong and held a reception dinner to express its gratitude for them. It also organized the “IRPC Growing Up Glowing Bright Together” seminar for customers and traders from around 30 countries to provide them with its market and petrochemical product information. Additionally, IRPC participated in international tradeshows, such as China Pals 2019 in Guangzhou, China, and K2019 in Dsseldorf, Germany, to promote its products and meet customers in these regions.

As an organization that emphasizes environmental protection, resource optimization, and sustainability, IRPC has initiated the Eco-Solution project to promote the proper use, reuse, and recycling of plastic products. The pilot project seeks to create

a closed-loop production in the plastic industry, effectively ensuring that no plastic waste would leave the production environment to become a burden to society. Taking part in the project are IRPC’s plastic-manufacturing customers. The company has also created a Plastic Waste platform to collect plastic-waste data from participating

The Sales Proportions of Petrochemical Product in 2019





plants. It equips every party involved with the necessary data to manage plastics efficiently and effectively, decrease production costs, and optimize resources. IRPC also sponsored the POLIMAXX Run3R Plogging Run, which took place in May 2019, to raise awareness of how to sort plastic garbage for recycling.

Moreover, in response to government policy, IRPC has taken part in providing information and expressing its suggestions to foster free-trade agreements according to the goal or framework established by the government. A free-trade deal increases the company's competitiveness in the market by eliminating tax and non-tax obstacles. It boosts the value of international trading and export opportunities, allowing Thailand to gain access to new markets and expand existing ones.

Sales Channels

Polymers are the feedstock in many common industries. They are used to make packaging, household appliances, electrical appliances, and vehicles. They even have several uses in the construction industry. With this understanding, IRPC strives to distribute its polymer products worldwide through a tight-knit distribution network and business allies. In 2019 domestic distribution accounted for 49% of the total sales. This figure was achieved mostly through the use of capable and experienced authorized retailers who had been IRPC's business partners for more than two decades. A good portion of domestic distribution

was achieved through direct sales to manufacturers. In terms of exports, IRPC sold 21% of its polymers to markets across Southeast Asia in 2019. The polymer demand from these markets had enjoyed continuous growth. Each country and industry require different product specifications to cater to a diverse range of end products, processing methods, and uses. Because of this, IRPC has ensured that its sales and technical agents are well versed in polymer knowledge and able to troubleshoot. Their role is to assist customers in selecting the right product that will best meet their needs for their benefit.

Power and Public Utilities

Throughout 2019 the whole world was faced with stunted economic growth caused by several factors, including the trade war between the US and China, the uncertainty of a Brexit deal, and violent protests in many countries. One of the primary factors for Thailand was the increasing strength of the Thai baht, which impacted the country's export sector. All of these factors negatively affected customers whose plants are located at the IRPC Industrial Park who rely on exports. Consequently, they lowered their production capacity and the use of utilities. Nonetheless, the strength of the Thai baht was in IRPC's favor because its power and public utilities business relies on an import of feedstock. With the Thai baht being stronger, IRPC's profitability climbed in 2019 and will most likely stay at this



relatively high level throughout 2020. Its collaboration with IRPC Clean Power Co., Ltd. led to an addition of 54 MW of electricity and 170 tons per hour of steam, improving the stability of the supply and ensuring business continuity, not only of IRPC but also of its customers within the park.

Ports and Oil Depots

The Royal Thai Government has invested in numerous large-scale infrastructure projects to attract overseas investments to Thailand's Eastern



Economic Corridor (EEC). These include a high-speed rail project to connect the region's 3 airports and the U-Tapao Airport and Eastern Aviation City Project. These investments have contributed to regional economic expansion. With new large factories and industries, IRPC's ports have seen an increase in the volume of exports and imports. In 2019 about 16 million tons passed through IRPC's ports, which accommodated about 2,550 cargo ships.

• Bulk and Container Terminals

The sales of IRPC's metal-exporter customers significantly decreased because they were faced with the tariffs imposed by the US. Only about 1 million tons of metal passed through IRPC's ports in 2019, which was 0.4 million tons lower than the 2018 figure. IRPC's strategy was to expand its customer base and generate more income from existing customers, who export metal, palm shells, and fertilizers.

IRPC plans on expanding its port business in 2020 to support the government's Eastern Economic Corridor (EEC) development. The company has conducted a feasibility study and concluded that the expansion would target two new groups:

- Offshore services: To provide support for this type of business, IRPC is currently working on obtaining permission to make changes to the original proposal for the construction of the IRPC Port submitted in the Environmental Impact Assessment (EIA) report to the Office of Natural Resources and Environmental Policy and Planning (ONEP). IRPC expects permission to be granted in 2020.
- Container ships: The IRPC bulk port has only reached 21% of its capacity or 1 million tons. It can handle 3 million tons more or about 10–20 million baht in potential revenue. Having studied the feasibility of catering to container ships, IRPC concluded that additional investments would be needed to update the facilities and construct breakwaters. It would also need to create demand from cargo ship lines. IRPC will use the information to investigate the matter further.

• Petrochemical and Liquefied Petroleum Ports and Berths at Oil Depots

IRPC scheduled shutdowns in early 2019 to maintain the machinery of a few petroleum plants, which decreased its imports of crude oil. Towards the end of 2019, IRPC also switched from sea transportation to land transportation. Consequently, only about 15 million tons of petroleum products passed through its ports, a drop of 0.85 million tons.

The company will continue to develop and expand its port services in 2020 to support production growth. According to the IMO 2020 measure of the International Maritime Organization (IMO), every ship will need to switch to a fuel that emits no more than 0.5% of sulfur. (The former requirement was 3.5%.) This policy will bring a positive impact to IRPC, whose LSFO complies with this specification, for the first 2-3 years or until the fleets could find a better or cheaper alternative. IRPC expects more commodities to pass through its ports, generating more income.



The Ministry of Energy has issued a new measure that requires the energy sector to use more B100 biodiesel, helping the country's oil palm farmers. The objective of this measure is to create a sustainable equilibrium of palm oil domestically. Its target is to use about 7 million liters of B100 a day, consuming nearly two-thirds of the total domestic crude palm oil production capacity or 2.2 million tons per year. Based on this policy, IRPC's strategy is to find new customers to expand its customer base and to generate additional income from existing customers. IRPC has the capacity to support more storage. In 2019 IRPC stored 661,000 tons of products in its tanks, including crude oil, refined petroleum, methanol, ethanol, special-grade diesel, chemicals, and heavy residues (from a new customer).

Asset Management

On December 9, 2019, the Land Use Plan and the Infrastructure Development Plan for the Eastern Economic Corridor (EEC) were published in the Royal Thai Government Gazette. IRPC received an addition of 1,183 rai of purple-coded land, yielding a total of 5,518 rai of purple-coded land in its current possession. The addition of land will benefit its future investment projects and those of related investors.

In early 2020 the new Land and Building Taxation Act will come into effect. In preparation for this new law, IRPC has launched Land Maximize Utilization Project, which allows its property to be rented for farming, commercial purposes, and real-estate projects.

Revenue Structure

IRPC and its subsidiaries generated revenues from distribution of petroleum and petrochemical products at 71% and 28% respectively. Petroleum products consist of diesel, gasoline, fuel oil, lube base, and asphalt whereas petrochemical products consist of olefins, aromatics, and polymers. In addition, IRPC earned income from other businesses, accounting for 1%, mainly from power and public utilities. IRPC's net sales in 2019 were at THB 216,577 million as described below:

Type of Business	Operations/ % of shares held by IRPC	2017		2018		2019	
		Million Baht	%	Million Baht	%	Million Baht	%
1. Petroleum	IRPC Plc IRPC Oil Co., Ltd. (99.99%)	135,125	68%	182,953	71%	153,451	71%
2. Petrochemical	IRPC Plc IRPC A&L Co., Ltd. (57.48%)	59,728	30%	72,739	28%	59,656	28%
3. Other business ⁽¹⁾	IRPC Plc	2,741	2%	3,227	1%	3,470	1%
Total net sales revenue		197,594	100%	258,919	100%	216,577	100%
Profit (loss) sharing from investment in associated companies and shareholding in joint-venture companies		388		679		363	
Percentage of revenue Domestic: Overseas		57% : 43%		57% : 43%		56% : 44%	

Note: ⁽¹⁾ Other businesses are power and public utilities.



Connected Transactions

For fiscal year 2019, IRPC and subsidiaries engaged in key connected transactions with related companies or parties. These transactions were based on market prices or, in the absence of market prices, the prices of agreements at reasonable prices and fair conditions. The relationship and connected transactions are described below:

(Unit: Million Baht)

No.	Connected Party/ Relationship	Transaction	2019	2018	Nature and Condition
1	PTT Plc (PTT) Relationship: - IRPC's major shareholder with 47.55% - Common director: Mr. Chansin Treenuchagron Mr. Nuttachat Charuchinda - PTT Management on IRPC Board: Mr. Noppadol Pinsupa Mr. Kris Imsang Mr. Worawat Pitayasiri	- Sale of goods - Purchase of goods - Other revenue - Sales and administrative expenses - Interest payables - Account receivables - Account payables - Other receivables - Other payables	22 155,802 11 54 31 2 21,431 - -	14,973 180,340 280 56 - 3 22,782 6 3	IRPC provided tank storage service and sold petroleum products to PTT IRPC bought crude and natural gas from PTT IRPC received logistics compensation and sold a plot of land to IRPC paid personnel expenses to PTT IRPC paid short-term interest (ICBL) to PTT
2	PTT Oil and Retail Business Plc (PTTOR) Relationship: 99.99% shares held by PTT Plc	- Sale of goods - Purchase of goods - Sales and administrative expenses - Account receivables - Account payables	26,830 22 1 1,608 -	15,390 7 - 1,455 2	IRPC sold petroleum products to PTTOR IRPC bought lubricants from PTTOR IRPC Oil and IRPCT paid royalty and marketing fee to PTTOR
3	Thai Oil Plc (TOP) Relationship: 47.53% shares held by PTT Plc	- Service revenue - Purchase of crude and materials for legal reserves - Sales and administrative expenses - Account receivables	177 2,240 4 9	346 1,668 - 18	IRPC provided tank storage service to TOP IRPC bought crude and materials for legal reserves from TOP IRPC paid compensation to TOP
4	Thai Lube Base Plc (TLB) Relationship: 99.99% shares held by TOP	- Sale of goods - Purchase of goods	192 5	140 -	IRPC sold aromatics to TLB IRPC bought asphalt and lube base oil from TLB
5	Thai Paraxylene Co., Ltd. (TPX) Relationship: 99.99% shares held by TOP	- Sale of goods - Purchase of goods - Account payables	44 606 11	165 1,299 (45)	IRPC sold aromatics to TPX IRPC bought aromatics from TPX

(Unit: Million Baht)

No.	Connected Party/ Relationship	Transaction	2019	2018	Nature and Condition
6	Thai Oil Marine Co., Ltd. (TOM) Relationship: 99.99% shares held by TOP	- Service revenue - Account receivables	34 3	33 4	IRPC provided port services to TOM
7	TOP Solvent Co., Ltd. (TS) Relationship: 99.99% shares held by Thai Oil Solvent Co., Ltd.	- Sale of goods - Purchase of goods - Account receivables - Account payables	1,100 90 85 8	1,448 107 104 8	IRPC sold aromatics to TS IRPC bought solvents from TS
8	TOP Solvent (Vietnam) Co., Ltd. Relationship: 99.99% shares held by TOP Solvent Co., Ltd.	- Sale of goods - Account receivables	675 32	791 29	IRPC sold aromatics to TSV
9	Sak Chaisidhi Co., Ltd. (SAKC) Relationship: 80.52% shares held by TOP Solvent Co., Ltd.	- Sale of goods - Account receivables	324 4	287 5	IRPC sold aromatics to SAKC
10	PTT Energy Solutions Co., Ltd. (PTTES) Relationship: 40.00% shares held by PTT Plc 20.00% shares held by IRPC Plc - Common director: Mr. Noppadol Pinsupa	- Sales and administrative expenses	97	115	IRPC paid PTES for technical services
11	Energy Complex Co., Ltd. (EnCo) Relationship: 50.00% shares held by PTT Plc	- Sales and administrative expenses	98	95	IRPC rented offices and facilities from EnCo
12	PTT International Trading Pte. Ltd. (PTTT) Relationship: 99.99% shares held by PTT Plc	- Sale of goods - Purchase of goods - Revenue (expenses) from oil futures contracts - Account receivables - Other receivables	18,248 629 201 1,289 40	23,052 331 12 1,207 5	IRPC sold petroleum products to PTTT IRPC bought petroleum products from PTTT Expenses from oil futures contracts entered with PTTT
13	Dhipaya Insurance Plc (TIP) Relationship: 13.33% shares held by PTT Plc	- Other revenue - Sales and administrative expenses - Other payables	6 270 2	- 259 2	IRPC received compensation from TIP IRPC paid premiums for plants and accident insurance to TIP
14	PTT Tank Terminal Co., Ltd. (PTTTANK) Relationship: 99.99% shares held by PTT Plc	- Other revenue - Other receivables	3 -	3 1	IRPC received personnel wages from PTTTANK



(Unit: Million Baht)

No.	Connected Party/ Relationship	Transaction	2019	2018	Nature and Condition
15	Business Services Alliance Co. Ltd. (BSA) Relationship: 25.00% shares held by PTT Plc	- Other revenue - Sales and administrative expenses - Other payables	3 267 22	3 261 2	IRPC Oil earned revenue for store administrative services from BSA IRPC paid personnel wages to BSA
16	Sport Services Alliance Co., Ltd. (SSA) Relationship: 99.99% shares held by BSA - Common director Air Marshal Boonsuib Prasit - IRPC Management on SSA Board: Mr. Phothiswat Paopongchuang	- Service Revenue - Sales and administrative expenses	2 5	- 5	IRPCT provide property to SSA IRPC funded publicity for the PTT Rayong soccer team for SSA
17	PTT Exploration and Production (PTTEPI) Relationship: 99.99% shares held by PTT Plc	- Sales and administrative expenses	2	-	IRPC paid security audit to PTTEPI
18	PTT Global Chemical Plc (GC) Relationship: 47.92% shares held by PTT Plc	- Sale of goods - Purchase of goods - Trade of crude and materials for legal reserves - Other revenue - Sales and administrative expenses - Account receivables - Account payables	13,413 19,312 405 - 7 1,200 1,721	19,954 25,809 - 2 7 1,517 1,941	IRPC sold petroleum products to GC IRPC bought petroleum products from GC IRPC purchase of crude and materials for legal reserves with GC IRPC provided research services to GC IRPC paid personnel wages to GC
19	GC Marketing Solutions Co., Ltd. (GCM) Relationship: 99.00% shares held by GC	- Sale of goods - Purchase of goods - Account receivables - Account payables	124 377 19 13	249 571 15 33	IRPC sold polymers to GCM IRPC bought polymers from GCM
20	GC Logistics Solutions Co., Ltd. (GCL) Relationship: 99.00% shares held by GC	- Sales and administrative expenses	5	3	IRPC paid GCL for transportation services
21	GC Styrenics Co., Ltd. (GCS) Relationship: 99.99% shares held by GC	- Sale of goods - Account receivables	55 -	231 50	IRPC sold aromatics to GCS

(Unit: Million Baht)

No.	Connected Party/ Relationship	Transaction	2019	2018	Nature and Condition
22	GC Glycol Co., Ltd Relationship: 99.99% shares held by GC	- Purchase of goods - Account payables	2 -	13 2	IRPC bought petrochemicals from GC Glycol
23	GC Maintenance and Engineering Co., Ltd. (GCME) Relationship: 99.99% shares held by GC	- Sales and administrative expenses - Other payables	15 3	2 2	IRPC paid GCME for engineering services
24	PTT Asahi Chemicals Co., Ltd. (PTTAC) Relationship: 50.00% shares held by GC	- Purchase of goods - Other payables	1,417 131	2,241 185	IRPC bought petrochemical products from PTTAC
25	PTT Digital Solution Co., Ltd. Relationship: 40.00% shares held by GC 20.00% shares held by PTT Plc - Common director Mr. Worawat Pitayasiri	- Sales and administrative expenses - Other payables	31 -	31 1	IRPC paid PTT Digital for IT services
26	PTT Phenol Co., Ltd. (PPCL) Relationship: 99.99% shares held by GC	- Service Revenue - Account receivables	9 3	- -	IRPC provided tank storage service to PPCL
27	NPC Safety and Environmental Service Co., Ltd. (NPC & SE) Relationship: 99.99% shares held by GC	- Purchase of goods - Sales and administrative expenses	- 1	1 2	IRPC bought safety equipment from NPC S&E IRPC paid NPC S&E for safety equipment
28	Global Green Chemicals Plc (GGC) Relationship: 72.29% shares held by GC	- Purchase of goods - Account payables	212 64	255 62	IRPC bought petroleum products from GGC
29	GCM Polymer Trading DMCC* Relationship: 99.99% shares held by GC Marketing Solutions Co., Ltd	- Sale of goods - Account receivables	128 5	72 8	IRPC sold polymer to GCM Polymer Trading DMCC
30	IRPC Clean Power Co., Ltd. (IRPC-CP) Relationship: 51.00% shares held by Global Power Synergy Plc 48.99% shares held by IRPC Plc - IRPC Management on IRPC-CP Board: Mrs. Nidcha Jirametthanakij Mr. Somkiat Lertritpuwadol Mr. Woravuth Sivapetranart	- Sale of goods - Purchase of goods - Other revenue - Account receivables - Account payables - Other receivables - Other payables	45 2,356 116 8 341 1 213	62 2,308 28 6 342 5 226	IRPC sold power and water to IRPC-CP IRPC bought steam from IRPC-CP IRPC received maintenance services fees and personnel wages from IRPC-CP

Note: *Polymer Marketing DMCC renamed as GCM Polymer Trading DMCC



Connected Transactions Policy and Requirements

Since IRPC and its subsidiaries operate fully integrated refining and petrochemical businesses, similar to the operations of PTT Group companies, connected transactions between IRPC, its subsidiaries, and PTT affiliates are inevitable and therefore regarded as normal business operations. These transactions included purchases and sales of oil products and related services, as well as other normal business supporting transactions, which were executed at arm's length with the same pricing and conditions as those executed with a third party and without transfer of benefits between the concerned parties. IRPC has made prudent, sensible, and independent consideration of these connected transactions in its best interests.

Connected Transaction Measures

IRPC complied with SEC's and SET's requirements for connected transactions. The Board has prudently considered the transactions with possible conflicts of interests to ensure that they were executed in a fair, transparent, and sensible manner. Any directors, employees, or related parties with potential conflicts of interest must leave a given meeting and must not vote on the agenda item in question.

Moreover, each quarter the Audit Committee reviews IRPC's and its subsidiaries' connected transactions with related companies or parties to avoid conflicts of interest and ensure maximum benefit for IRPC.

Policy on Future Connected Transactions

IRPC's future connected transactions will be conducted in the normal course of business in adherence to suitable conditions and fair market prices. This practice is meant to ensure the best interests of all shareholders and stakeholders while ensuring strict conformity to the corporate governance policy as well as SEC's and SET's regulations on connected transactions.

Opinion of the Audit Committee

Having reviewed all connected transactions, the Audit Committee regards these connected transactions as sensible and conducted in the normal course of business, based on suitable reference market prices, with the same pricing and conditions as those executed with a third party, and in conformity to the corporate governance policy, as well as SEC's and SET's regulatory requirements.





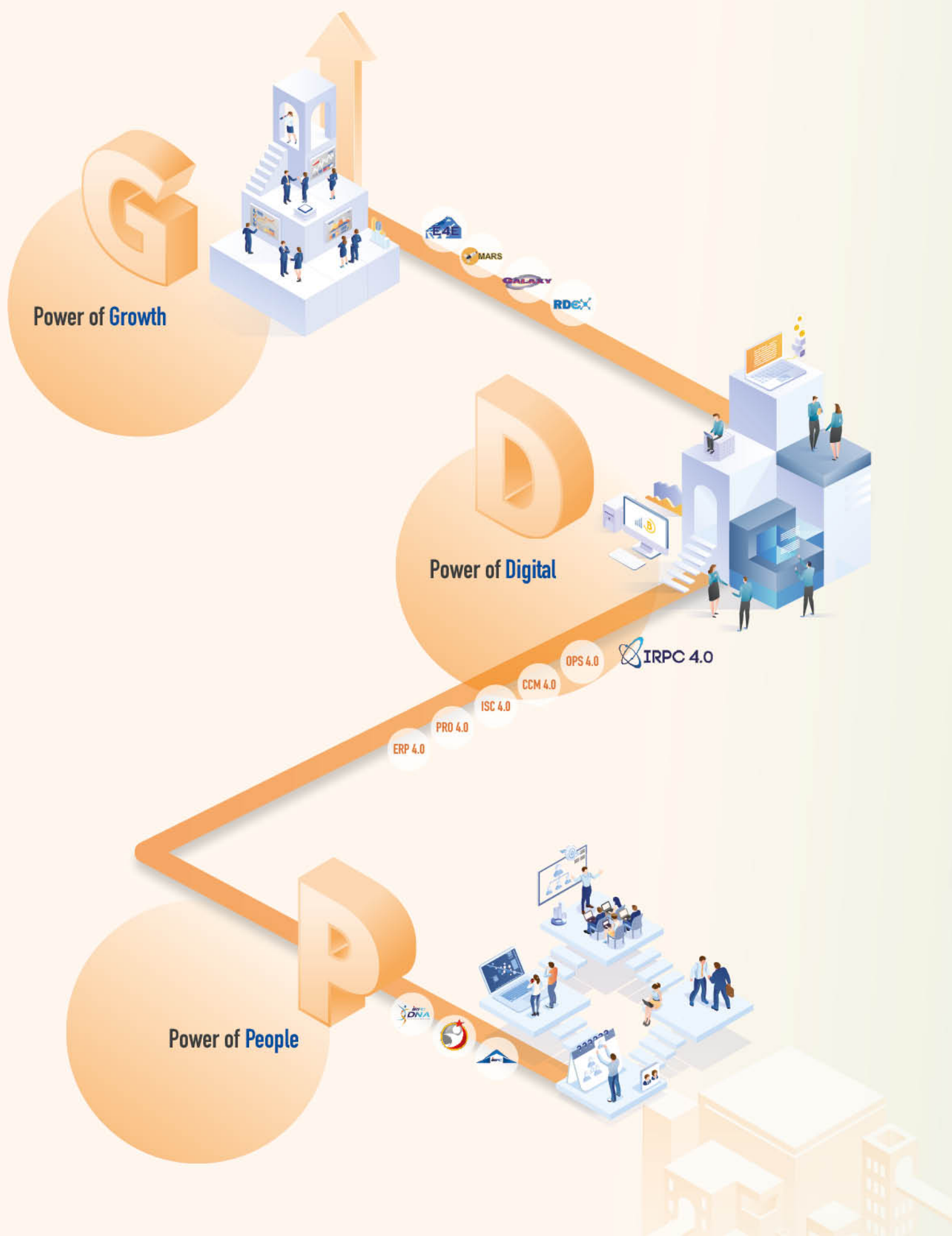
PERFORMANCE SUMMARY & MANAGEMENT ANALYSIS

Strategic Projects for Business Growth

Research and Development for Excellence

Management Discussion and Analysis







Strategic Projects for Business Growth



Key Strategic Projects for Business Growth

Throughout 2019 IRPC operated under a strategic plan named the Power of GDP, comprising the **Power of Growth**, the **Power of Digital Technology**, and the **Power of People**. Meanwhile, the company also labored to balance good social and environmental factors, as well as maintain Good Corporate Governance, committing to the visionary goal of becoming Leading Integrated Petrochemical Complex in Asia. Details of the execution of this strategic plan are as summarized below:



Power of Growth

IRPC adopted an expansionary investment policy to foster continuous growth. The company concentrated on increasing petrochemical Production Capacity, Production Efficiency, and Productivity; supporting business development and collaboration with allies; and Developing High-Value Products through research and development excellence. The company undertook 4 significant projects under this category.

1) Everest Forever (E4E)

Building on the success of the Everest project, E4E since 2017, which enhanced the efficiency of IRPC's activities, increased the profitability of its existing businesses, bolstered its Organizational Health, and maintained its competitiveness in Operations Area, Integrated Supply Chain, Commerce Area and Marketing, Procurement, Human Resources Area, and the Corporate Area. In 2019 IRPC achieved 12,027 Million Baht in EBIT from the goal of 12,700 Million Baht as summarized below:

- **Operations Area:** IRPC improved the efficiency and stability of its operations and profits contributed 5,104 Million Baht from 5,700 Million Baht goal, in the following aspects:
 - **Unit Operation and Energy:** IRPC increased the productivity of each unit and reduced energy use or switched to a cheaper form. A recovery system was installed to prevent unnecessary losses and to use the recovered as feedstock for downstream manufacturing processes. Additionally, under the Model Plant campaign, the company worked on adjusting employees' attitude and behavior, including raising their efficiency through better management.
 - **Maintenance and Reliability:** IRPC labored to reduce the number of Unplanned Shutdowns and improve the turnaround process according to the action plan devised.
- **Integrated Supply Chain:** IRPC enhanced the efficiency of production planning tools, enabling itself to use them to analyze production outputs more accurately. The company also adopted new tools from leading providers to help it plan crude-oil purchases better. These tools included PIMS-AO, P-PIMS, Orion, and Multi-Blending Optimization. IRPC earned 2,703 Million Baht from 2,960 Million Baht goal.
- **Commercial Area:** IRPC heightened the efficiency of its commercial and marketing operations, resulting in superior profitability. It developed workers' potential and encouraged them to brainstorm to create projects that would increase profits. This method promoted their sense of ownership, honed their problem-solving skills, and demanded different departments to coordinate and work together as a team. IRPC successfully produced 2,687 Million Baht against 2,590 Million Baht goal.
- **Procurement Area:** IRPC modernized its procurement management and strategic services. In addition to providing the procurement team with new international-standard digital procurement tools, IRPC helped the team



develop the right attitude towards these tools, whose design has augmented the team's bargaining power, ethics, transparency, and fairness. Examples of tools adopted are e-Auction, e-Catalog, and e-Buyer, to promote as a Digital Procurement all of which have lowered IRPC's procurement costs. IRPC increased profits from 654 Million Baht against 550 Million Baht goal.

- **Human Resources Area:** IRPC maximized the efficiency of its Human Resource Management. It encouraged employees to demonstrate their full potential and take on more responsibilities. The company also outsourced efficiently. IRPC increased profits from 309 Million Baht against 280 Million Baht goal.
- **Corporate Area:** IRPC concentrated on improving Functional Excellence—the basis for Cross-Functional Group Excellence—by reworking the cost of IT equipment, reducing financial and administrative expenses, and implemented better budget management schemes. IRPC increased profits 660 Million Baht opposed the goal of 620 Million Baht.

2) Maximum Aromatics (MARS): IRPC has launched MARS to add value to its existing feedstock. Its advanced technology can manufacture 1.3 million tons of paraxylene and 500,000 tons of benzene annually. This competitiveness-enhancing project will increase the proportion of petrochemical products from 17% to 27% by weight. MARS is currently in its Front-End Engineering Design process and is undergoing an Environmental and Health Impact Assessment. The company expects to commence its commercial operation in 2025.

3) Galaxy: IRPC fostered collaboration with business allies, building on each other's existing foundation and creating new mutual benefits through the Galaxy project. Means for future growth included investments, joint ventures, and synergies.

4) R&D Excellence: IRPC developed high-value products through research and development excellence, focusing on core businesses, such as PP and ABS, as well as opportunities in the New S-Curve industries.



Power of Digital

IRPC adopted a range of digital technologies to elevate the efficiency of its operations and digitalized all customer-related services. This project was called IRPC 4.0. In 2019 IRPC's performance summary accomplished 20 minor projects from total 29 projects. And expecting to finish all projects within mid of 2020. In 2019, the projects created value added over 1,906 Million Baht against the goal of 1,560 Million Baht and comprised five aspects:

- 1) OPS 4.0**—Smart Operations equipped with artificial intelligence (AI) for production control and planning
- 2) CCM 4.0**—Responsive Customer-Centric Digital commercial and marketing operations
- 3) ISC 4.0**—Advanced analytics tools for an Integrated Supply Chain that balance customers' needs with feedstock availability
- 4) PRO 4.0**—Lean Procurement process with more efficiency, less redundancy, and improved competitiveness
- 5) ERP 4.0**—IT infrastructure that supports IRPC's digitalization of information and organizational excellence



Power of People

IRPC revamped its Human Resource Management and Organizational Structure to improve workflow. Moreover, the promotion of corporate values, proper selection of personnel, addition of incentives, and creation of leadership development programs contributed to good organizational culture and supported growth. There were three key projects.

1) IRPC DNA Throughout 2019 the company promoted a more profound understanding of the corporate values, aptly called “IRPC DNA,” among employees through various activities and continuously evaluated their action and reaction to these values.

2) Develop Next Generation of Top 30 Leaders: After analyzing its needs, IRPC devised a leadership development plan for the top 30 executive positions to ensure continuity.

3) Continue to Establish Lean, Fit-for-Purpose Organization: IRPC redesigned and restructured itself. It formulated a long-term human resource plan and adopted digital technology in its everyday operations. Through this project, IRPC wanted to maintain the current body of knowledge and create a brighter future based on past successes.

In addition, IRPC initiated the following strategic projects in 2019:

- **Ultra Clean Fuel (UCF):** UCF was launched to align the efficiency of IRPC’s refinery and the quality of its diesel products with the Euro V standard. This project, once finished, will support the government’s goal to reduce Diesel’s Sulfur emissions from 50 parts per million (ppm) per the Euro IV standard to 10 ppm per the Euro V standard by 2022. The project will also enhance IRPC’s competitiveness, responding to the rising low-sulfur diesel demand in Thailand and the ASEAN Economic Community. It will also strengthen the company, with diesel as the new main product, and highlight its “Eco Factory” social and environmental responsibility efforts. The project is in its Front-End Engineering Design phase. Its commercial operations will be ready by 2023.

2. Floating Solar Power Plant Project: This 12.5-megawatt power plant will convert the sun’s energy into electricity, lessening IRPC’s reliance on conventional power for its production line. The Floating Support came from the company’s own HDPE research and development. The project will also make use of the company’s reservoirs’ surfaces, contributing to a reduction of 10,000 metric tons CO₂e per year. It is currently under construction. It will be able to produce power within the first quarter of 2020.

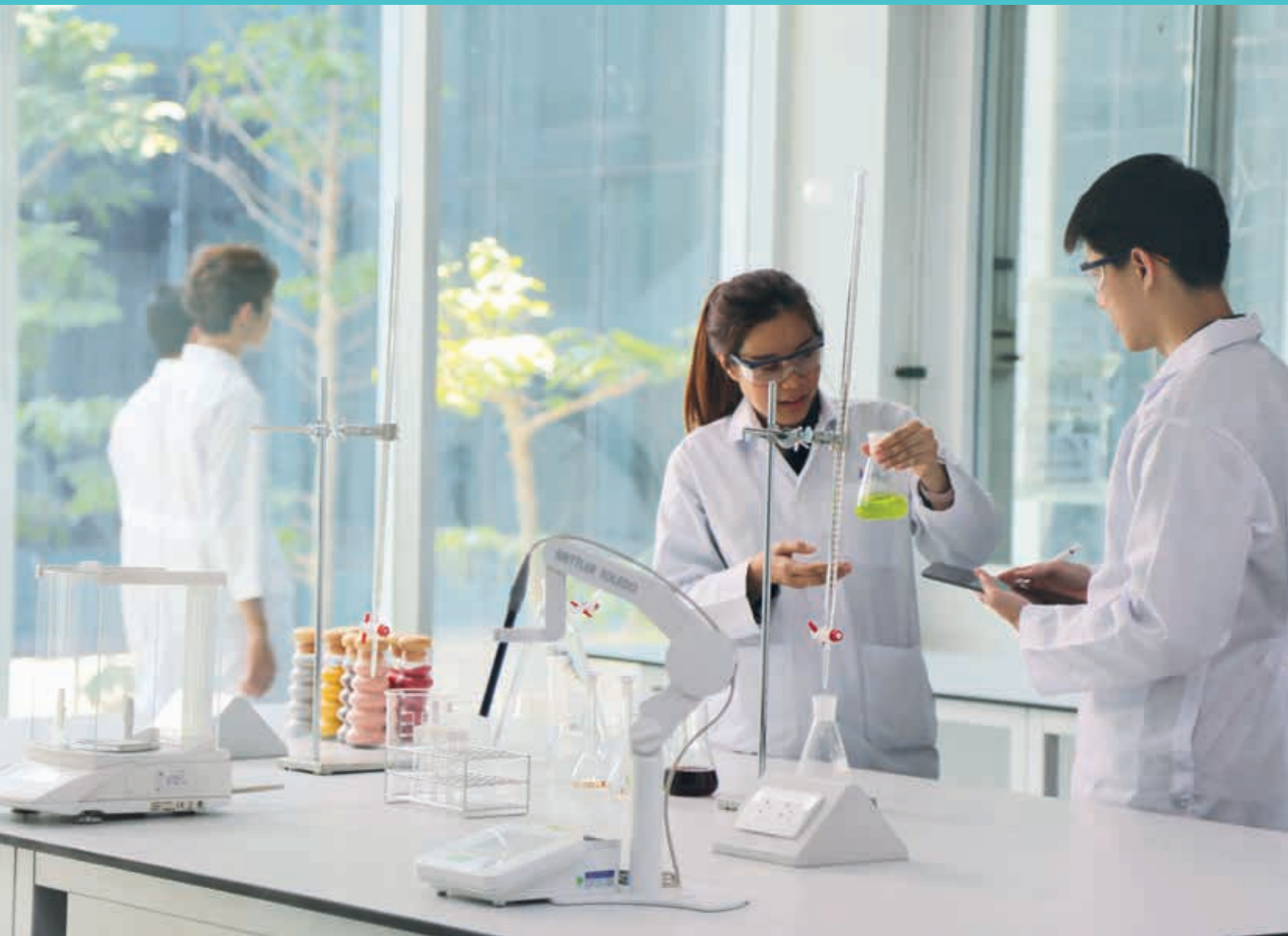
3. ABS Powder Expansion: IRPC is ramping up the ABS-powder productivity of the Polymerization Business Unit by 6,000 metric tons per year. It’s also improving the quality of the ABS powder. Commercial operations are to commence in the Second Quarter of 2020.

Moreover, the crack spread was weakened due to economic uncertainties caused by the Sino-American Trade War, the global economic slowdown, and the fluctuation in the price of crude oil due to geopolitical tension in the Middle East. This weakening is reflected in the profit margins /



profitability ratios. To promote an understanding of the situation among employees and to ask for their co-operation, IRPC launched the “Together We Can” short-term project. It helped preserve the company’s competitiveness and increase its profitability in 2019. Its key developments are summarized below:

- IRPC implemented cost-saving measures. The company also revisited investment plans and budgets to ensure their suitability.
- IRPC increased its profitability by developing high-value specialized products, lowering its costs and expenses, and seeking new distribution channels.
- IRPC lowered its manufacturing expenses by decreasing its consumption of electricity and other utilities. The company also sped up the IRPC 4.0 digitalization project.
- IRPC expanded its collaboration and co-operation with business partners to increase the sales of its high-value products, which contributed to minimizing the effects of price fluctuation.
- IRPC also optimized the use of its existing assets, including warehouses, transportation trucks, and personnel, and fostered new business opportunities.



The IRPC Innovation Center strives to become a world-class fast follower under IRPC's research and development (R&D) excellence strategy.





Research and Development for Excellence



In 2019 the IRPC Innovation Center was home to 127 researchers and developers. Those with a Ph.D. accounted for 13 percent of all personnel. They received a budget of 0.7 percent of IRPC's petrochemical revenue for their work.



Approaching a New Horizon by Innovation Driven

The IRPC Innovation Center strives to become a world-class fast follower under IRPC's research and development (R&D) excellence strategy. Its Strategic Innovation Framework encompasses eight pillars.

8 Pillars Strategic Innovation Framework



Throughout 2019 the IRPC Innovation Center aligned its product portfolio with the technology roadmap. It aimed to enhance the competitiveness of the core business and create value-added to specialty products through adjacent businesses. In addition, it also researched and developed products in anticipation of new business opportunities arising from the new S-curve industries, ensuring

future sustainability. The center focused primarily on advanced materials and technologies in the following seven categories: 1. cost-optimized and multi-application value-added products, 2. bio-contents and bio-based products, 3. chemicals and additives, 4. nanomaterials, 5. clean energy, 6. electric vehicles, and 7. electronics.

Thanks to its rigorous and continuous research and development efforts, the IRPC Innovation Center introduced 26 new products to the market in 2019, accounting for 150 million baht in marginal profits. The center has also launched new projects systematically. It currently has 353 million baht worth of projects in its R&D portfolio. These are all distributed evenly across the timeline in the healthy corridor. Furthermore, the center has a few de novo research projects for the new S-curve industries. For instance, the research and development of the conductive ink and transparent conductive film has gone according to plan. The center has produced a prototype that can be applied to radio frequency identification (RFID) and used as a conductive primer in the color compounding process of motorcycle parts. The other two de novo research technologies are lithium-ion batteries and the organic light-emitting diodes (OLEDs), which are currently in the prototype stage. Once their prototypes are created, the center will test them with other leading research institutes overseas.

In 2019 the IRPC Innovation Center was home to 127 researchers and developers. Those with a Ph.D. accounted for 13 percent of all personnel. They received a budget of 0.7 percent of IRPC's petrochemical revenue for their work.

In terms of infrastructure, the construction of the Application Lab extension was completed. Its operation is expected to commence in March 2020 once the equipment has been installed. The company expects the IRPC Innovation Center to be able to support future additions of researchers and equipment, as well as double as a welcoming center for visitors and business contacts.

Intellectual Property

IRPC's intellectual property falls under three categories:

- Copyrights: IRPC has registered seven copyrights, six of which are computer applications, and one is a publication.



Conductive Ink and
Transparent Conductive Film



Radio Frequency Identification (RFID) Prototype Made from
Conductive Ink and Transparent Conductive Film.

- Trademarks: IRPC has registered 172 trademarks in 22 countries.
- Patents: IRPC has registered 16 patents and is working on registering 23 more. These encompass product processes, polymer products, petroleum products, and chemical products.

IRPC Employee Development

In 2019 the IRPC Innovation Center further developed the capabilities of its personnel through the IRPC DNA program, which promoted their domestic and overseas training, as well as encouraged them to share their knowledge with their peers. Moreover, the center worked with leading organizations in Thailand and abroad through open innovation mechanisms. With Vidyasirimedhi Institute of Science and Technology (VISTEC), the researchers focused on lithium-ion batteries, OLEDs, nanomaterials, and synthetic catalysts and additives. The Japan Advanced Institute of Science and Technology (JAIST)



IRPC Innovation Center under construction, January 2020 and will be ready for operation in March 2020.

provided the center with its expertise in synthesizing catalysts for specialty polymers and battery chemicals. Alongside Haydale Technologies Thailand, the center researched and developed conductive ink, transparent conductive film, functionalization of materials. By sharing knowledge and expertise, the research period is shorter, while the risks involved in the commercial introduction of a product are mitigated.

Additionally, through open innovation, IRPC has invested in new businesses with advanced technologies. These are either an extension of its existing endeavors or entirely new opportunities with a focus on advanced materials that are in line with the strategies of the IRPC Innovation Center. There are four technological focuses: high value-added products, energy vehicles and energy storage systems, urbanization materials, and clean energy.

Commercial Products Development

IRPC recognizes the importance of promoting research, development, and innovation as part of

its organizational culture. The company also understands the need for Thailand to research and developed its own technologies to lessen its reliance on imports. To fulfill its obligation to the country, the IRPC Innovation Center introduced several products in 2019 that were ready for commercial production. These products, when they finally reach the market, will satisfy the needs of IRPC's customers and offer numerous applications. Their details are as follows:

1. Cost-optimized Value-added Products:

Because the catalyst for polypropylene previously developed could not satisfy its demand, the company had to import a more expensive catalyst from overseas. As a result, the cost for manufacturing polypropylene grew. To mitigate the issue, the IRPC Innovation Center worked hard to develop an alternative with higher efficiency. The research and development team, together with the marketing and operations teams, succeeded in 2019. This new catalyst has enabled IRPC to cut down the cost of producing polypropylene by 75 million baht a year.

Additionally, the IRPC Innovation Center has developed a type of food-grade polypropylene film named 1127NK, catering to a different demand overseas. The 1127NK film is white and contains no photoluminescent properties, making it more health-oriented and eco-friendly. It can be processed into a sheet thinner than 20 microns. The opening is easy to open. The quality is not compromised. Customers can enjoy a more continuous production without reducing their capacity.

2. Multi-application Value-added Products:

High-impact ultra-high molecular weight polyethylene (UHMWPE) has been developed for customers who need to shape it into rods and sheets with superior impact strength but without compromising its abrasion resistance, chemical corrosion resistance, cohesiveness, and lightness.

IRPC has also developed a hot and cold polypropylene pipe (PP-R pipe) for tap water. It is strong and cohesive. It can withstand high water pressure at a high temperature and has a long lifespan. This new product goes by the name T5100 and is now ready for commercial production.

3. Bio-contents and Bio-based Products

IRPC's functionalized natural rubber additive is an additive derived from natural rubber. It is subject to a chemical process that increases its molecular polarity with a molecular weight of about 5,000–20,000, making it highly compatible with composites. It can be a coupling agent or a compatibilizer in compound polymers and composites. This additive gives the final product an added property, such as creating a compound polymer with higher impact strength.

Based on circular-economy principles for resource optimization, the IRPC Innovation Center investigated how to create value-added to the waste from the polystyrene production. The center successfully developed a way to transform the waste into recycled polystyrene pellets whose properties are comparable to premium-grade products. The recycled polystyrene is easily shaped yet strong. It caters to the demand of customers who



IRPC's Polypropylene Film Before and After Research and Development in Comparison with a Competitor's Sample

prefer making their products from 100 percent recycled polymers. Named RMM151, this recycled polystyrene has entered commercial production. It is used to make cases for a global watch brand.

4. Clean Energy

Floating solar farms have enjoyed rapid growth globally, and IRPC has recently joined their ranks. The company has researched and developed a specialty high-density polyethylene (HDPE) that functions as a floatation device for solar cells. It boasts superb durability and can be used outdoors for as many as 25 years. Floatation devices made from this specialty HDPE does not lower the electricity generation capacity. The homogeneous texture of this HDPE makes it easy to shape. It also does not pollute the water. In 2019 IRPC used floatation devices made from this specialty HDPE



PP-R Pipe



Specialty High-Density Polyethylene (HDPE)
to Be Made into Floatation Devices for the Solar Farm

to build a 12.5 MW floating solar farm atop the 200-rai surface of its reservoir.

5. Electric Vehicles

Catering to the eco-friendly demand and the expanding electric vehicle industry, IRPC has innovated a polypropylene compound named ICBP001X for the exterior body of an electric car. It has also developed another polypropylene compound called ICIP002X for interior parts. These products are light but strong and weather resistant. Easy to shape, they are quite versatile in terms of design. They also emit a low level of volatile organic compounds, which makes them ideal as a sustainable product.

6. Petroleum Products

Due to a higher volume of city traffic as a result of urbanization and higher temperatures, the IRPC Innovation Center has developed asphalt cement with a penetration grade of 40–50. In addition to superior penetration grading, the product also boasts improved DSR reading and viscoelasticity. All of this means that the finished road will be less likely to crack or cave in from continuous use and solar radiation than one made with conventional asphalt cement. This product promises to improve road safety.



Watch Cases Made from
RMM151 Recycled Polystyrene



An Electric Vehicle Made with IRPC's
Polypropylene Compounds



IRPC has realized the economic uncertainty situation and tend to explore key strategies in high value products. These strategies include researching and developing products to fulfill customer needs, as well as looking for market partners in the same specialties direction with the company.





Management Discussion and Analysis (MD&A)

Executive Summary

	Unit	2019	2018	Changed
Crude Intake	Million bbl	72.00	76.05	(5%)
Sales ^[1]	Million Baht	239,315	280,551	(15%)
Net Sales ^[2]	Million Baht	216,577	258,919	(16%)
Market GIM	Million Baht	19,555	33,607	(42%)
	USD/bbl ^[3]	8.70	13.60	(36%)
Accounting GIM	Million Baht	20,169	32,370	(38%)
	USD/bbl	8.97	13.10	(32%)
EBITDA	Million Baht	5,940	18,344	(68%)
Net Profit	Million Baht	(1,174)	7,735	(115%)

Notes: ^[1] Sales includes (1) Petroleum Sales (2) Petrochemical Sales (3) Power and Utilities Sales (4) Sales of tank farm and port service, etc.

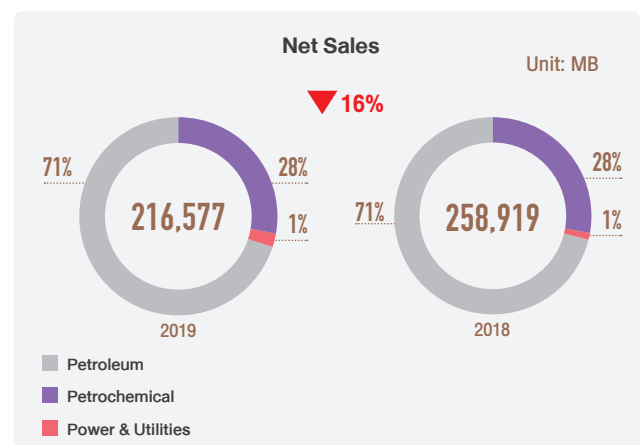
^[2] Net Sales includes (1) Petroleum Sales (excluding excise tax) (2) Petrochemical Sales (3) Power and Utilities Sales

^[3] Market GIM per bbl : [(Market GIM/Crude Intake)/exchange rate]

The operating results in 2019 compared to those in 2018: In 2019, the Company reported net sales of Baht 216,577 million, decreased by 16% when compared to 2018, YoY, contributed to a 12% decrease in selling price due to decline in crude oil price and the THB appreciated against USD. Also, sales volume was down by 4%. The average crude intake was 197,000 barrels per day, decreasing by 5% according to planned maintenance shutdown of RDCC for 28 days and ADU1 for 18 days.

The Market GIM was Baht 19,555 million (USD 8.70 per barrel), dropped by 42% as a result of the economic slowdown due to impact of the U.S. - China trade war tension, resulting in the decline demand. Meanwhile, the supply increased, especially from the U.S. and new capacity in South East Asia region, led to the dramatically decline in almost all products spread of petroleum and petrochemical products. However, the Company continues to implement the Everest and Everest Forever (E4E) program in order to enhance the efficiency throughout the organization.

The net stock gain was Baht 614 million, mainly from oil hedging gain when compared to the net stock loss of Baht 1,238 million last year. The Accounting GIM fell to Baht 20,169 million (USD 8.97 per barrel), down 38%. The other incomes of Baht 2,021 million, grew by 28% mostly due to the warranty claim of the UHV project. The operating expenses were Baht 14,786 million, increasing by 5% mainly from the higher staff costs as a result of the compensation rates for employees adjustment from 300 days to 400 days under the New Labor Protection Law. These resulted in the earnings before interest, tax, depreciation and amortization (EBITDA) of Baht 5,940 million, decreasing by 68%.



The net financial costs of Baht 934 million, dropped by Baht 1,293 million because of the Thai Baht currency appreciation against the USD currency, consequent to gain from Cross Currency Swap (CCS) of Baht 951 million in comparison with loss from CCS of Baht 276 million last year. Also, the Company had foreign exchange gain on USD loan of Baht 458 million compared to Baht 68 million in 2018. The USD loan value had decreased in term of Thai Baht currency.

In addition, gain from impairment and disposal of fixed assets were Baht 770 million in 2019 while they were Baht 296 million in 2018. These mostly contributed to the reversal impairment of land and investments as well as gain of land sales to WHA Industrial Estate Rayong Co., Ltd. (WHA IER). There was the corporate income tax benefit amounting to Baht 779 million against income tax expense of Baht 1,147 million from the prior year, because of the decreasing operating results. All mentioned above resulted to the 2019 net loss of Baht 1,174 million versus the net profit of Baht 7,735 million in 2018.

Key Incident in 2019

- **Employee benefit according to the Labor Protection Act**

The Labor Protection Act (No. 7) BE 2562 has been effective on May 5, 2019. It stated that the employers provide additional legal severance pay rates for employees who have worked for an uninterrupted period of twenty years or more. Such employees are entitled to receive compensation from 300 days to 400 days. Hence, the Company recorded an increase in employee benefit expense from past service cost till December 31, 2018 amounting Baht 763 million.

- **Investment in Guangzhou Saiju Performance Polymer Ltd.**

In August 2019, the Company made a payment for the capital increase in Guangzhou Saiju Performance Polymer Ltd. ("GZSJ") who is the major operator of plastic product e-commerce business in China. The investment will be the subscription of capital increased shares equivalent to 15% of total registered capital, in an amount of RMB 135 million or equivalent to the estimated investment value of THB 600 million.

- **Investment in I-Polymer Company Limited**

In August 2019, the Company made a payment for the capital increase in I-Polymer Company Limited. The registered capital was amounting to THB 120 million by which the Company and GZSJ will hold the shares equivalent to 55% and 45% of total shares, respectively. Such the subsidiary will be incorporated to conduct the e-commerce trading focusing in plastic products in Thailand.

- **Investment in WHA Industrial Estate Rayong Company Limited**

In September 2019, the Company made a payment for the investment in WHA Industrial Estate Rayong Company Limited. The registered capital of the joint venture is Baht 650 million of which the investment portion of 40% or equivalent to Baht 260 million will be held by the Company.

- **Sales of land in Ban Khai district, Rayong province**

In September 2019, the Company sold and transferred land right in Ban Khai District, Rayong Province to WHA Industrial Estate Rayong Company Limited with the land of approximate 2,152 rai. This equivalent to Baht 624 million. The Company recorded gain from sales of land by Baht 124 million

- **The reversal impairment of long-term investment**

In December 2019, the Company recorded the reversal impairment of investment of Baht 438 million in consideration of the recoverable amount of financial assets from investments in 4 companies related to the previous management including Pornchai Enterprise Co., Ltd., TPI EOEG Co., Ltd., TPI Holding Co., Ltd. and Thai Special Steel Industry Plc.

- **Sales of shares in IRPC A&L Company Limited**

In December 2019, the Company sold shares in IRPC A&L Company Limited in the proportion of 2.50%, equivalent to Baht 3.96 million to Nippon A&L Company Limited, which was in accordance with the terms of the joint venture agreement. Thereafter, the proportion of investment of the Company reduced to 57.48%.



Operating Performance

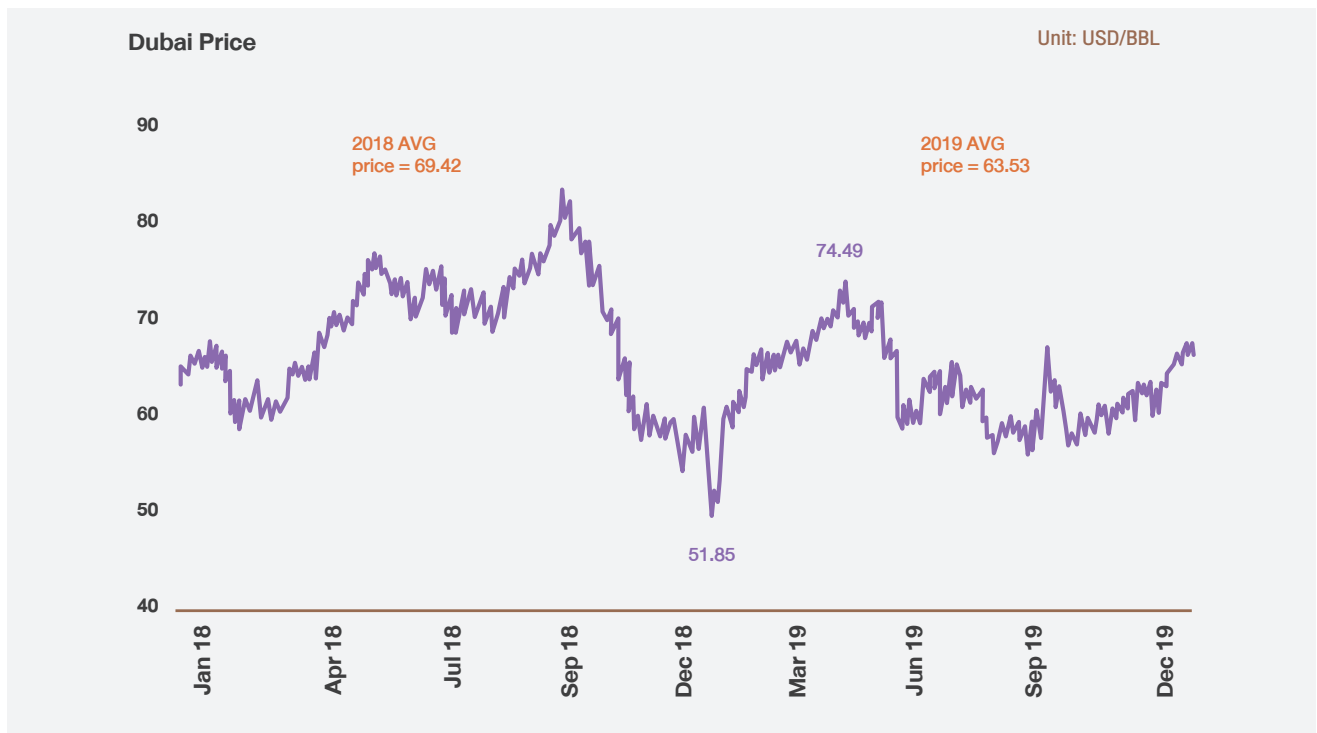
1. Operating Performance by Business Units

1.1. Petroleum Business Unit

1.1.1 Petroleum Market Overview

Crude oil situation in 2019: The global oil consumption was 100.8 million barrels per day while it was 100 million barrels per day in 2018. The Dubai price had moved between USD 51.85 per barrel and USD 74.49 per barrel, an average of USD 63.53 per barrel, decreased by USD 5.89 per barrel from an average of USD 69.42 per barrel in 2018. The crude oil prices remained highly volatile this year. The oil market began in positive territory at the beginning of the year thanks to the collaboration among OPEC⁺ in production cut by approximately 1.2 million barrels

per day, an increase in crude oil import quotas from China and a suspension of Russian crude oil import via Druzhba pipeline from Poland and Germany due to crude contamination. These brought crude oil prices to reach the highest level of USD 74.49 per barrel in April 2019. Nevertheless, crude oil prices had dropped continuously afterwards amid concerns over the economic recession combined with lower crude oil consumption due to a prolonged trade war between China and the U.S. as well as the higher production volume from the U.S. although the maintaining low productions level from OPEC in order to keep market balance including sanctions of the U.S. against Iran and Venezuela.



However, crude oil prices surged in mid-September 2019 after a devastating attack on Saudi Arabian oil facilities and tension in the Middle East. In addition, the increased demand of refineries that have resumed their full capacity after the maintenance shutdown in order to support oil production in accordance with the new shipping oil standard (IMO), supporting crude oil prices at the end of the year.

1.1.2 Crude Intake and Capacity

Petroleum	2019	2018	Changed
Crude Intake			
Million barrels	72.00	76.05	(5%)
KBD	197	208	(5%)
Utilization Rate			
Refinery	92%	97%	(5%)
RDCC	102%	99%	3%
Lube Base Oil	82%	85%	(3%)



In 2019, crude intake was 72 million barrels or 197 KBD, U-Rate at 92%, decreasing by 5 % from 2018 due to the planned shutdown of RDCC and ADU1 in 2019.



Crude intake in 2019 was 72 million barrels or 197,000 barrels per day (197 KBD). The utilization rate was 92%, decreasing 5% when compared to 2018, due to the planned shutdown of RDCC (Residue Deep Catalytic Cracking) plant for catalyst cooler equipment installation in 1Q19 and the ADU 1 (Atmospheric Distillation Unit 1) unit's planned

maintenance shutdown approximately 2 weeks for cleaning and inspection of heat exchanger in 3Q19.

The utilization rate of RDCC plant was 102% in 2019, up by 3% when compared to 2018 of 99% utilization rate according to its fully operation after the catalyst cooler equipment installation in 1Q19 and the increase in Hyvahl unit utilization rate for raw materials preparation with regard to the very low sulfur fuel oil (LSFO 0.5%) production towards the International Marine Organization (IMO) new standard implementation.

The utilization rate of Lube Base Oil plant was 82% in 2019, down by 3% when compared with 2018 owing to a maintenance shutdown of the efficiency improvement unit in 3Q19.

1.1.3 Petroleum Sales

Products	Sales Volume (Million Barrel)		Sales Value (Million Baht)	
	2019	2018	2019	2018
Refinery	57.99	60.83	136,670	163,724
Lube Base Oil	6.88	7.01	16,781	19,229
Total	64.87	67.84	153,451	182,953



For 2019, net sales of petroleum businesses decreased by 16%, YoY, due to the decline average price following crude oil price and the decrease in sales volume.



For 2019, net sales of petroleum businesses were Baht 153,451 million, decreased by Baht 29,502 million or 16% from 2018. This resulted from 12% decline in average products prices following the crude oil price as well as 4% decrease in sales volume from 67.84 million barrels to 64.87 million barrels. The decreased sales volume was mainly from Diesel and Gasoline while sales volume of Naphtha and Very Low Sulfur Fuel Oil (LSFO 0.5%) increased.

1.1.4 Petroleum Sales Breakdown

Products	2019		2018	
	Local	Export	Local	Export
Refinery	58%	42%	60%	40%
Lube Base Oil	41%	59%	40%	60%
Total	56%	44%	57%	43%

For 2019, the percentage of domestic and export of petroleum product was 56% and 44% consecutively. The percentage of domestic declined by 1% when compared with 2018, mainly from Diesel, while the sales volume of LSFO 0.5% rose. The export products in 2019 mostly shipped to Singapore, Malaysia and Cambodia, respectively.

1.1.5 Petroleum Products Spread

Average price	2019	2018	Changed
Dubai Crude Oil (USD/bbl)	63.53	69.42	(8%)
Petroleum (USD/bbl)			
Naphtha – Dubai	(6.6)	(2.4)	(175%)
ULG95 – Dubai	9.0	10.5	(14%)
Gas Oil 0.05%S - Dubai	13.7	14.6	(6%)
FO 180 3.5%S - Dubai	(4.9)	(2.6)	(88%)
Lube Base Oil (USD/MT)			
500SN - FO 180 3.5%S	321	447	(28%)
150BS - FO 180 3.5%S	490	518	(5%)
Asphalt - FO 180 3.5%S	13	(46)	128%

The spread between Petroleum Products and Raw Material

The Spread between Petroleum Products and Dubai

- **Naphtha Spread-Lower:** Naphtha - Dubai spread in 2019 was USD -6.6 per barrel, decreased by 175% when compared to 2018 of USD -2.4 per barrel due to an increase in Naphtha portion according to high-level of U.S. light crude oil output, high supply from new Hengli refinery in China and weaker demand from petrochemical. Naphtha - Dubai spread in 4Q19 was USD -2.2 per barrel, up by 72% from USD -7.8 per barrel of 3Q19. This was mainly due to less export volume from the Middle East and Europe to Asia as well as the increase demand from Naphtha Cracker resumption after maintenance period. Moreover, its demand for blending to Gasoline was up amid high Gasoline price.
- **ULG95 Spread-Lower:** ULG 95-Dubai spread in 2019 was USD 9.0 per barrel, declining 14% from 2018 of USD 10.5 per barrel. This resulted from the high-level of ULG 95 production in accordance with a continuous increase in the U.S. light crude oil output. In addition, a rising export volume from China also pressured the price. ULG95 - Dubai spread in 4Q19 was USD 12.9 per barrel, increased by 10% from 3Q19 of USD 11.7 per barrel. This was because of the increasing demand from the U.S., India and Indonesia as well as low supply from seasonal shutdown of refineries.
- **Gas Oil Spread-Lower:** Gas Oil 0.05%S - Dubai was USD 13.7 per barrel in 2019, down by 6% when compared with 2018 of USD 14.6 per barrel. This resulted from the high-volume of Gas Oil production complying with the new IMO regulation to earn benefit of the higher Gas oil price forecast due to the increasing demand expectation. While the fleet still used LSFO 0.5% rather than Gas oil. In this quarter, Gas Oil 0.05%S - Dubai spread was USD 14.3 per barrel,

down by 7% when compared to 3Q19 of USD 15.4 per barrel, owing to higher export volume from China and high-volume production for supporting the new IMO regulation. It turned out that the marines was likely to used LSFO 5% rather than diesel.

- **Fuel Oil Spread-Lower:** Fuel Oil (FO 180 3.5%S) - Dubai spread in 2019 was USD -4.9 per barrel, down by 88% when compared with 2018 of USD -2.6 per barrel owing to lower demand according to the change of bunker fuel under IMO regulation from high-sulfur fuel oil (HSFO) to low-sulfur fuel oil (LSFO 0.5%). In 4Q19, Fuel Oil-Dubai spread was USD -18.7 per barrel, decreased by USD 19.6 per barrel from 3Q19 of USD 0.9 per barrel as a result of the drastic demand drop according to the change of the IMO shipping standards implementing in 2020. In the meantime, higher LSFO 0.5% demand resulted in a significant increase in LSFO 0.5% - Dubai spread.

The spread between Lube Base Oil products and FO 180 3.5%S

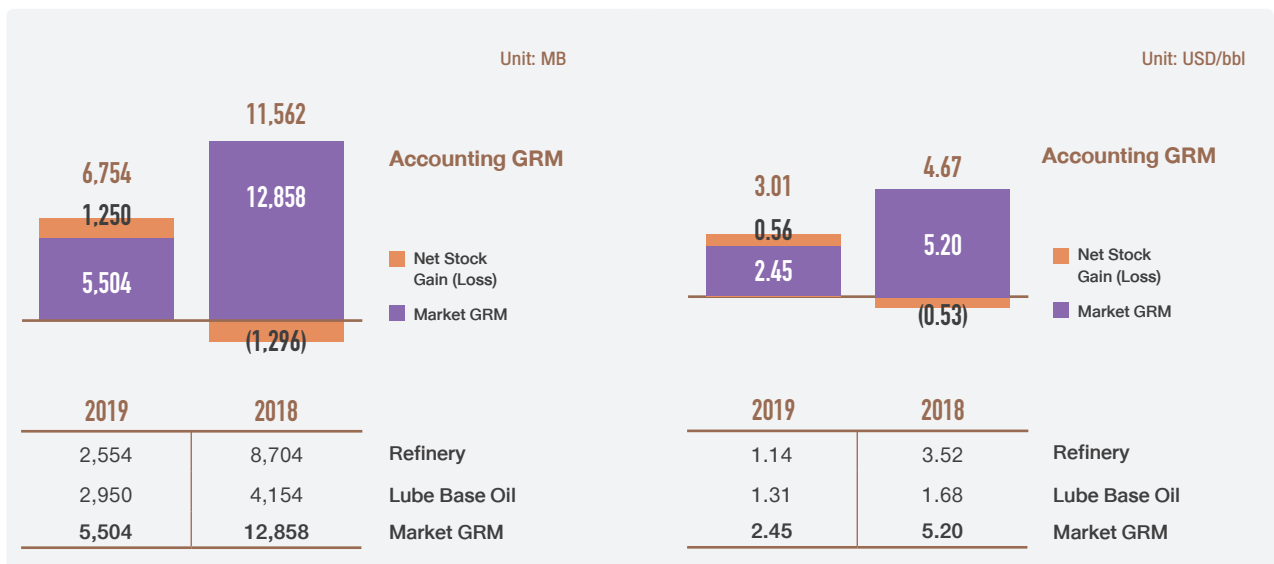
- **500SN Spread-Lower:** Lube base 500SN - fuel oil spread in 2019 was USD 321 per ton, decreasing 28% from USD 447 per ton in 2018 due to a decline demand as a result of the U.S. - China trade war tension, pressuring Base Oil producers to cut their products prices in order to lean inventory. Lube base 500SN - fuel oil spread in 4Q19 was USD 384 per ton, increased by 36% from 3Q19 of USD 283 per ton as lower production in South East Asia and Japan together with extremely low fuel oil prices which affected from the preparation before the implementation of new IMO regulation.



- Asphalt Spread-Higher:** Asphalt - fuel oil spread in 2019 was USD 13 per ton, up by 128% from 2018 of USD -46 per ton, owing to a continuously increasing demand from the construction in South East Asia. Furthermore, fuel oil prices sharply declined by the impact of new IMO regulation implementation. Asphalt-fuel oil spread in 4Q19 was USD 98 per ton, up by USD

100 per ton when compared to 3Q19 of USD -2 per ton, caused by high demand after the monsoon season, the accelerating of road construction to complete within the budget period during the year end together with the lower fuel oil prices in relation with the new IMO regulation.

1.1.6 Gross Refining Margin



For 2019, Market GRM declined by Baht 7,354 million, YoY, as a drop in petroleum products spread, especially Diesel and Gasoline.



For 2019, Market GRM was Baht 5,504 million or USD 2.45 per barrel, declining 7,354 million or USD 2.75 per barrel. This resulted from a decrease in petroleum products spread, especially Diesel and Gasoline. The net stock gain was Baht 1,250 million or USD 0.56 per barrel including stock loss of Baht 91 million, gain from a reversal of LCM of Baht 665 million and oil hedging gain of Baht 676 million. Thus, Accounting GRM was Baht 6,754 million or USD 3.01 per barrel, decreasing by Baht 4,808 million or USD 1.66 per barrel when compared with last year.

1.2 Petrochemical Business Units

1.2.1 Petrochemical Market Overview

Petrochemical market situation in 2019: Petrochemical products demand had declined in accordance with the sluggish global economy. The World Bank had downwardly revised the 2019 global growth from 2.6 % to 2.4% due to concerns on the prolonged U.S. - China trade war. Likewise, the National Bureau of Statistics of China announced that China's economic growth rate in 2019 grew by only 6.1%, the lowest since 1990. The impact had also affected many countries, including the Europe especially countries that rely heavily upon the proceeds from

export. Furthermore, the “single-use plastic ban” campaign resulted in lower demand for polymers. The regional capacity addition in Polyolefins group was also another factor that pressured the price of petrochemical products. On the other hand, the increase in consumption of durable plastics such as durable plastic containers, coffee mug, cold storage mug, fabric bags as well as the packaging plastics for logistics in order to serve the on-line shopping trend together with the advanced in trade negotiations between the U.S. and china were the factors supporting demand for petrochemical products.

1.2.2 Petrochemical Capacity

	2019	2018	Changed
Utilization Rate			
Olefins Group	95%	94%	1 %
Aromatics and Styrenics Group	93%	101%	(8%)

In 2019, the utilization rate of Olefins was 95%, being similar with 2018 of 94% utilization rate. The utilization rate of Aromatics & Styrenics was 93%, decreased by 8% when compared to 2018 of 101% utilization rate. It caused by the annual planned maintenance shutdown for changing new catalyst in EBSM plant and new control unit's equipment in ABS plant in order to improve plant efficiency in 1Q19.

1.2.3 Petrochemical Sales

Products	Sales Volume (KMT)		Sales Value (Million Baht)	
	2019	2018	2019	2018
Olefins Group	1,117	1,107	37,671	43,979
Aromatics and Styrenics Group	702	728	21,985	28,760
Total	1,819	1,835	59,656	72,739



For 2019, net sales of petrochemical businesses declined by 18% from last year, owing to 17% decrease in average selling prices as well as 1% decrease in sales volume.



For 2019, net sales of petrochemical businesses were Baht 59,656 million, dropping by Baht 13,084 million or 18% from last year. This was caused by 17% decline in average selling prices following lower raw material price as well as 1% decrease in sales volume, mainly from Styrene Monomer, Mixed Xylene and Toluene while sales volume of Polypropylene (PP) increased.



1.2.4 Petrochemical Sales Breakdown

Products	2019		2018	
	Local	Export	Local	Export
Olefins Group	59%	41%	58%	42%
Aromatics and Styrenics Group	45%	55%	46%	54%
Total	54%	46%	53%	47%

For 2019, the proportion of Petrochemical sales were 54% domestic and 46% export. The domestic sales increased by 1%, mostly from PP. The petrochemical exported products in 2019 mostly shipped to Hong Kong, Singapore and Vietnam, respectively.

1.2.5 The Spread between Key Petrochemical Products and Raw Material

Average price (USD/MT)	2019	2018	Change
Naphtha	523	614	(15%)
Olefins			
Ethylene - Naphtha	301	526	(43%)
HDPE - Ethylene	298	360	(17%)
HDPE - Naphtha	599	886	(32%)
Propylene - Naphtha	316	375	(16%)
PP - Propylene	256	278	(8%)
PP - Naphtha	572	653	(12%)
Aromatics			
BZ - Naphtha	118	207	(43%)
TOL - Naphtha	121	123	(2%)
MX - Naphtha	169	196	(14%)
Styrenics			
SM - Naphtha	484	726	(33%)
ABS - Naphtha	934	1,272	(27%)
PS (GPPS) - Naphtha	724	912	(21%)

The spread between Petrochemical Products and Raw Material

The Spread between Polyolefins (HDPE/PP) and Naphtha

- **HDPE Spread-Lower:** HDPE - Naphtha spread in 2019 was USD 599 per ton, fell by 32% from 2018 of USD 886 per ton due to an impact of the U.S. - China trade war plus the reducing demand in single-use plastic according to the environmental conservation campaign. Moreover, there was the supply glut through largely increase in the U.S. capacity. HDPE - Naphtha spread in 4Q19 was USD 457 per ton, down by 22% when compared to previous quarter at USD 589 per ton due to the concern over the prolonged trade war. Hence, this caused producers more cautious in order to manage their inventory level.
- **PP Spread-Lower:** PP - Naphtha spread in 2019 was USD 572 per ton, decreased by 12% from 2018 of USD 653 per ton because of the impact of the U.S. - China trade war and new supply in the region. However, the demand in the urbanization of developing country supported the product price. PP - Naphtha spread in 4Q19 was USD 499 per ton, decreased by 15% when compared with 3Q19 at USD 586 per ton as the increase of capacity additions in the region and high export volume from the Middle East.

The spread between Aromatics group and Naphtha

- **TOL and MX Spread-Lower:** In 2019 Toluene - Naphtha spread and Mixed Xylene - Naphtha spread were USD 121 per ton and USD 169 per ton respectively, down by 2% and 14% when compared with 2018. This caused by oversupply from new integrated capacity of paraxylene in China, such as Hengli plant with a production

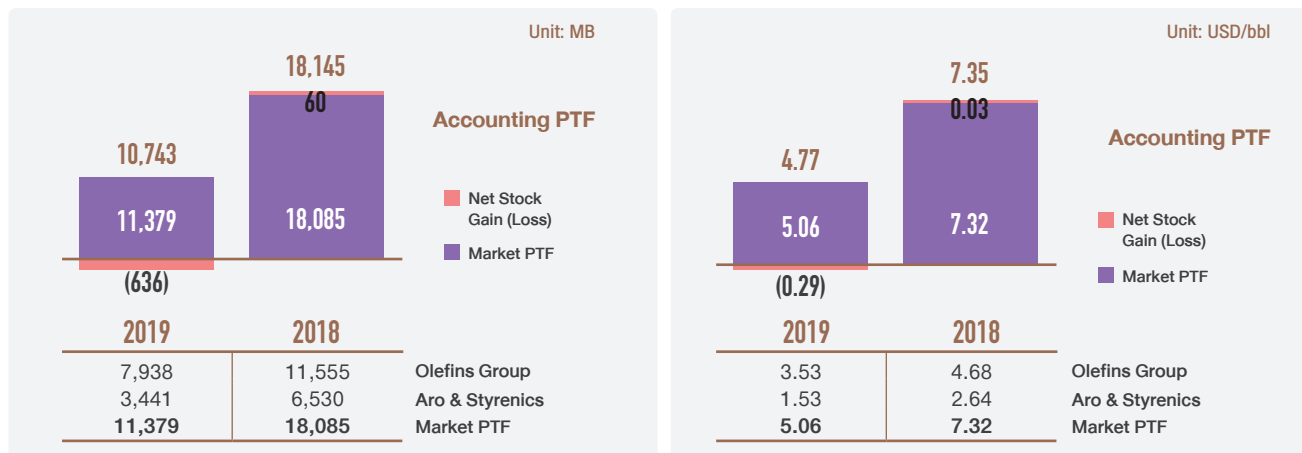
capacity of 4.5 million tons per annum. In addition, lower demand for paraxylene as the prolonged U.S. - China trade war resulted in a decrease in demand of toluene and mixed xylene, the paraxylene raw material. In 4Q19, Toluene - Naphtha spread and Mixed Xylene - Naphtha spread were USD 120 per ton and USD 149 per ton respectively, down by 26% and 29% respectively when compared with 3Q19. It was resulted from the completion of new integrated paraxylene plant in China.

The spread between Polystyrenics group and Naphtha

- **ABS Spread-Lower:** ABS - Naphtha spread in 2019 was USD 934 per ton, down by 27% when compared to USD 1,272 per ton in 2018. This was caused by the soften demand from China, which was the impact of the prolonged U.S. - China trade war despite slightly increase in new capacity. ABS - Naphtha spread was USD 848 per ton in 4Q19, down by 9% when compared to USD 932 per ton in 3Q19 owing to the unpredictable of the U.S. - China trade deal which led to the delay demand during festive periods at the end of the year.
- **PS Spread-Lower:** PS - Naphtha spread in 2019 was USD 724 per ton, declined by 21% when compared to USD 912 per ton in 2018 because of lower demand from the Single-Use Plastic Campaign, such as foam container, and being replace by other polymers to reduce environmental impact. PS - Naphtha in 4Q19 was USD 622 per ton, down by 14 % from 3Q19 of USD 721 per ton, due to the uncertainty of the U.S. - China trade war as well as a decreasing inventory at the end of the year.



1.2.6 Product to Feed Margin (Product to Feed: PTF)



For 2019, Market PTF decreased by Baht 6,706 million or USD 2.26 per barrel from last year as a sharply decline in petrochemical products spread.



For 2019, Market PTF was Baht 11,379 million or USD 5.06 per barrel, dropping by Baht 6,706 million or USD 2.26 per barrel from last year. The main reason was the sharply decline in petrochemical products spread as a result of the trade war between the U.S. and China. Meanwhile, the Company reported the net stock loss of Baht 636 million attributed to the stock loss of Baht 649 million but there was gain from the reversal of LCM amounting to Baht 13 million. Thus, the Accounting PTF was Baht 10,743 million or USD 4.77 per barrel. It fell by Baht 7,402 million or USD 2.58 per barrel when compared with 2018.

1.3 Power Plant and Utility Business Units

1.3.1 Power Plant Capacity and Sales

	2019	2018	Changed
Utilization Rate			
Electricity	71%	79%	(8%)
Steam	60%	79%	(19%)
Sales (Million Baht)			
Electricity	2,071	1,947	6%
Steam	1,153	1,034	12%
Others	246	276	0%
Total	3,470	3,227	8%

In 2019, the utilization rate of Electricity was 71% and the utilization rate of Steam was 60%, down by 8% and 19% from 2018 respectively due to the planned shutdown of RDCC plant for catalyst cooler equipment installation in 2019. Net sales of power and utility businesses were Baht 3,470 million, increasing by Baht 244 million or 8% from 2018 owing to an increase in electricity sales volume to EGAT and an increase in average selling price of steam.

2. Total Operating Performance

Total Operating Performance of IRPC and its subsidiaries for 2019 are as follow;

	Unit: Million Baht		Unit: USD per barrel	
	2019	2018	2019	2018
Average FX (THB/USD)	31.22	32.48		
Total Crude Intake (Mbbbl)	72.00	76.05		
Average Crude (USD/bbl) ⁽¹⁾	66.99	72.65		
Sales ⁽²⁾	239,315	280,551	106.46	113.58
Net Sales ⁽³⁾	216,577	258,919	96.35	104.82
Cost of Feedstock (Market Price)	(197,022)	(225,312)	(87.65)	(91.22)
Market GIM	19,555	33,607	8.70	13.60
Stock Gain (Loss)	(740)	(420)	(0.33)	(0.17)
Lower of Cost or Market	678	(848)	0.30	(0.34)
Oil Hedging Gain (Loss)	676	30	0.30	0.01
Accounting GIM	20,169	32,370	8.97	13.10
Other Incomes ⁽⁴⁾	2,021	1,577	0.90	0.64
Selling Expenses	(1,464)	(1,524)	(0.65)	(0.62)
Accounting GIM and Other Incomes	20,726	32,423	9.22	13.12
OPEX	(14,786)	(14,080)	(6.58)	(5.70)
EBITDA	5,940	18,344	2.64	7.42
Depreciation	8,542	(8,237)	(3.80)	(3.33)
EBIT	(2,602)	10,106	(1.16)	4.09
Net Financing Cost	(934)	(2,227)	(0.42)	(0.90)
Gain (Loss) from Foreign Exchange	458	68	0.20	0.03
Gain (Loss) from impairment and disposal of fixed assets	770	296	0.34	0.12
Gain (Loss) from Investment	368	680	0.16	0.27
Other Expenses	15	(8)	0.01	(0.00)
Net Profit/(Loss) before Income Tax	(1,925)	8,915	(0.87)	3.61
Income Tax	779	(1,147)	0.35	(0.46)
Gain (Loss) from non-controlling interests	(28)	(34)	(0.01)	(0.01)
Net Profit (Loss)	(1,174)	7,735	(0.53)	3.14
Earning per share (EPS) (Baht/share)	(0.06)	0.38		

Notes: ⁽¹⁾ Average market prices of crude used in the production process

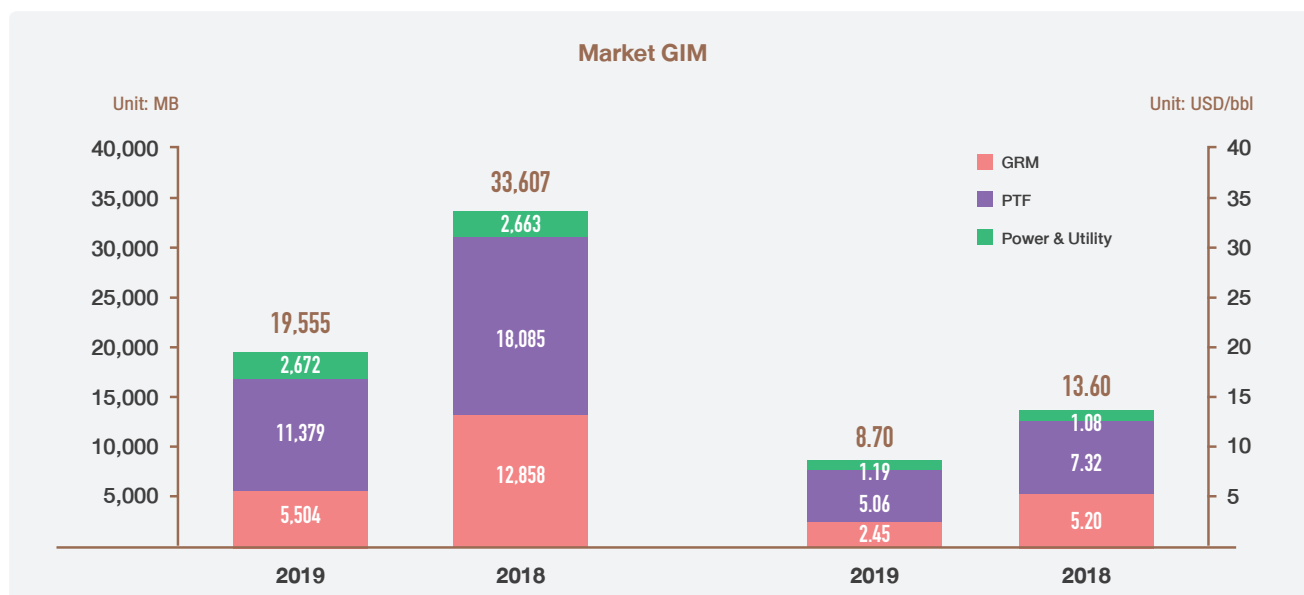
⁽²⁾ Sales includes (1) Petroleum Sales (2) Petrochemical Sales (3) Power and Utilities Sales (4) Sales of tank farm and port service, etc

⁽³⁾ Net Sales includes (1) Petroleum Sales (excluding excise tax) (2) Petrochemical Sales (3) Power and Utilities Sales

⁽⁴⁾ Including port, tank farm and service etc.

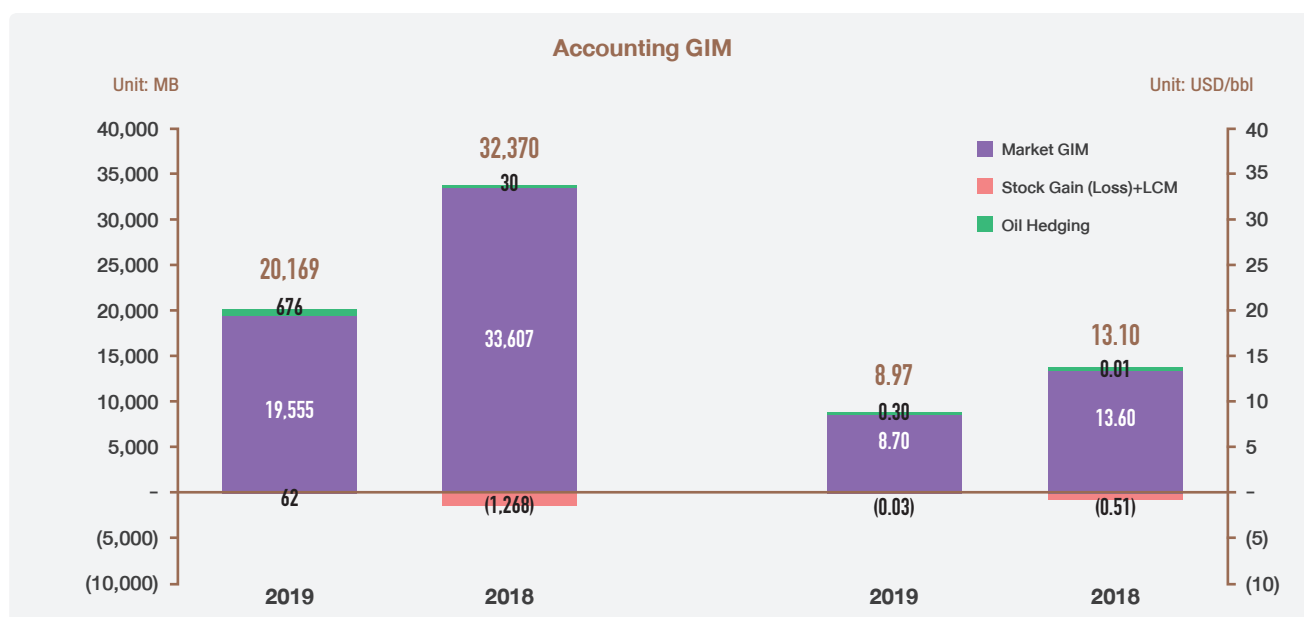


2.1 Market Gross Integrated Margin (Market GIM)



For 2019, Market GIM was Baht 19,555 million or USD 8.70 per barrel, dropped by Baht 14,052 million or USD 4.90 per barrel from last year. This was because of the sharply decline in petroleum and petrochemical products spread as a consequence of the trade war between the U.S. and China.

2.2 Accounting Gross Integrated Margin (Accounting GIM)



For 2019, Accounting GIM of Baht 20,169 million or USD 8.97 per barrel decreased by Baht 12,201 million or USD 4.13 per barrel when compared with the same period last year. This was caused by a decline in Market GIM of Baht 14,052 million or USD 4.90 per barrel while 2019 net stock gain of Baht 614 million or USD 0.27 per barrel, compared with 2018 net stock loss of Baht 1,238 million or USD 0.50 per barrel.

(Unit: Million Baht)

	2019	2018	Changed
Market GIM	19,555	33,607	(42%)
Stock Gain (Loss)	(740)	(420)	(76%)
Lower of Cost or Market (LCM)	678	(848)	180%
Oil Hedging Gain (Loss)	676	30	n.a.
Net Stock Gain (Loss)	614	(1,238)	150%
Accounting GIM	20,169	32,370	(38%)

2.3 Other incomes

Other incomes consist of port and tank farm services and other services. For 2019, other incomes of Baht 2,021 million rose by Baht 444 million compared with last year, mainly owing to an increase in warranty claim of UHV project amounted to Baht 271 million and service income from IRPC Clean Power Co., Ltd.

2.4 Operating Expenses

For 2019, there was the operating expenses of Baht 14,786 million, rose by Baht 706 million from 2018, mainly because of a rise in employee benefit expense in accordance with the new Labor Protection Act, effective on May 5, 2019. It stated that the employers provide additional legal severance pay rates for employees who have worked for an uninterrupted period of twenty years or more. Such employees are entitled to receive compensation from 300 days to 400 days while the consulting fee decreased.

According to the research and development expenses to enhance the Company's competitiveness amounting to Baht 268 million in 2019. Such expenses included expenses for internal and external research and development as well as the staff costs in relation with the research department amounting to Baht 200 million together with the research equipment & tools amounting to Baht 68 million.

2.5 Depreciation and Amortization Expenses

For 2019, the depreciation of Baht 8,542 million rose by Baht 305 million from 2018. The main reason was the completion of the expansion and efficiency improvement projects such as the Catalyst Cooler project that started commercial operation since May 1, 2019.

2.6 Financial Costs

For 2019, financial costs of Baht 934 million dropped by Baht 1,293 million from last year, mainly caused by higher gain from CCS amounting to Baht 951 million.

2.7 Gain (Loss) from Foreign Exchange

For 2019, there was gain from foreign exchange of Baht 458 million while there was gain from foreign exchange of Baht 68 million in 2018. It was higher as a result of Thai Baht appreciation from Baht 32.61 per USD at the end of 2018 to Baht 30.33 per USD at the end of 2019. The Company has outstanding USD debt of USD 200 million at the end of 2019.

2.8 Gain (Loss) from Impairment and disposal of fixed assets

For 2019, gain from impairment and disposal of fixed assets was amounting to Baht 770 million, rising by Baht 474 million from last year. It was attributed to the reversal impairment of land and investments in companies related to the previous management as well as gain from the disposal of land at Ban Khai District, Rayong Province to WHA Industrial Estate Rayong Co., Ltd.

2.9 Gain (Loss) from Investments

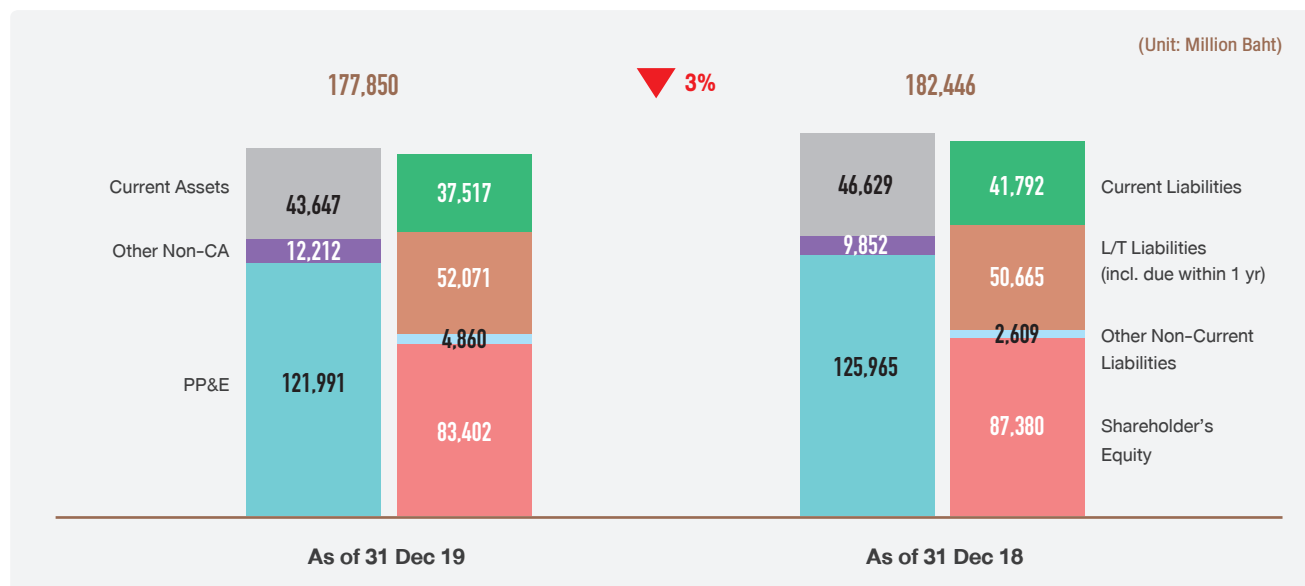
For 2019, gain from investments was amounting to Baht 368 million, declined by Baht 312 million from 2018. This resulted from lower equity values in associates and joint ventures.

2.10 Corporate Income Tax

For 2019, the company recorded the corporate income tax benefit amounting to Baht 779 million, compared with 2018 income tax expense of Baht 1,147 million. This was mainly caused by the decline in operating performance.



Financial Positions as of 31 December 2019



Assets

As of December 31, 2019, the Company had total assets of Baht 177,850 million, decreased by Baht 4,595 million or 3% from December 31, 2018. It was due to the following reasons:

- **Account receivables** decreased by Baht 2,097 million or 17% from the end of 2018, mainly due to a decrease sales volume and Thai Baht appreciation. As of December 31, 2019, there were overdue more than 3-months account receivables amounting to Baht 43 million or only 0.43% of the total account receivables which incorporated in the provision for doubtful debt of Baht 32 million. The average collection period was 17 days in 2019, increased by 1 days from 2018.
- **Inventory** decreased by Baht 2,464 million or 9% due to Thai Baht appreciation. The average inventory period was 41 days, increased by 1 day from 2018.
- **Other current assets** increased by Baht 1,578 million or 26%. This was mainly attributed to an increase in cash and cash equivalents by Baht 698 million, an increase in other receivables of Baht 815 million and an increase in other current assets of Baht 177 million against a decrease in refundable value-added-tax of Baht 277 million.

- **Non-current assets** decreased by Baht 1,614 million or 1% mainly due to a decrease in fixed assets and investment properties of Baht 3,957 million which mostly declined by an increase of the accumulated depreciation and sales of land in Ban Khai District, Rayong Province while increasing from the other non-current assets of baht 1,025 million comprising of an increase in investment in Guangzhou Saiju Performance Polymer Ltd. (GSZJ), and a reversal of impairment of land and investment in companies related to the previous management. Furthermore, there were an increase of investment in associates and joint ventures of Baht 458 million and an increase in deferred tax asset of Baht 1,054 million.

Liabilities

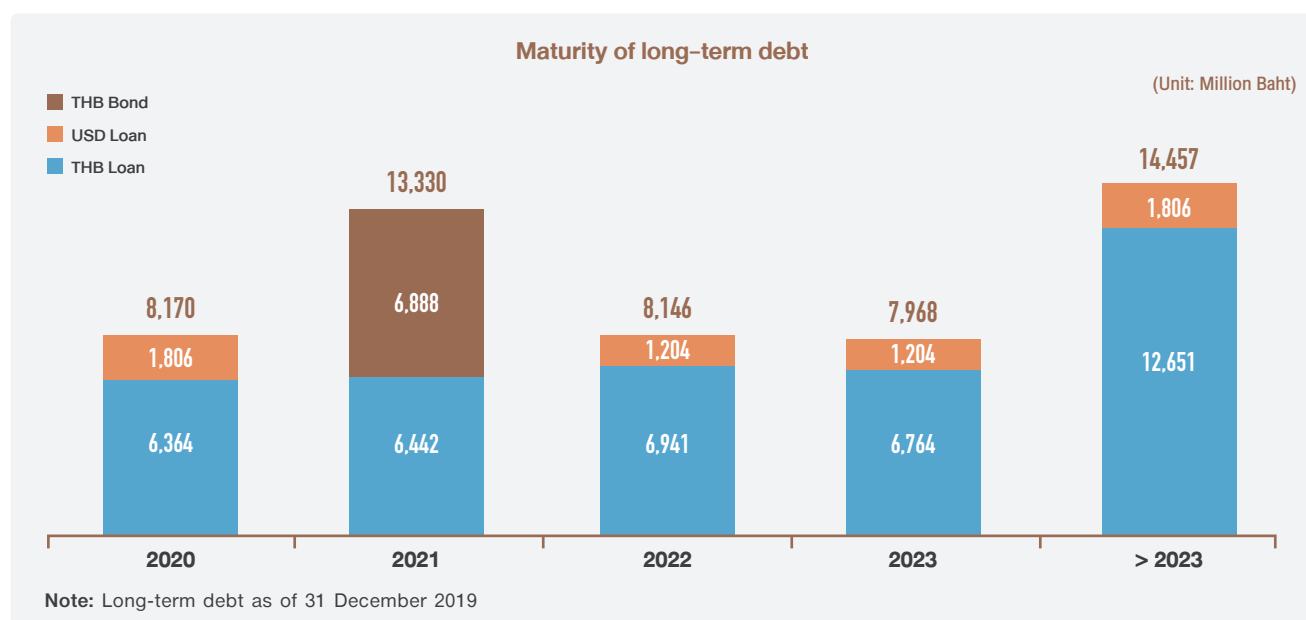
As of December 31, 2019, the Company had total liabilities of Baht 94,448 million, decreasing by Baht 618 million or 1%, compared to the end of 2018. It was due to the following reasons:

- **Short-terms loans from financial institutions** increased by Baht 200 million or 3% for working capital.

- **Account payables** decreased by Baht 1,341 million or 5%. It was due to a decrease of crude oil payable at the end of 2019 and Thai Baht appreciation while an increase of crude oil price in December 2019. The average payment period was 39 days, increased by 3 day from 2018.
- **Other current liabilities** decreased by Baht 3,135 million or 35%, due to a decline in construction payables of Baht 1,688 million, a decrease in excise tax payable and oil fund payable of Baht

1,099 million, a decrease in accrued bonus of Baht 310 million while an increase in advance receipts for goods of Baht 245 million.

- **Long-term debt including current portion within one year** increased by Baht 1,406 million, mainly due to an increase by long-term loans drawdown amounted to Baht 8,950 million while there was loan repayment of Baht 7,104 million and recording of unrealized foreign exchange gains by Baht 457 million according to Thai Baht appreciation.



The details of long-terms debt are shown below;

(Unit: Million Baht)

	Dec 31, 2019	Dec 31, 2018	Change
Thai Baht Bonds	6,888	10,250	(3,362)
USD Loan	6,021	6,463	(442)
Thai Baht Loan	39,162	33,952	5,210
Total	52,071	50,665	1,406
less current portion of long-terms debt	(8,190)	(7,104)	(1,086)
Net Outstanding Long-Term Debt	43,881	43,561	320

Note: As of 31 December 2019, the Company had Cross Currency Swap (CCS) in a total amount of USD 280 million.

- **Other non-current liabilities** were up by Baht 2,251 million. This resulted from an increase in employee benefit obligations.



Shareholders' Equity

As of 31 December 2019, shareholders' equity was amounted to Baht 83,402 million, which was lower than what was stated as at 31 December 2018 by Baht 3,978 million. This was mainly from net loss amounted to Baht 1,174 million, dividend paid by Baht 1,837 million and the increase in employee benefit obligations towards the revised assumption for employee obligation calculation by Baht 1,006 million.

Statement of Cash Flow

(Unit: Million Baht)

		2019	2018
1	EBITDA	5,940	18,344
2	Change in operating assets and liabilities	1,587	(40)
3	Net cash flows from (used in) operating activities	7,527	18,304
4	Net cash flows from (used in) investing activities	(5,954)	(6,536)
5	Net cash flows from (used in) financing activities	(875)	(11,575)
6	Net increase (decrease)	698	193
7	Cash at beginning	2,338	2,145
8	Cash at ending	3,036	2,338

As of 31 December 2019, the ending cash was Baht 3,036 million. Net cash flow increased by Baht 698 million, which was mainly contributed from the following items;

- **Net cash inflow from operating activities** of Baht 7,527 million consisted of EBITDA of Baht 5,940 million and changes in the operating assets and liabilities of Baht 1,587 million. The cash inflows from a decrease in account receivable of Baht 2,092 million, a decrease in inventory of Baht 2,741 million, a decrease in refundable VAT of Baht 278 million and an increase in advance receipts for goods of Baht 245 million. Nevertheless, the cash outflows from operating transactions decreased from a decrease in trade payable of Baht 1,340 million, a decrease in other payable of Baht 1,329 million, a decrease in accrued bonus of Baht 310 million and an increase in other receivable of Baht 797 million.
- **Net cash outflow from investing activities** of Baht 5,954 million, mainly from disbursement for projects such as Catalyst Cooler project, the investment in GZSJ and WHA Industrial Estate Rayong Co., Ltd.
- **Net cash outflow from financing activities** of Baht 875 million, mainly from long-term loan repayment of Baht 7,104 million, interest payment of Baht 2,056 million and dividend payment of Baht 1,837 million. Nevertheless, net cash inflow included long-term loan drawdown of Baht 8,928 million, short-term loan drawdown of Baht 200 million and gain from financial derivatives contracts of Baht 969 million.

Liquidity and Capital structure

In 2019, current ratio was 0.95 times being equal to 2018. The Company has sufficient liquidity for its operations. At the end of 2019, net debt to equity ratio was 0.67 times, increasing by 0.04 times from 2018 of 0.63 times. This was mainly due to a decrease in shareholders' equities. The Company could complete all payments on due date and comply with all of the Financial Covenants.

2020 Business Outlook

1. Petroleum Business

2020 Crude oil outlook: the world oil demand forecast is approximately 102.1 million barrels per day. It is expected to grow by 1.3 million barrels per day compared to last year that grew by 0.8 million barrels per day. This is driven by the fully operation of the refineries in accordance with the new shipping oil standard (IMO), the announcement of the OPEC⁺ production cut by an additional 0.5 million barrels per day from 1.2 million barrels per day in 2019 to 1.7 million barrels per day in the first quarter of 2020. The OPEC⁺ tend to keep their productions at low level to balance the market. Besides, the easing of trade war after the “Phase 1” deal in January will spur world economic growth. However, crude oil prices remain under pressure from the increasing crude oil supply from the U.S. and the concerns on oil demand amidst the coronary virus outbreak (Coronavirus) in Wuhan, China. Regarding the virus, it can be transmitted during the incubation period without symptoms was flawed. This causes the Chinese oil demand to drop by 3 million barrels per day, the largest volume since the Subprime crisis in 2008, in case of the disease can be restricted to the area but if unable to control, it will deepening impact on demand. In addition, The Brexit may also affect the economic growth and oil consumption. Such that, the average Dubai crude oil price forecast in 2020 is in the range of USD 55 - 65 per barrel. The long-term factors that may needs to be watched, such as the green energy policy and sustainable energy development may reform the energy demand.

2. Petrochemical Business

2020 Petrochemical outlook: Petrochemical business tends to be positive following the rising economic growth. The World Bank projected the global economic growth to edge up to 2.5% in 2020 compared to 2.4% in 2019. At the beginning of the year, the petrochemical industry began to show signs of recovery after the completion of “Phase 1” trade agreements between the U.S. and China and the increasing demand according to the Chinese New Year that begins earlier than every year. Plus, the Government stimulus policies has encourage the demand, for example, the statement from the

China’s central bank, the PBOC, to inject 1.5 hundred billion Yuan of liquidity into markets amid new coronavirus outbreak, and the Eastern Economic Corridor (EEC) project development by the Thai government. However, there are several key events may force the market such as the capacity additions, especially in the Polyolefin group, which is expected to reach 12 - 13 million tons, while demand is forecast to increase 5 - 6 million tons and the single-use plastic ban campaign, to reduce the consumption of single-use plastic, as well as the outbreak of the coronavirus which is dampen the products demand. Although the coronavirus outbreak may affect the overall economic growth, it bring plastic demand in the pharmaceutical product group and may cause the lower petrochemical productions in China which lead to the higher products price in the short term.

Due to the economic uncertainty situation, the reduction of plastic consumption in relation with the environmental concern as well as the continuous increase in new production capacity will intensify petrochemical market. The Company has realized the situation and tend to explore key strategies in high value products. These strategies include researching and developing products to fulfill customer needs, as well as looking for market partners in specialties such as automotive group, floating solar group and battery product group including battery separation and lithium battery components which is in the same direction with the Company’s policy focusing on Eco-friendly products and the expansion of urban society.

Investment Projects

1. Investment Project Progress

1.1. The Ultra Clean Fuel Project (UCF): The objective of the UCF Project is to increase refinery plant’s efficiency and upgrade diesel quality to meet the Euro 5 standard in response to the government’s policy which is expected to announce the Euro 5 new standard diesel fuel in 2024. Under the Euro 5 standard, the permitted sulfur level will decline to 10 parts per million



(PPM) from 50 PPM under Euro 4. The project will increase the company's competitiveness through the higher demand for Low Sulfur Diesel in domestic market and Asean Countries (AEC). In addition to the increase the competitiveness to the Company main product, this project is also environmentally friendly, in line with the modern green factory (Eco Factory) policy, the Company policy. Currently, the project is under engineering design phase and targeted to be COD by 2022.

1.2. The floating solar power plant project (12.5 megawatts): The project will generate electricity from solar energy for internal consumption. The pontoon material is developed by the Research & Development (R&D) on specialty High Density Polyethylene (HDPE). This project is also using the water surface of the Company's reservoirs and reduce greenhouse gas (CO₂ Emission) by about 10,000 tons per year. Currently, the project is under construction. It will be able to supply electricity in the first quarter of 2020.

1.3. The ABS Powder Expansion Project: The project goal is to upgrade the polymerization unit in order to improve properties of ABS powder, increase cost competitiveness and increase production capacity by 6,000 tons per year. In addition, it will reduce the Volatile Organic Compounds (VOC) released to the environment by gas recovery into the production process. The ABS powder can be used for variety

purposes, especially in the quality improvement of recycled plastic that the market demand is likely to grow continuously. Currently, the project is under construction. Project will COD in the second quarter of 2020.

2. Investment Plan

The Board of Directors meeting no. 12/2019 has approved the company's five-year (Year 2020-2024) investment plan in an aggregate amount of Baht 53,953 million. The major investment plans are including:

2.1 Maximum Aromatics Project or MARS; for Paraxylene and Benzene production which is value-added upon existing feedstock.

2.2 The Ultra Clean Fuel Project or UCF; is to increase refinery plant's efficiency and upgrade diesel quality to meet the Euro 5 standard.

2.3 General and Maintenance Projects; which includes Major Turnaround CAPEX in 2022 as being planned every 5 years.

2.4 E4E and IRPC 4.0 projects; E4E or Everest Forever is ongoing project of the "EVEREST", the efficiency improvement project. Whereas, IRPC 4.0 project is the integration of digital system and innovations throughout the Company's supply chain.

(Unit: Million Baht)

Investment Projects*	2020	2021	2022	2023	2024	Total
(1) Maximum Aromatics Project (MARS)	88	3,675	14,428	11,315	2,965	32,472
(2) Ultra Clean Fuel (UCF)	3,785	2,839	2,365	-	-	8,989
(3) General and Maintenance Projects	1,570	2,164	3,797	1,392	1,632	10,555
(4) E4E and IRPC 4.0	264	194	-	-	-	458
(5) Others	1,255	225	-	-	-	1,480
Total	6,962	9,097	20,590	12,707	4,597	53,953

Note: * Excluding capex for investment opportunity amounting to Baht 14,108 million





CORPORATE RESPONSIBILITY

Corporate Social Responsibility

Quality, Safety, Occupational Health
and Environmental Management (QSHE)

Sustainable Management

APPENDIX

Corporate Governance Report
of Thai Listed Companies
(CGR) 2019





IRPC decided to adopt the excellence of social responsibility strategy and governance sustainability as the guiding principle to ensure sustainability and the achievement of the company's vision.





Corporate Social Responsibility



In 2019 the Board of Directors, together with management, defined and reviewed the strategic plan for the execution of the company's short- and long-term corporate social responsibility (CSR) activities. They decided to adopt the "Governance and Sustainability" excellence strategy as the guiding principle to ensure sustainability and the achievement of the company's vision. It is also their policy to underline the importance of CSR. Their goal is to assure stakeholders that IRPC is capable of executing CSR activities in an appropriate and continuous manner.

Execution Of Strategies Initiatives

Innovation Driving Growth

S1 World-class Fast Follower of Advanced Materials

- 8 Strategic Innovation Frameworks
- Innovation Focus

S2 Leveraging Digital Technologies

- Digital & Innovation Transformation
- Analytic Organization
- Infrastructure Excellence
- Empowering People

S3 To be Leading of Vocational Institution and Training Center

- i-EMS
- i-REC
- i-VOT

Governance and Sustainability

S4 Good Corporate Citizen with Trustworthy and Credibility in Social & Governance

- Good Corporate Governance
- Compliance Excellence
- Corporate Social Responsibility & Good Reputation
- Legal Excellence

S5 Delivering Value Creation to Stakeholders

- ESG Framework Prioritization & Analysis
- Embedding 3D in Core and Work Processes
- SD Leadership Attributes to Create Traction

S6 Internal Audit Excellence

- Business Enablement
- Transparency Enhancement
- IA Capabilities Enhancement

The company's CSR operation, which seeks to create value and value-added for stakeholders, including local communities and society at large, is as follows:

1. CSR is part of IRPC's sustainable growth strategy. The company mandates that its CSR activities must be relevant to its core business. It also requires its CSR structure to consider good governance, the environment, human rights, international standards, shared interests with stakeholders, societal benefits, social returns of a project, social change, creation of value-added for society, and much more. Operations based on this model enable IRPC plants to co-exist with local communities sustainably and enhance company reputation. The model also conforms to the sustainable development goals and the idea of global citizenship of the United Nations.

2. The Board of Directors sets aside an annual CSR budget, engendering confidence among stakeholders in the company's CSR continuity. The budget is divided into three major groups of projects - namely, educational projects, community projects, and nationwide social projects. Further details on key CSR projects in 2019 appear on page 221-239

Moreover, there is an established set of criteria for the selection of CSR projects to maintain a balance between their impacts on society, local communities, and the company and the amount of time required for those impacts to take effect. These criteria optimize the benefits of budget spending and the benefits to stakeholders.

3. The company's CSR complies with the United Nations' Sustainable Development Goals (SDGs). Each project aligns itself with and responds to each of the 17 SDGs. Furthermore, IRPC relies on the DJSI as a benchmark for the sustainability of its business. In fact, being named a DJSI member is an organizational goal. In 2019 IRPC was named a DJSI member in the Oil & Gas Refining and Marketing sector for the sixth consecutive year. In addition, IRPC prepares an annual sustainability report per the Global Reporting Initiative Standards (GRI Standards), including the core option and the additional options for oil and gas companies. All of this

reflects IRPC's commitment and capability for sustainable operations, which are guided by good corporate governance and give due consideration to economic, social, and environmental factors, as well as the mutual growth of all stakeholders. Further details on this subject matter appear in the 2019 Sustainability Report.

4. IRPC's operations are in line with the UN Global Compact (UNGC), of which the company has been a certified member since 2011. IRPC is, in fact, one of the founders of the Global Compact Network Thailand (GCNT), which connects the kingdom to more than 80 countries around the globe. IRPC seeks to responsibly adopt the Ten Principles of the UNGC, encompassing four crucial aspects. To this end, the Board of Directors has enacted the Good Corporate Citizenship Policy and the Human Rights Policy for IRPC and the IRPC Group. Details of their executions appear in the Corporate Governance Report on page 92-132
5. IRPC thoroughly complies with ISO 26000, as well as the guidelines for social responsibility and the guidelines for CSR reports of the Stock Exchange of Thailand. Its compliance encompasses the following aspects: 1. corporate governance, 2. fair business operation, 3. anti-corruption, 4. respect for human rights, 5. equitable treatment of labor, 6. responsibility for consumers, and 7. community and society development. Further details appear in the Corporate Governance Report on page 94-132. Additionally, details of key CSR projects in 2019 appear on page 221-239

Key Corporate Social Responsibility Projects in 2019

Education

Vidyasirimedhi Institute of Science and Technology and Kamnoetvidya Science Academy

IRPC, together with other companies of the PTT Group, is one of the founders of the Vidyasirimedhi Institute of Science and Technology and Kamnoetvidya Science Academy. The company has regularly provided funding to these organizations since 2014 to contribute to the incubation of excellent homegrown Thai scientists and researchers.



IRPC Technological College (IRPCT)

For more than 24 years IRPC has understood the role of practical education in producing a capable workforce. The company founded IRPC Technological College (IRPCT) in Rayong, where students have access to state-of-the-art equipment and machinery and gain real-world experience through an internship program at IRPC or other subsidiaries of the PTT Group. IRPCT has since garnered recognition as the alma mater of Thailand's industrial specialists. The college is recognized by Thailand's Office for National Education Standards and Quality Assessment (ONESQA) and has won many quality-related accolades such as the Excellent Model School certification of the Vocational Education Commission (VEC) and the Royal Award of His Majesty the Late King. IRPCT has produced more than 7,000 high-quality alumni for numerous industries. Their theoretical and practical vocational training have enabled them to genuinely meet the demand of the labor market.

Currently, IRPCT is working with other ASEAN organizations to develop vocational education for

students from Cambodia, Laos, Myanmar, and Vietnam with assistance from the PTT Group and these countries' educational regulators and agencies. As a result, it is considered Thailand's first vocational college to educate students from these five nations. The college offers a Thai program, an English program, and a mini English program for Machine Tool Technology, Mechanical Power Technology, Electrical Technology, Electronics, Information Technology, Accounting, and Business Computer.

Furthermore, IRPCT also offers an advanced vocational education in petrochemical and energy called the iPEC program, which includes three concentrations: petrochemical engineering, industrial chemistry engineering, and energy engineering. This intensive program has received assistance from other organizations within the PTT Group and participating operators for the entrance examination, curriculum, instruction, and assessment. The program produces workers with the knowledge and skills that genuinely meet the demand of operators.



2019 Milestones

- Gold-Level Award, Asia Pacific Accreditation and Certification Commission (APACC): The college was accessed by this ASEAN-based vocational education certification body and was awarded a gold-level certification. IRPCT is Thailand's first industrial-technology vocational school to receive this honor.
- APACC President Dr. Ramhari Lamichhane presented a gold-level award from his organization to Noppadol Pinsupa, president of IRPC PLC. and chairman of IRPC Technology Co., Ltd. Dr. Lamichhane also presented an APACC Certificate of Accreditation to Dr. Phothiwat Paopongchuang, managing director and licensee of IRPC Technology College.





- Level 4 of Independent Quality Assessment: The college passed this assessment, which was conducted by the Office for National Education Standards and Quality Assessment (Public Organization).
- Excellent Model School (EMS): IRPCT was certified as an EMS for the petrochemical and energy engineering segment from the Vocational Education Commission (VEC) in recognition of its petrochemical engineering, industrial chemical engineering, and energy engineering curricula. The certification was presented by Deputy Minister of Education Khun Ying Kalaya Sophonpanich.



- **Multipurpose-Solution Mixer:** IRPCT students constructed a mechanical mixer for the Herb Takhan Training Center's multipurpose solution. The project received funding from IRPC.
- **Light for a Better Life:** As part of the Light for a Better Life project, students provided electrical maintenance service for 24 schools in five provinces - namely Rayong, Chiang Mai, Samut Prakan, Khon Kaen, and Lampang. The project is part of the basic education and leadership development program (E5) of the San Phalang Pracharat Commission.



IRPCT opened the IRPC Technological Service Center to provide more than 50 specialized labor and management training programs, such as safety officer training and safety in confined spaces. The center offers both in-house and public programs. It can also host training sessions and conferences.



Light of a Better Life Project for 24 Schools

ศูนย์บริการ	รายชื่อ	ชุมชน
1. วัดราษฎร์ไศล PTT	1. บ้านชุมชนวัด PTT	1. บ้านโคกนาถ่าน PTT
2. วัดนาถราษฎร์ PTT	2. โรงเรียนบ้านวังมะลิ	ลำปาง
3. วัดนาถราษฎร์ PTT	3. โรงเรียนวัดนาถราษฎร์	1. บ้านนาถราษฎร์ PTT
4. วัดนาถราษฎร์ PTT	4. โรงเรียนวัดนาถราษฎร์	2. บ้านนาถราษฎร์ PTT
5. วัดนาถราษฎร์ PTT	5. โรงเรียนวัดนาถราษฎร์	พิจิตร
6. วัดนาถราษฎร์ PTT	6. โรงเรียนวัดนาถราษฎร์	1. บ้านนาถราษฎร์ PTT
7. วัดนาถราษฎร์ PTT	7. โรงเรียนวัดนาถราษฎร์	
8. วัดนาถราษฎร์ PTT	8. โรงเรียนวัดนาถราษฎร์	
9. วัดนาถราษฎร์ PTT	9. โรงเรียนวัดนาถราษฎร์	
10. วัดนาถราษฎร์ PTT	10. โรงเรียนวัดนาถราษฎร์	
11. วัดนาถราษฎร์ PTT		

5 COUNTIES
9 STAFF
240 STUDENTS



IRPCT 4.0 Strategy “2 (X) Excellent Model”



2020–2024 Strategic Plan: Top 10 Vocational College in ASEAN by 2025

IRPCT’s 2020 vision is to become one of the top 10 vocational colleges in ASEAN by 2025. To realize this vision, the college has formulated a 5-year strategic plan (2020–2024) entitled “IRPCT 4.0 2 (X) Excellent Model.” The plan comprises two strategic pillars:

1. **Excellent Model School (EMS):** The college will produce specialists for the petrochemical industry, energy engineering industry, and others of which the country is in need.

2. **Excellent Social Contribution (ESC):** The college will make academic, vocations, research, and innovation contribution to society, as well as serve as a short-term training center for reskilling and upskilling.

IRPCT will continue to improve its quality of education and produce quality specialists for Rayong, operators in the EEC, and the rest of the country. In doing so, the college will play an essential role in advancing Thailand’s economy.



Energy Engineering



Petrochemical Engineering



Industrial Chemical Engineering

Community

Pun Nam Jai Clinic

Located within the premises of the IRPC Community Network Learning Center, the Pun Nam Jai Clinic has provided local communities around the IRPC Industrial Park with free public healthcare and treatment since 2010. The clinic served 4,111 patients in 2019, most of whom suffered from musculoskeletal conditions, irregular blood pressure, gastrointestinal symptoms, and respiratory illnesses. The clinic forwards patients' medical records to Rayong Hospital, who enters the information into its health database. Healthcare professionals can use this information to plan treatments when further illnesses occur. Moreover, the clinic issued an addition of 830 IRPC cards in 2019. A total of 10,729 cards have been issued so far. Cardholders are entitled to free service at the clinic and a 0.5-Baht per liter discount at IRPC fuel stations.

Mobile Clinic

In collaboration with Queen Sirikit Hospital of the Naval Medical Department, IRPC has launched a mobile clinic to provide primary healthcare for patients who are unable to travel to hospitals or the Pan Nam Jai Clinic. Its services include treatments for neurological and musculoskeletal conditions, respiratory illnesses, gastrointestinal symptoms. It can also perform dental extraction and make eyeglasses for 100 Baht a pair (IRPC is responsible for the excess). IRPC personnel regularly acquaint

patients with company news and information. The mobile clinic is active once a month, making a total of 12 trips a year. In 2019 it served 2,051 patients from communities around the IRPC Industrial Park - namely, Ban Laeng, Taphong, Na Ta Khwan, Choeng Noen Municipality, and Rayong Municipality. Health specialists can use medical records to plan future treatment programs.

Health Promotion Fund for Communities in the Eco Industrial Zone

In 2016 IRPC started a health promotion fund to finance healthcare services for communities within a 5 km radius of its industrial park. It is these communities' right to manage this fund under the guidance of public health specialists. IRPC has donated 6 million Baht to the fund every year. Benefits of the fund to the surrounding communities include health promotion, illness prevention, treatment, and rehabilitation. There is a progress report meeting every two months.

In 2019 the Health Promotion Fund Committee approved 31 projects proposed by the communities, all of which met the established criteria. Examples of these projects are as follows: connecting the Taphong Public Health Center building with the Taphong Ruam Jai IRPC building; training session on how to select foods items that are safe for people's health (Rayong Municipality); procurement of medical equipment for Ban Laeng; procurement of dental equipment for Nong Tabaek Public Health Center; procurement of medical equipment for bed-ridden patients at Mu 7 of Choeng Noen; procurement of fumigation equipment for the control and prevention of contagious diseases in Taphong communities; renovation of the emergency room and patients' card system at Ban Kon Nong Public Health Center, procurement of outdoor exercise equipment for Mu 2 of Na Ta Khwan, procurement of health examination equipment for Mu 3 of Nong Mahat community in Thap Ma; and sponsoring the Wing Phuea Huachai Pai Duai Rak marathon of the Professor Doctor Kalyanakit Kitiyakara Foundation.





Community Enterprise Promotion

Hoping to improve the quality of life for communities around its industrial park, IRPC has provided support for community enterprise groups since 2007. The company has contributed to their increased potential in terms of knowledge, skills, produce processing, packaging development, product standardization, marketing, and much more. IRPC has also led these communities on site visits, such as a visit to the ITC Industry Transformation Center to study the workings of the produce-processing machinery at the Pilot Plant, Factory Operations Building, Industrial Promotion Center Region 9.

Community Drinking Water

IRPC makes and distributes clean drinking water to communities and government agencies around the IRPC Industrial Park for use at public events, including religious ceremonies, training, meetings, and cultural events. In 2019 the company provided 93,024 cups and 29,160 bottles of drinking water.

Community Development Volunteers

IRPC encourages its employees to apply their knowledge and skills to company - and community-initiated activities whose goal is to develop areas around the industrial park, such as making improvements to local buildings, landscapes, and water supply networks. Additionally, IRPC employees also teach basic English and Thai to the senior adults at Nong Chok Convent School for Seniors. These activities benefit society and foster volunteerism among IRPC employees. It also forges a network of co-operation and a culture of corporate social responsibility (the CSR DNA). In 2019 a total of 6,938 employees participated in volunteer work, spending an equivalent of 26,960 volunteer hours.



IRPC has provided improvement support for Taphong Sub-District Broadcast tower's community. Helping people to get efficient communication within community.

Public Facilities

IRPC contributes to the development of public facilities when public funding is insufficient or unavailable. In doing so, the company fulfills the needs of communities and empower them. Past activities include building restrooms for Wat Noen Phutsa in Choeng Noen, landscaping work at Wat Pluak Ket in Choeng Noen, landscaping work at Ban Yai Da Health Center, building a community hall for Mu 10 of Taphon Sub-District, landscaping work around the Nong Nam Tha Kra Sao in Ban Laeng, and landscaping work around the Children's Development Center of the Ban Laeng Sub-District Administration Organization.



Solutions to Flood Problems around IRPC Industrial Park

In response to communities' concerns over flooding, which happens every monsoon season, IRPC has formulated preventive and remedial measures and plans. Since 2016 IRPC has dredged waterways inside and outside the industrial park. Water levels in the company's reservoirs is lowered to accommodate



as much as 1 million cubic meters of rainwater. IRPC also closely monitors rainfalls and water levels in the Rayong Reservoir. Furthermore, IRPC co-operates with the Rayong Royal Irrigation Office to open and close the floodgate according to the current water level.

Additionally, IRPC has also provided heavy machinery for public works, such as dredging public waterways - namely, Nong Nam Tha Kra Sao in Ban Laeng Sub-District. These projects increase storage capacity, adds watershed areas, and reduce the impact of flooding during the rainy season. These endeavors yield direct benefits to local communities.

In 2019 IRPC dredged seven waterways around the industrial park - namely, Nong Si Som of Na Ta Khwan Sub-District; Nong Nam Tha Kra Sao in Ban Laeng Sub-District; Khlong Ban Laeng in Ban Laeng Sub-District; Khlong Ta Son of Ban Kon Nong in Ban Laeng Sub-District; Khlong Ta Po of Ban Taphong Nai in Taphong Sub-District; Khlong Khukrit of the Taphong Community; and Khlong Kha in Choeng Noen Sub-District, Muang District, Rayong Province.



School for Seniors, Mueang District, Rayong Province

Understanding that learning is a life-long process, IRPC has founded a school to provide education and improve the quality of life for senior adults. Following a curriculum for seniors, classes and learning activities at the school cater specifically to senior citizens in the local communities in a way that enhances their essential skills and knowledge, both physical and mental. The school provides an opportunity for social gatherings and shared activities. The adults who attend the school can also gain income-generating and career-promoting know-how with benefits not only to themselves but also their families and society at large. As of 2019, the school had 90 students and held 16 learning activities, which included Paslop dance (recreation), cooking class, keyring making, herbal shampoo making (career promotion), traditional Thai medicine (home remedy); ribbon flower making (career promotion); visit to Song Salueng Natural Farming Center at Klaeng District to learn about Sufficiency Economy; prayers and meditation at Bhumas Forest Monastery; and visit to the manufacturing plant.



Community Scholarships

IRPC creates educational opportunities by providing scholarships to students with good academic records and behavior who live near the IRPC Industrial Park. In 2019 the company awarded a 2,000 - baht scholarship to 193 students from 66 communities (3 each) selected by community leaders and to 81 students studying at the 27 schools (3 each) close to the IRPC Industrial Park. It also gave a 5,000 - baht scholarship to 10 vocational-school students. In summary, IRPC granted a total of 279 scholarships. They were worth 608,000 baht.



Open House

The Open House is an annual event that provides an opportunity for stakeholders to learn about IRPC's operations and environmental management. This past IRPC conducted a seminar on environmental management of the IRPC Industrial Park and led visitors on 22 tours of the deep seaport and 15 plants that conform to EIA, EHIA, CSR-DIW, and SF standards. There were a total of 829 visitors, comprising residents, teachers, students, university students, senior adults, and community enterprises, all of whom were from areas surrounding the industrial park.

Annual Kathin Samakki

IRPC coordinates a Kathin Samakki ceremony every year at temples surrounding its industrial park to support Buddhism and preserve a cultural tradition. A ritual like this also brings communities, local government agencies, and the private sector together. In 2019 IRPC participated in ten of these functions, hosting it at two temples and co-hosting at the other eight. The company's budget for these events was 1.2 million baht.

Buddhist Robe and Candle Offering

Recognizing the importance of preserving the longstanding annual tradition of offering Buddhist Lent robes and candles, IRPC co-hosted this ceremony at nine temples in 2019.

Thai Shadow Puppet Theater (Nang Yai), Ban Don Temple

Nang Yai is considered a classic performing art that encompasses the five art forms-namely, handicraft, dancing, music, rhetoric, and literature. IRPC has contributed to the preservation and continuation of this invaluable local Thai tradition of more than 200 years old by providing financial support. The performing troupe has so far used this funding to obtain two performing screens, costumes, and intermission food supplies. IRPC also encourages youths in Rayong who are interested in this particular performing art to learn it. With a strong sense of pride and appreciation of local artistry, these youths can one day further develop Nang Yai and elevate it at national and international levels.





Her Royal Highness Princess Maha Chakri Sirindhorn graciously granted an audience to Mrs. Peyada Chongpayuha, Executive Vice President, Corporate Affairs, IRPC PLC. To present donation for managing plastic recycling system support from Prostheses process for The Prostheses Foundation.

Society

IRPC Prostheses Project

The IRPC Prostheses Project was born from the company's desire to reduce inequality and to do good for society sustainably through its business expertise in a way that would create shared value. The company has combined standardized quality products with innovation and the know-how of its people to make prostheses and related components for amputees free of charge. This project also lessens the financial burden of providing prosthetics for the considerable number of amputees on society and the public sector. It is in line with Goal 10 of the United Nations' 17 Sustainable Development Goals: Reduced Inequality.

Since 2011 IRPC has donated about 20 tons of polypropylene (PP) pellets every year to the Prostheses Foundation of Her Royal Highness Princess Mother. These pellets are the raw material needed to manufacture prostheses and related components, which the foundation has provided free of charge to amputees in need. From 2011 to 2019, IRPC's PP pellets have gone into the making of 25,715 prostheses. Additionally, IRPC and the foundation have also collaboratively researched and developed materials for prostheses and related parts. The goal has always been to produce prostheses and prosthetic components that are of good quality, durable, and light.

In 2019 the Prostheses Foundation began using the innovation that it had jointly developed with IRPC to manufacture prosthetic sockets, which used to be made from 2500H PP. Because this grade of PP is naturally opaque, each prosthetic socket made is also the same color. The maker is unable to see how the device fits. Many fitting sessions are typically required. Fortunately, with the 3340H copolymer polypropylene that IRPC has developed, the socket is now see-through. It takes much less time to fit a prosthesis to an amputee. Furthermore, IRPC provided further support to the foundation through the following activities:

- **Donating a plastic shredder to the foundation**

IRPC donated a decommissioned plastic shredder to the Prostheses Foundation. Before the donation, IRPC performed maintenance on the machine, as well as repaired defects and tested its performance, to ensure that it was in good working condition. With the device, the foundation can shred plastic scraps leftover from making and researching prostheses. The shredded pieces can then go through a recycling process, which turns them into a variety of plastic products. The plastic shredder enables the foundation to systematically manage and reduce its plastic waste, contributing to environmental protection. IRPC officially handed the machine over to the foundation on January 23, 2019.



• Fund raisers for the foundation

IRPC has helped the Prostheses Foundation fundraise by accepting donations at company events. Doing so has allowed IRPC stakeholders to contribute to this good cause. Donators can also use their receipt for tax deduction purposes. In 2019 IRPC fundraised for the foundation at the following events:

- A collection booth for the foundation was set up for 2 days (January 30–31, 2019) at the IRPC Give Without Expectation event, which was one of the company's CSR functions. IRPC raised 242,164 baht for the foundation at this event.
- IRPC employee volunteers made and sold crew-neck T-shirts at the IRPC "Pun Gun" (Give Without Expectation) event. After expenses, they were able to donate 21,210 baht to the foundation.
- IRPC employee volunteers sold their homemade products at the IRPC "Pun Gun" (Give Without Expectations) event. They donated 5,600 baht of their profits to the foundation.

- A collection booth for the foundation was set up at the Annual General Meeting of Shareholders of IRPC PLC (April 3, 2019). The company raised 23,580 baht for the foundation at this event.

• Sponsoring the Empowering Persons with Disabilities Project in honor of His Majesty King Vajiralongkorn

IRPC sponsored the manufacturing of prostheses and other disability assistive devices in the Empowering Persons with Disabilities Project of the 2020 Fiscal Year in honor of His Majesty King Vajiralongkorn. The project took place during November 4–8, 2019, at the Rayong Agricultural Center Building, Taphong Sub-District Administration Organization, Mueang District, Rayong Province. The Sirindhorn National Medical Rehabilitation Institute under the Department of Medical Services, Ministry of Public Health, was able to fit prostheses to 120 disabled individuals in Rayong. Of this number, there were 138 prosthetic legs and 20 prosthetic arms. Additionally, 31 individuals received walking assistive devices, and three more received a wheelchair each.





Miss Arisara Suthasut, Executive Vice President, Corporate Affairs and Company Secretary, IRPC PLC. received a certification of sponsoring the development of a walking assistive robot for paraplegic individuals from Mr. Satit Pitutacha, Deputy Minister of Public Health.

• Sponsoring the development of a walking assistive robot for paraplegic individuals

Under the terms of a memorandum of understanding (MoU) signed with the Faculty of Engineering of Sripatum University and the Sirindhorn National Medical Rehabilitation Institute, IRPC has provided funding and raw material for the development of a walking assistive robot for paraplegic individuals. The externally powered robotic exoskeleton will provide leg support for those who are unable to use the lower half of their body and helps with mobility therapy. This project is in a prototype development phase with a particular focus on system manufacturing and development. The success of the project will mean less reliance on imports and cheaper, more accessible prices for more than 100 rehabilitation centers across Thailand. More people will be able to afford this therapy. The project is considered a medical innovation for people with disabilities. Its network has expanded to include industrial manufacturers for the good of disabled individuals not only in Thailand but also across ASEAN in the future.

Lam Sai Yong Model Project, Sisaket Province.

Lam Sai Yong Model Project

The Lam Sai Yong Model Project demonstrates how the private sector's ability to help the government solve local drought problems. This particular project started in 2014 in Lam Sai Yong Sub-District, Nang Rong District, Buriram Province. Using its water management know-how, IRPC began developing and managing reservoirs for dry-season farming.

Since then the company has applied the Lam Sai Yong Model to more provinces-namely, Uttaradit and Sisaket. Based on data collected over the years, IRPC has discovered that water shortages are a complex, large-scale issue that requires synergy. As a result, IRPC has updated the Lam Sai Yong Model with the Water-Food-Energy Nexus. This improved model aims to effect change and minimize the impacts of water shortages, which occur as a chain reaction and affect the company's business directly and indirectly. This project is also aligned with three of the 17 Sustainable Development Goals (SDGs) of the United Nations.



- Goal 2: Zero Hunger
- Goal 6: Clean Water and Sanitation
- Goal 7: Affordable and Clean Energy



Ban Muang Sub-District, Udon Thani

In 2019 IRPC initiated a Lam Sai Yong Model Project at the Center for the Development of Persons with Disabilities of the Udon Thani Thai Diocese in Ban Si Watthana, Ban Muang Sub-District, Ban Dung District, Udon Thani Province. The company had previously established the center as a career promotion project for people with disabilities in 2017. It currently employs and cares for 51 disabled persons, who farm and raise farm animals. Their assigned jobs are subject to their physical abilities and personal aptitude. The center, however, used to have water shortages problems and were unable to carry out its activities during the drought season. As a result, that its employees used to be seasonally unemployed and unpaid.

The Lam Sai Yong Model has provided the center with sufficient water for farming and animal husbandry during the dry season. Moreover, the center has formulated a long-term agricultural development plan based on Sufficiency Economy principles. It has systematically and hygienically subdivided its 200-rai plot of land into farming fields and animal-raising areas. This project now serves as a demonstration project that allows others to learn about career promotion for people with disabilities.

IRPC executed the following in 2019:

- Dredged and expanded two reservoirs to collect rainwater and runoff. The total storage has increased to 27,000 cubic meters of water that can be used for farming activities.
- Installed a 4.6 KW solar power plant, complete with an operation building.
- Installed solar powered pumps
- Installed 12 on-ground and water-tower tanks for agricultural use and for use at the center.
- Installed a 470 m pipeline to deliver water to tanks across the premises.
- Built a steel-frame water tower to replace the old, dilapidated structure.
- Renovated handicap restrooms and built wheelchair ramps per universal design principles.
- Built an egg-laying chicken barn over the fishpond.
- Built a bio-fertilizer building with a 5x17 m pigpen.
- Built an 800 m cowboy fence to divide farmland from the animal farm.
- Renovated the residences for disabled people and trainees.
- Connected the solar power system of the pump with the power line of the center
- Renovated the multipurpose building.



IRPC people volunteering improved landscape for Handicap
Vocation Development Center Diocese, Udon Thani



Non Nhon Sub-District, Ubon Ratchathani

In 2019 IRPC launched a Lam Sai Yong Model Project in Ban Non (Mu 1 and Mu 2), Ban Na Non Tai (Mu 6), and Ban Non Nhon Tok (Mu 11) of Non Nhon Sub-District in Warin Chamrap District, Ubon Ratchathani Province. These areas used to be flooded during the rainy season and encounter water shortages during the dry season, which prevent the locals from farming. The Lam Huai Phap Stream and its branch, which are the locals' source of water, were shallow and unable to retain much water. To better the situation, IRPC executed the following:

- IRPC dredged and dug Lam Huai Phap, adding a depth of 2 meters to the existing stream and widening it to 3 meters as measured from the middle of the stream to the embankment on the side. The length of the dredged stream was 2,470 meters from the start to the weir. The sediment unearthed was used to create a 4-meter wide embankment on the side that borders a local's plot of land. The new capacity is 15,000 cubic meters of water.
- IRPC also dredged and dug a branch of the stream, measured 15 meters at the entrance and 5 meters deep throughout. The total distance dredged was 1,207 meters, can collect water up to 60,000 cubic meter. IRPC also built four crossings with culverts.

The dredge unearthed was used to make a canal-side road for the project and to fill public land.

IRPC expects the local communities to benefit from this project by being able to cultivate off-season crops, including corn, chilies, and other herbs and vegetables that require little water. The company has forecast an income increase of 20,000–30,000 baht/rai/ year.

Following the flooding crisis that Ubon Ratchathani faced during August and September 2019, the waterways dredged and dug by IRPC for this Lam Sai Yong Model Project allowed the local area an added capacity of 75,000 cubic meters. Being able to accommodate runoffs enabled the locals to harvest most of their crops before their farmlands were flooded.



Board, management, and staff members prepared 650 bags of essentials, which were donated to people suffering from flooding in Ubon Ratchathani—namely, the Burapha community of Mueang District, as well as the Bung Mai and the Non Non communities of Warin Chamrap District. These are areas of operations of IRPC's Lam Sai Yong Model Project. These communities suffered from flooded farmlands and homes.

Social Return on Investment (SROI)

Lam Sai Yong Model Project, Ubon Ratchathani

The aims of the Lam Sai Yong model Project in Ubon Ratchathani are to alleviate and combat water shortages and to provide a reserve of water for farming during drought seasons. By allowing farmers to earn more, the project strives to elevate the villagers' quality of life. The project is valued at 203.9 Million Baht. The budget used for this water management project is 64.8 Million Baht. Its social return on investment (SROI) is 3.14 Baht for every 1 baht of investment.

Project	Investment Value (Million Baht)
IRPC Lam Sai Yong Model	64.8
Current Value (Million Baht)	SROI for 1 Baht of Investment
203.9	3.14
Benefits	= SROI
Costs	
$\frac{203,926,682.88}{64,847,375.21} = 3.14$	

Social Return on Investment (SROI)

Lam Sai Yong Model Project, Udon Thani

The goals of the Lam Sai Yong Model Project at the Center for the Development of Persons with Disabilities of the Udon Thani Thai Diocese are to alleviate and combat water shortages, to provide a reserve of water for farming and animal husbandry during drought seasons. By allowing persons with disabilities and farmers to earn more, the project strives to elevate their quality of life. The project is valued at 21.8 Million Baht. The budget used for this water management project is 4 Million Baht. Its social return on investment (SROI) is 5.41 baht for every 1 Baht of investment.

Project	Investment Value (Million Baht)
IRPC Lam Sai Yong Model	4
Current Value (Million Baht)	SROI for 1 Baht of Investment
21.8	5.41
Benefits	= SROI
Costs	
$\frac{21,822,798.88}{4,035,052.47} = 5.41$	



Asawin Kwanmuang, Governor of Bangkok accepted 600 folding garbage storage units from Mr. Noppadol Pinsupa President of the Board of Directors, IRPC PLC. The folding garbage storage received award winning contest from PP mixed recycled plastics which can remoulding for five times.

Folding Garbage Storage Unit

IRPC recognizes that many environmental issues are manageable with proper waste management and effective garbage sorting, as well as the minimization of single-use plastic products. Together with the Environmental Department of the Bangkok Administration, the company launched a contest to find the best design for folding garbage storage units to replace old-design units used in major tourist attractions around Bangkok. The proposed designs had to have solid panels for sightliness and retention of garbage and liquids. They also had to be foldable if needed to avoid unnecessarily occupation of sidewalk space. The contest promoted public awareness of the importance of environmental innovation. It also afforded the general public a chance to participate in public cleanliness and creating something for the greater good, as well as promoted a cleaner image of Bangkok. A total of 49 designs were submitted during the allotted period from March 1 to April 30, 2019. IRPC turned the winning design into 600 folding garbage storage units made from polypropylene (PP) mixed with recycled

plastics. They were given to the Bangkok Administration to replace old units at tourist attractions and other suitable areas.

The contest and installation of these folding garbage storage units also encouraged Bangkok residents to dispose of their garbage at the right place and time, in addition encouraging their participation in city cleanliness and raising their awareness of orderliness.





IRPC is committed to business excellence and effective management. The company fosters sustainable growth by maintaining a balance between its economic, social, and environmental objectives. Its operations are aligned with international practice.





Quality, Security, Safety, Occupational Health, and Environment Management (QSHE)



RDCC Unit 53 factory installed Electro Static Precipitator for higher efficiency micro dust collection.

Quality, Security, Safety, Occupational Health, Environment, and Energy Management (QSSHE) Policy

IRPC is committed to business excellence and effective management. The company fosters sustainable growth by maintaining a balance between its economic, social, and environmental objectives. Its operations are aligned with international practice in the following ways:

1. IRPC is systematically managed. It adheres to the six principles (known as “P-E-O-P-L-E”) of the Operational Excellence Management System (OEMS), which encompasses the 12 core elements. Additionally, IRPC encourages and supports the use of quality management tools throughout its organization. These tools increase the company’s productivity and ability to deliver products and services of value that meet the expectations of stakeholders throughout the supply chain.
2. IRPC has systematic risk management plans in place. In addition to specifying risk controls and risk reduction measures, these plans also demonstrate IRPC’s social responsibility through its execution of security, safety, occupational health, environment, and energy management throughout the supply chain and in every
3. IRPC complies with relevant laws, regulations, agreements, requirements, and standards, including those pertaining to quality, security, safety, occupational health, environment, and energy management of the entire supply chain. IRPC even complies with environmental control requirements that apply to its customers’ products.
4. IRPC develops goals and implementation plans to control possible risks and reduce their impact on significant aspects of its operations. These plans conform to international standards and best practice in the petrochemical and refinery industry, such as the 7 Rs, engineering controls, water resource management, pollution management, waste management, greenhouse gas management, energy management and

organizational process. The company’s risk management plans also include change management, due diligence, project engineering, maintenance, research and development, organization-wide potential development, partner management, innovation management, and procurement and delivery of products and related services. All of this protects all parties involved from accidents and safeguards life, assets, information, and business continuity.

conservation, biodiversity management, partner management, green chemical management, human and labor rights management, and process safety management (PSM). The company reviews, monitors, and audits these processes to ensure their continued improvement.

5. IRPC cares about and promotes good hygiene, occupational health, and work environment among its workforce and the surrounding communities. IRPC encourages every employee to adhere to the policy and serve as role models. The company ensures that all necessary resources are sufficiently available to employees to facilitate its implementation. IRPC also communicates the results of policy implementations to all stakeholders.

Quality Management

The Operational Excellence Management System (OEMS), jointly developed and shared by entities within the PTT Group, is the heart of IRPC's management. Besides the 12 core elements, it encompasses four evaluative components that measure the effectiveness of the entire system—namely, content, deployment, conformance, and performance.

Moreover, IRPC has adopted quality improvement tools, such as the 5S, QCC, and Kaizen, to boost its productivity and machine maintenance efficiency. These tools are a part of the company's Total Productive Maintenance and Management (TPM), which requires the participation of every employee from every level. IRPC synergizes TPM with OEMS to manage its entire value chain. In particular, the company plays close attention to product quality, safety, health, and the environment. All of this meets and satisfies the demands of all stakeholders.



Safety Management

Personal Safety

Good occupational health and safety are guaranteed to every employee and contractor working for IRPC because human resources are an organization's most valuable assets. The ISO 45001 standard for occupational health and safety applies to all levels of the company. On top of its safety policy, IRPC has initiated numerous activities and programs to promote the paramount importance of safety amongst its employees. Its ultimate goal is to become a Zero Accident and Zero Emergency Organization. The company's safety-oriented activities and programs are as follows:

1. IRPC has developed the Behavior Safety Management (BSM) program to promote safety and raise safety awareness among its people. As a systematic safety management program, BSM includes corrections for unsafe habits and





praises for safe practices. BSM applies to everyone at IRPC, ranging from management to operatives. It also applies to other safety-promoting activities and campaigns aimed at creating a sustainable safety culture at IRPC.

2. CEO Site Visits allow IRPC's chief executive officer to reiterate the importance of safety and underline the company's attentiveness to safety issues by visiting work sites within the industrial estate in person. Meanwhile, the Safety Walk & Talk program, in which the rest of the management team to inspect the premises, serves a similar purpose. These activities play an influential role in fostering and bolstering an organizational culture of safety, which is trickles down from management to employees and contractors.
3. IRPC has continued to work toward the goal of having no work-related accidents, known as Goal Zero Accident. The program has reached its Step 5 (999 days). There have been as many as 156 days without any accident. As a result, the annual TRIR has continuously improved year after year.
4. IRPC continues to campaign for road safety within its premises. It also continues to work with governmental agencies and the PTT Group to promote road safety during Songkran and New Year's holidays. The company also sponsors officers on duty during the 7 Dangerous Days.
5. The Safety Excellence Award is bestowed upon a department with the most outstanding safety performance based on the Safety Excellence Program's assessment results. The award is an implement to encourage compliance and an incentive for the participation of every person within the organization. It leads to the reduction, control, and prevention of accidents and occupational illnesses. It also contributes to the sustainability of IRPC's organizational culture of safety.
6. In 2019 IRPC assessed its culture of safety, occupational health, and work environment. The company wanted to gather its employees' opinions toward its current implementation of safety measures. The company received 4.03 points for its organizational culture of safety, which proves to be an improvement from the figure of 3.88 from the 2017 assessment. This score also reflects significant improvements in IRPC's safety statistics. The company will use employees' feedback to further elevate its safety culture.
7. Within the framework of the SHE 4.0 Policy, IRPC has developed a range of applications to facilitate operations, process audits, data collection, and reports. These applications include e-Contractor, e-Permit, e-Healthbook, IdMS, and BSM. The company has also continuously improved and developed safety applications.
8. IRPC held an event entitled "Goal Zero Accident Step 4:599 Days," during which it passed along safety-related rules, regulations, and procedures to contractors. The company hoped to raise safety awareness among contractors, which would contribute to the zero-accident goal.





Manager of Styrenics & Aromatics organized "Safety Talks" activity for the operating officers and suppliers before starting operations.

Process Safety

IRPC's process safety management falls under the framework of the Operational Excellence Management System (OEMS), as well as conforms with standards of the Occupational Safety and Health Administration (OSHA) and Center for Chemical Process Safety (CCPS). The company strives not only to maintain its quality but also to improve its safety efficiency to ensure maximum process safety. To this end, relevant departments within IRPC have jointly established process safety key performance indicators. These process safety KPIs also boosts IRPC operatives' confidence in its process safety.



Occupational Health Management

IRPC proactively monitors its people's health through the Health Risk Assessment, which appropriately serves as both a control and monitoring tool. The company also monitors the industrial hygiene of its work sites by keeping track of heat, light, noise, and chemical levels. IRPC uses the data obtained to further improve workplace safety. Furthermore, employees receive an annual medical examination, a risk-based checkup, and an electronic health book (E-Health Book). This E-Health Book allows the

company to keep track of employees' health data, which includes checkup results, answers to health questions, and health trends. IRPC's occupational health management complies with legal requirements and international standards. In addition, IRPC has undergone a Health Performance Index (HPI) evaluation per the criteria of the International Association of Oil and Gas Producers (IOGP) since 2016. The company incorporates the results of each assessment into its planning process to further improve its occupational health management.



Environmental Management

In 2019 IRPC installed a dome roof over two slop tanks in response to a complaint about an odor caused by its operation. The roof reduces both emission losses and odors from the external floating roof tanks.

1. IRPC completed Phase 2 of the project to tackle odors from Unit 2 of the Effluent Treatment Plant after the completion of Phase 1 in 2018. In this phase, the company installed covers over five treatment tanks. Since all tanks are now enclosed, odors are no longer freely emitted into the atmosphere. A pipeline connected to the

enclosure redirects any vapors that occur to the boiler of the Effluent Treatment Plant to be burned off. This method has effectively rectified the problem of unpleasant smells and also solved the system's volatile organic compound emission losses. The project has already been completed per the established plan.



IRPC provided 24 hrs
Emergency Control Center
hotline channel for assisting
environmental impact
complaint.



Management of Volatile Organic Compounds (VOCs) in the Industrial Zone

IRPC has undertaken a project to reduce emissions of VOCs at the BTX plant. Its goal has been to significantly reduce emissions from storage tanks, which will lead to the overall reduction of VOC emissions. In 2019 IRPC connected the discharge pipe of these tanks to the vapor recovery unit (VRU).

Waste Management

Having installed a spent caustic treatment unit (SCTU) at the RDCC plant to specifically treat sodium hydroxide, IRPC has been able to significantly reduce the amount of spent caustic that would otherwise be sent away for disposal by about 85 percent per month (from 1,000 tons/month in 2018 to 150 tons/month in 2019).

Eco Industrial Town (EIT) Assessment

IRPC, together with operators, governmental agencies, and all relevant parties in Choeng Noen, Ban Laeng, and Taphong districts, which make up one of Rayong's two EIT assessment areas (the pollution control area and the three districts aforementioned), underwent an EIT assessment in 2019. The two Rayong areas were certified a Level 4 EIT (Symbiosis). Representatives of these areas received a plaque and certificate from the Deputy Secretary-General of the Department of Industrial Works at a seminar to disseminate the results of the review and evaluation of eco-industrial towns and develop the capacity of eco-industrial networks in 18 areas of 15 provinces.





Assessment of Eco Factory in 15 Provinces, 18 Areas, in 2019

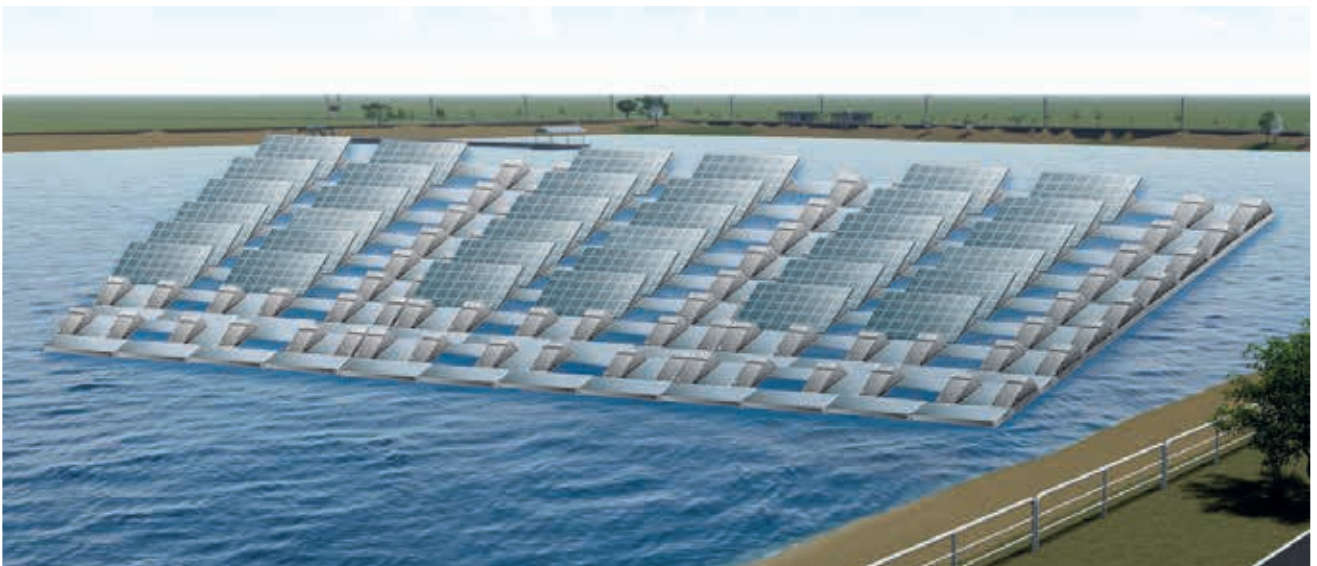


Province/Area	Level 1 Engagement	Level 2 Resource Efficiency	Level 3 Enhancement	Level 4 Symbiosis	Level 5 Happiness
Rayong	✓	✓	✓	✓	
The pollution control area	✓	✓	✓	✓	
Choeng Noen Taphong Ban Laeng	✓	✓	✓	✓	

Greenhouse Gas Emission Reduction

IRPC has initiated the Floating Solar Power Plant Project, which seeks to resort to clean energy and create a new business opportunity. The company has developed the surface of its three freshwater reservoirs into a 12.5-megawatt floating solar power plant. The electricity generated will be distributed to IRPC operators. The company expects to reduce its

reliance on electricity generated by coal and natural gas from 146.09 GWh per year to 128.84 GWh per year. By using 17.25 GWh of solar-generated power, IRPC will be able to reduce its greenhouse gas emissions by 10,510 tons CO₂ per year. Construction began in October 2019. The plant is expected to reach full capacity in 2020.





IRPC committed to act in the best interest of all groups of stakeholders and treat all stakeholders equitably and fairly in accordance with business ethics to maintain balance and ensure sustainability.





Sustainable Management



Sustainable Management

Reporting directly to the president, the Sustainable Management Office oversees IRPC's corporate sustainability strategies, which encompass economic, social, and environmental aspects. Led by a committee of executive officers—with the president as the chairman and senior executives as members—the Sustainable Management Office supports and advances sustainability management of IRPC through the Sustainability Management Policy. The policy serves as IRPC's sustainability management framework. The office also devises

sustainability management strategies based on Thailand Quality Awards (TQA). Its goal is to strike a balance between business growth and stakeholder expectations. The office also considers good corporate governance principles, one of which stipulates that a sustainable business shall act in the best interest of all groups of stakeholders and treat all stakeholders equitably and fairly in accordance with business ethics concerning the treatment of stakeholders to maintain balance and ensure sustainability.

Sustainability Management Excellence

Business
Optimization
and Transparency



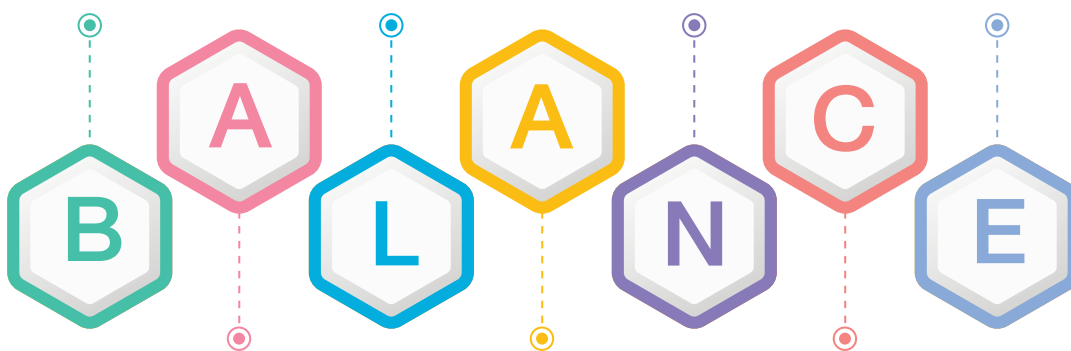
Long Term
Focus



Neighbor Caring



Environmental
Friendly
Operation



Advanced
Technology
and Innovation



Accountable
People



Creating Shared Value



Stakeholder Engagement

IRPC grows sustainably and steadily with a keen awareness of stakeholder expectations. It engages both internal and external stakeholders to ascertain their perspectives, interests, expectations, concerns, and success factors. All of this can have an impact

on IRPC's businesses. IRPC uses these findings to determine which issues need to be addressed to maintain sustainable business operations, as well as help to direct future strategies.

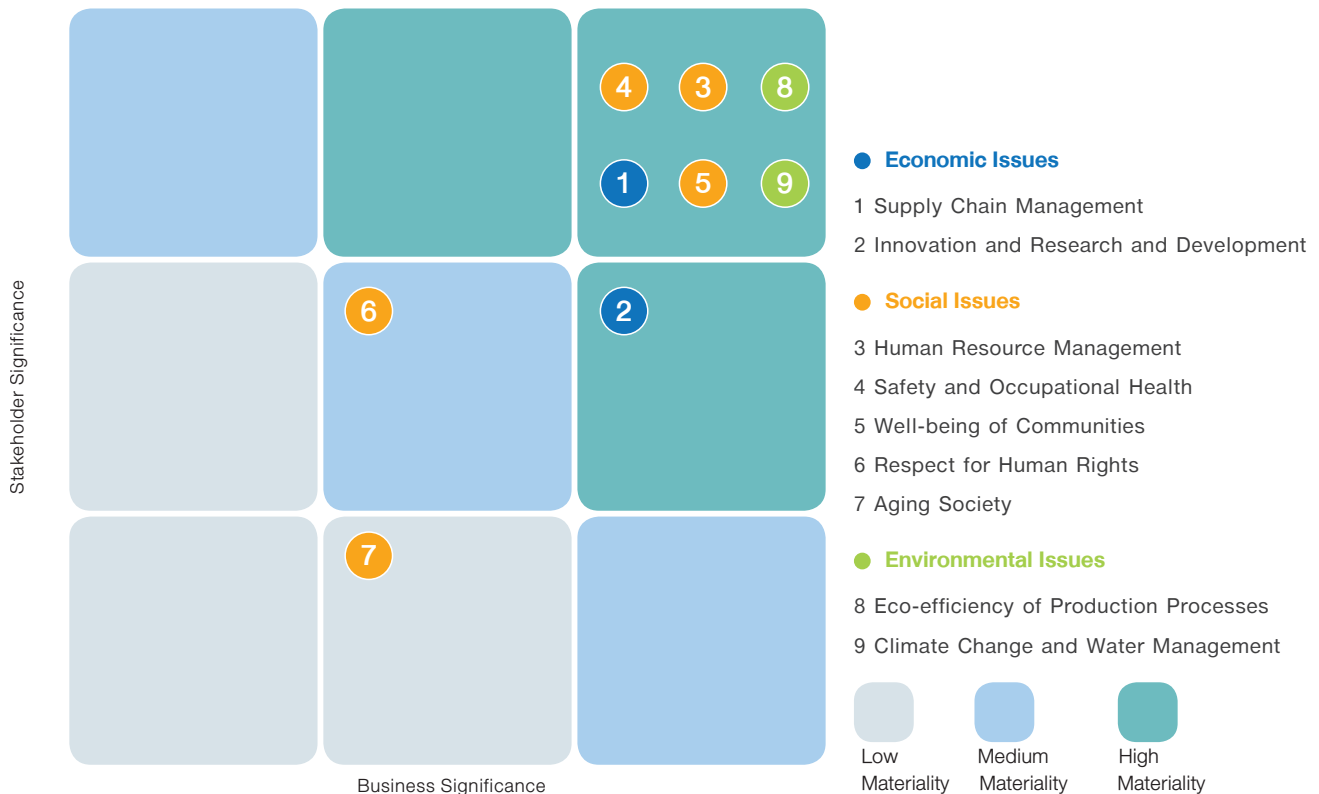


Materiality Assessment

IRPC considers important issues to stakeholders, governmental regulations, and megatrends, such as climate change, water shortages, and urbanization. These matters are deemed relevant by many organizations, such as SASB, SustainAbility, the World Economic Forum, SDGs, and NSTDA. IRPC

considers these issues alongside corporate risks, sustainability policies, strategic directions, and business operations. Additionally, IRPC analyzes and reviews the performance of the past year to identify issues relating to organizational sustainability activities. All of these issues are ranked in order of importance to business sustainability.

IRPC's Materiality Assessment for Sustainable Development in 2019



Sustainability Indices

By applying the frameworks of the Operational Excellence Management System and Thailand Quality Awards to sustainability management, IRPC can boast excellent corporate governance at the policy and operation levels. Its transparent sustainability disclosures build confidence among stakeholders. Additionally, the company has undergone numerous sustainability assessments by internal and external agencies. In 2019 IRPC participated in the Sustainability Assessment Report conducted by the Stock Exchange of Thailand and was selected as one of four companies with market

capitalization of over 100 billion baht to receive a Sustainability Award of Honor. IRPC was also named a member of the Dow Jones Sustainability Indices in the Oil and Gas Refining and Marketing sector for the sixth consecutive year.

MEMBER OF

Dow Jones Sustainability Indices



In collaboration with a RobecoSAM brand

SAM Sustainability Award Silver Class 2020



Human Rights Impact Assessment

IRPC has bases of operations in different regions of Thailand. Its business activities have created complexity in the value chain and involved various stakeholders. As a result, respect for human rights has become a major driving force for the organization. IRPC needs business guidelines that ensure the protection of human rights according to local laws and international best practice. To this end, the company has devised a strategy and plan to manage risks that may arise as a result of its unintentional violation of human rights, including

protection and remedial mechanisms. IRPC encourages members of its staff and nearby communities, as well as any other stakeholders, to actively participate in discussions to foster understanding and co-operation in everyone's best interest. Thanks to its persistent efforts, IRPC was named a winner of the Human Rights Role Model Organization Project under the category "Business Organizations with Outstanding Human Rights Performance" from the Department of Rights and Liberties Projection, Ministry of Justice



In 2019 eleven IRPC factories were certified Eco-Factories.
(Ten extended their certification, and one was certified for the first time.)



Development of Environmental Accounting

IRPC recognizes the value of an accounting system that integrates records of environmental expenses, earnings, and investments into traditional accounting practices to demonstrate its environmental stewardship. This practice is also known as environmental accounting. The accuracy and completeness of these records elevate IRPC's credibility and demonstrate the balance between

business growth and environmental responsibility of IRPC through monetary terms. The records play a part in IRPC's short- and long-term environmental planning, controls, and decisions. They also improve IRPC's environmental management and day-to-day operations, as well as lead to a decrease in production costs and social and environmental impacts. IRPC's environmental accounting complies with international standards of record keeping.



IRPC partook in the launch of the Thailand Responsible Business Network (TRBN). Its goals are to facilitate co-operation and exchanges among responsible enterprises and to help them work with other sectors to bring about positive change at the national level. TRBN encourages not only Thai listed companies but also the rest of the private sector to operate responsibly, driving Thailand forward economically, socially, and environmentally. The work of TRBN corresponds to the United Nations' Sustainable Development Goals (SDGs), helping foster robust and sustainable growth in the long run.

Eco-Factory Certification

IRPC optimizes its resource efficiency through systematic planning and execution. The company has created a network of co-operation among manufacturing plants within the IRPC Industrial Park, which seeks to increase production efficiency, minimize environmental impacts, and lower industrial waste. All of this contributes to cost-cutting, an increase in profits, and improved competitiveness. As a result of its efforts, 26 of IRPC plants have been certified Eco-Factories. Thanks to the expansion of its efforts into nearby communities, which have improved their quality of life and economies, IRPC has been certified as a Level 5 Eco-Industrial Zone. Furthermore, the company has worked with local agencies to help elevate Rayong towards the status of an Eco-Industrial Town.

Sustainability Disclosures

In an effort to show transparency and earn the trust of stakeholders, IRPC discloses its performance every year in an annual report in conformity with regulations of the Stock Exchange of Thailand. The company also prepares a sustainability report, the contents of which correspond to the outcomes of the materiality assessment and demonstrate it has achieved environmental, social, and economic performance targets according to the Global Reporting Initiative (GRI). Information disclosures are reviewed by an independent auditor to ensure accuracy and completeness, increasing the trust of internal and external stakeholders.

Corporate Governance Report of Thai Listed Companies (CGR) 2019

No.	Criteria	Sources
Rights of Shareholders		
A.1	<p>In addition to voting, what other rights can shareholders exercise?</p> <p>IRPC: IRPC shareholders have the rights to propose agenda items beforehand, nominate director candidates, timely access sufficient and thorough information, and speak their mind openly.</p>	<ul style="list-style-type: none"> ● 2019 Annual Report, page 101, 105-106
A.2	<p>Do shareholders approve all forms of board remuneration every year?</p> <p>IRPC: Yes, the board first gives its approval to all remunerations—namely, monthly salaries, meeting allowances, and annual bonuses. These are then presented to the shareholders to obtain their assent.</p>	<p>According to the AGM minutes,</p> <ul style="list-style-type: none"> ● There are no other benefits ○ There are other benefits (Specify) ● The 2019 AGM minutes, page 21-23 ● 2019 Annual Report, page 82-84, 102
A.3	<p>While presenting the proposed board remuneration plan to shareholders, are the remuneration policy, methodology, and criteria for each position explained?</p> <p>IRPC: Yes.</p>	<ul style="list-style-type: none"> ○ Only the final figure for the board as a whole was specified. ● The board remuneration policy and methodology were explained, such as monthly salary and/or meeting allowance for and/or annual bonus. <u>Each position's remunerations are clearly specified.</u> ● 2019 AGM Invitation Letter, page 6-7 ● 2019 AGM Minutes, page 21-22 ● 2019 Annual Report, page 82-84
A.4	<p>Do shareholders elect individual directors to the board?</p> <p>IRPC: Yes.</p>	<ul style="list-style-type: none"> ● Each director is voted in individually. ○ The whole board is voted in. ● 2019 AGM Minutes, page 23-27 ● 2019 Annual Report, page 104



No.	Criteria	Sources
A.5	According to the minutes, is there an auditor to review the vote-counting process at the shareholder meeting? IRPC: Yes.	<ul style="list-style-type: none"> ○ No. ○ Spectator(s) ○ Witness(es) ● Auditor(s) ○ Others, please specify..... ● The 2019 AGM minutes, page 2 ● 2019 Annual Report, page 103
A.6	Can shareholders propose agenda items or submit questions before a shareholder meeting? IRPC: Yes.	<ul style="list-style-type: none"> ● Shareholders can propose agenda items in advance. ● Shareholders can submit questions in advance. ● SET website, please specify the URL to this information: ● Company website, please specify the URL to this information: http://irpc-th.listedcompany.com/notice.html ● 2019 Annual Report, page 105
A.7	It is company policy to encourage shareholders, including institutional investors, to attend a shareholder meeting and facilitate the process? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 105 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/ir_home_th.php http://irpc-th.listedcompany.com/notice.html

Quality of the Invitation Letter

A.8	Does the company clearly define each agenda item? IRPC: Yes.	<ul style="list-style-type: none"> ● Board resolution about AGM disclosed via SET portal ● 2019 AGM Invitation Letter, page 1-11 ● 2019 Annual Report, page 101-102
A.9	Director appointment: Do shareholders have access to the names and background of director candidates? IRPC: Yes.	<ul style="list-style-type: none"> ● 1. Name and last name ● 2. Age ● 3. Education / work experience ● 4. Number of general and listed companies (<u>two separate figures</u>) the individual serves as a director ● 5. Nomination criteria and methodology ● 6. Type of directorship, i.e., director or independent director ● 7. Last year's attendance record ● 8. Date of appointment as a director of the company ● 2019 AGM Invitation Letter, page 8-10, 18-35 ● 2019 Annual Report, page 101

No.	Criteria	Sources
A.10	Auditor appointment: Do shareholders have access to thorough information about the proposed auditor, including his or her name, affiliated company, background, or other information that provides insights into the auditor's capabilities and suitability, and fees? IRPC: Yes.	<ul style="list-style-type: none"> ● Auditor's name and affiliated company ● Auditor's capabilities, experience, and independence ● Auditor's fees ● 2019 AGM Invitation Letter, page 4-6 ● 2019 Annual Report, page 102, 126
A.11	Dividend: Do shareholders have access to the dividend policy and the proposed dividends, as well as reasons and other relevant information? IRPC: Yes.	<ul style="list-style-type: none"> ● Dividend policy ● Dividends paid <input type="radio"/> No dividends ● Reasons and other relevant information <input type="radio"/> Accumulated losses ● Proposed dividends ● Others, please specify (reasons / tax refund limitations): ● 2019 AGM Invitation Letter, page 2-4 ● 2019 Annual Report, page 59, 101
A.12	Are the objectives of and reasons for each agenda item specified in the invitation letter? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 AGM Invitation Letter, page 1-11 ● 2019 Annual Report, page 101-102
A.13	Does each agenda item in the invitation letter contain board opinions on the matter to be discussed? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 AGM Invitation Letter, page 1-11 ● 2019 Annual Report, page 101-102

Quality of the Shareholder Meeting

A.14	Is there a record of shareholders being notified of the voting and vote-counting methods? IRPC: Yes.	<ul style="list-style-type: none"> ● Shareholders are notified of the voting and vote-counting method before the meeting ● Ballots are used. ● 2019 AGM Minutes, page 2-3 ● 2019 Annual Report, page 104
A.15	Do shareholders get an opportunity to ask questions? Are the questions and answers recorded? IRPC: Yes.	<ul style="list-style-type: none"> <input type="radio"/> There is a Q&A session, but no one asks anything. ● Questions and answers are recorded ● 2019 AGM Minutes, page 1-27 ● 2019 Annual Report, page 104
A.16	At the shareholder meeting, is every resolution clearly recorded? Are the "for," "against," and "abstain" votes of every agenda item that requires voting included? IRPC: Yes.	<ul style="list-style-type: none"> ● Every resolution is clearly recorded. ● The "for," "against," and "abstain" votes of every agenda item that requires voting are included ● 2019 AGM Minutes, page 1-27 ● 2019 Annual Report, page 105



No.	Criteria	Sources
A.17	Are the names of directors attending the shareholder meeting recorded in the minutes? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 AGM Minutes, page 1 ● 2019 Annual Report, page 103
A.18	Does the company disclose shareholder resolutions and voting results on the next day? IRPC: Disclose promptly after the meeting	<ul style="list-style-type: none"> ● SET website, please specify the URL to this information: ● Company website, please specify the URL to this information: http://irpc-th.listedcompany.com/notice.html ● 2019 Annual Report, page 104
A.19	Is the chairman of the board in attendance at the AGM? IRPC: Yes. (Mr. Chansin Treenuchagron)	<ul style="list-style-type: none"> ● 2019 AGM Minutes, page 1 ● 2019 Annual Report, page 103
A.20	Is the CEO in attendance at the AGM? IRPC: Yes. (Mr. Noppadol Pinsupa)	<ul style="list-style-type: none"> ● 2019 AGM Minutes, page 1 ● 2019 Annual Report, page 103
A.21	Is the chairman of the Audit Committee in attendance at the AGM? IRPC: Yes. (Mr. Somnuk Bomrungsalee)	<ul style="list-style-type: none"> ● 2019 AGM Minutes, page 1 ● 2019 Annual Report, page 103
A.22	Is the chairman of the Remuneration Committee in attendance at the AGM? IRPC: Yes. (Mr. Woothisarn Tanchai)	<ul style="list-style-type: none"> ● 2019 AGM Minutes, page 1 ● 2019 Annual Report, page 103
A.23	Is the chairman of the Nomination Committee in attendance at the AGM? IRPC: Yes. (Mr. Woothisarn Tanchai)	<ul style="list-style-type: none"> ● 2019 AGM Minutes, page 1 ● 2019 Annual Report, page 103
A.24	Is the location of the shareholder meeting easily accessible? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 AGM Invitation Letter, page 16-17 ● 2019 AGM Minutes, page 1 ● 2019 Annual Report, page 100

Anti-Takeover Shareholding Structure

A.25	Is there any cross-shareholding within the group? IRPC: No.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 150
A.26	Is there a pyramid shareholding structure within the group? IRPC: No.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 150

No.	Criteria	Sources
A.27	Does the board collectively hold more than 25% of issued shares? IRPC: 51.94% (as of Feb. 27, 2019)	<ul style="list-style-type: none"> ● 2019 Annual Report, ● Form 56-1 ● SET website, please specify the URL to this information: https://www.set.or.th/set/companyholder.do?symbol=IRPC&ssoPageId=6&language=th&country=th
A.28	What is the percentage of free-float shares? IRPC: 51.94% (as of Feb. 27, 2019)	<ul style="list-style-type: none"> ● Percentage of free-float shares on the 2019 book closing date (XM) ● Equal to or more than 40% ○ Between 15%–39% ○ Less than 15 % ● SET website, please specify the URL to this information: https://www.set.or.th/set/companyholder.do?symbol=IRPC&ssoPageId=6&language=th&country=th
A.29	At each AGM/EGM, are there <u>additional agenda items</u> that have not been included in the invitation letter? (Penalty) IRPC: Nothing is added to the agenda specified in the 2019 AGM Invitation Letter.	<ul style="list-style-type: none"> ○ Additional agenda items to consider at the AGM/EGM ● No additional agenda items to consider at the AGM/EGM ● 2019 AGM Invitation Letter, page 1-34 ● 2019 AGM Minutes, page 1-27
A.30	Does the company treat shareholders inequitably in matters of <u>share repurchases</u> ? (Penalty) IRPC: No instances of share repurchase	<ul style="list-style-type: none"> ● 2019 Annual Report, page 105
A.31	Does the company <u>prevent shareholders from communicating with one another</u> ? (Penalty) IRPC: No.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 105-106, 113-115
A.32	Does the company fail to disclose any <u>shareholder agreement that significantly impact itself or other shareholders</u> ? (Penalty) IRPC: No.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 112-115



No.	Criteria	Sources
Equitable Treatment of Shareholders		
B.1	Is one share equal to one vote? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 105 ● Articles of Association, 34
B.2	If the company has <u>more than one class of shares</u> , does the company disclose <u>voting rights of each class of shares</u> ? IRPC: No.	<ul style="list-style-type: none"> ● Only common shares ○ Other classes of shares, please specify ● 2019 Annual Report, page 105
B.3	Does the company have a process/channel for minority shareholders to nominate and appoint directors to the board? IRPC: Yes.	<ul style="list-style-type: none"> ● Shareholders can nominate director candidates in advance. ○ Cumulative Voting ● SET website, please specify the URL to this information: ● Company website, please specify the URL to this information: ● 2019 Annual Report, page 105
B.4	Does the company have any policies to prevent insider information from being misused? Are employees, executive officers, and directors aware of these policies? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 112-114 ● Form 56-1 ● CG Handbook, page 52
B.5	If there is a connected transaction that may need to be disclosed to or approved by shareholders, per regulations of the SET, before it can be processed, does the company divulge details and reasons of the transaction to shareholders beforehand? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 112-114, 126, 179-183
B.6	Does the company disclose details of its connected transactions, proving that they are fair and at arms' length? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 179-183 ● Form 56-1
B.7	Is the company part of a business group structure that results in connected transactions with potential conflicts of interest? IRPC: The businesses of IRPC and the IRPC Group fall under the same category as those of the PTT Group, resulting in connected transactions. These are all fair and at arms' length.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 126, 178-183
B.8	Does the company attach a power of attorney (proxy form) to the invitation letter to allow shareholders who are unable to attend the shareholder meeting in-person to appoint a proxy? IRPC: Yes.	<p>Which proxy form(s) was(were) sent to shareholders?</p> <ul style="list-style-type: none"> ● Form A ● Form B ○ Form C ○ None ● 2019 AGM Invitation Letter Attachment No.8

No.	Criteria	Sources
B.9	Does the invitation letter include a list of documents and proof needed for a proxy to attend the meeting on a shareholder's behalf? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 AGM Invitation Letter, Attachment No.2
B.10	Do company regulations make it difficult to appoint a proxy? IRPC: No.	<ul style="list-style-type: none"> ● 2019 AGM Invitation Letter, Attachment No.8
B.11	How many days in advance of the shareholder meeting does the company mail the invitation letter to shareholders? IRPC: 21 days.	<ul style="list-style-type: none"> ● Mailed Out Date: March 5, 2019 ● AGM Date: April 3, 2019 ● No. of Days in Between: 21 days ● 2019 Annual Report, page 101
B.12	Does the company publish a complete digital copy of the invitation letter on its website at least 30 days in advance of the shareholder meeting? IRPC: 30 days.	<ul style="list-style-type: none"> ● SET website, Companies / Securities Info / News. Please specify the URL to this information: ● Published on company website on March 1, 2019 ● AGM Date: 3 April 3, 2019 ● No. of Days in Between: 30 days ● 2019 Annual Report, page 101
B.13	Does the board get elected by cumulative voting? (Bonus) IRPC: No.	<ul style="list-style-type: none"> ● One-share, one-vote system ○ Cumulative Voting ● 2019 AGM Minutes, page 3
B.14	Does the company mail out the invitation letter and accompanying documents in English to foreign shareholders? (Bonus) IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 AGM Invitation Letter ● Company website, please specify the URL to this information: Thai: http://irpc-th.listedcompany.com/misc/shareholderMTG/agm-2019/20190227-irpc-agm2019-invitation-th-full-03.pdf English: http://irpc.listedcompany.com/misc/shareholderMTG/agm-2019/20190227-irpc-agm2019-invitation-en-full-02.pdf
B.15	Does the company provide financial aid to another company that is not its subsidiary? (Penalty) IRPC: No.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 292
B.16	Within the past year, has any of the directors or executive officers used insider information to benefit from trading company shares? (Penalty) IRPC: No.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 125
B.17	Within the past year, has the company violated or failed to comply with regulations governing connected transactions? (Penalty) IRPC: No.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 125



No.	Criteria	Sources
B.18	<p>Within the past year, has the company violated or failed to comply with regulations governing securities trading? (Penalty)</p> <p>IRPC: No.</p>	<ul style="list-style-type: none"> ● 2019 Annual Report, page 90, 125
B.19	<p>Does company policy require every director and senior executive officer to inform the board about his/her intent to trade the company's shares at least one day beforehand? (Bonus)</p> <p>IRPC: They must report their intentions to the board when the transaction takes place.</p>	<ul style="list-style-type: none"> ● CG Handbook, page 77 ● 2019 Annual Report, page 113, 125
The Role of Stakeholders		
C.1	<p>Does the company prepare and publish a corporate social responsibility report?</p> <p>IRPC: Yes.</p>	<ul style="list-style-type: none"> ● <u>Corporate social responsibility report</u> ● <u>Corporate social responsibility report</u> per the GRI's framework, disclosing the GRI Index ● Form 56-1 ● 2019 Annual Report, page 220-239, 249-253 ● 2019 Sustainability Report
C.2	<p>Does the board provide any policies and guide lines for safety and occupational health? Does it disclose any statistics on accidents, sick leaves, or occupational illnesses?</p> <p>IRPC: Yes.</p>	<ul style="list-style-type: none"> ● Policies and guidelines for occupational health and safety exist. ○ Accident, sick leave, or occupational illness statistics are disclosed. ● 2019 Annual Report, page 241-247 ● Form 56-1 ● 2019 Sustainability Report
C.3	<p>Does the board provide policies and guidelines for employees' compensation and welfare?</p> <p>IRPC: Yes.</p>	<ul style="list-style-type: none"> ● 2019 Annual Report, page 111 ● Form 56-1 ● CG Handbook, page 61 ● Sustainability Report,
C.4	<p>Has the board set up a provident fund for employees?</p> <p>IRPC: Yes.</p>	<ul style="list-style-type: none"> ● 2019 Annual Report, page 85, 111, 292 Financial Statement and Footnote

No.	Criteria	Sources
C.5	Does the Board provide policies and guidelines for the development of employees' knowledge and potential and disclose the average hours of employee training per year? IRPC: Yes.	<ul style="list-style-type: none"> ● Policies and guidelines for employees' knowledge development exist. ● The average of employee training hours per year is disclosed. ● 2019 Annual Report, page 111 ● Form 56-1 ● CG Handbook, page 61 ● 2019 Sustainability Report
C.6	Does the board have a policy that prohibits any involvement in human rights violations? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 112, 126-130 ● Form 56-1 ● CG Handbook, ● Code of Conduct, page 47-62 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/corporate_human_rights.php
C.7	Does the board provide any policies and guidelines for the treatment of customers? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 107-108 ● Form 56-1 ● CG Handbook, page 55-56 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/cg_stakeholders.php
C.8	Does the board provide any policies and guidelines for the treatment of competitors? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 110 ● Form 56-1 ● CG Handbook, page 60 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/cg_stakeholders.php
C.9	Does the board provide any policies and guidelines for the treatment of business partners, especially the selection of business partners ? IRPC: Yes.	<ul style="list-style-type: none"> ● Policies and guidelines for the treatment of business partners exist. The partner selection process is disclosed in detail. ● 2019 Annual Report, page 109 ● Form 56-1 ● CG Handbook, page 60 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/pdf/CG/policy/Procurement-Manual.pdf
C.10	Does the board provide any policies and guidelines for the treatment of creditors, especially on subjects of collaterals, capital management, and defaults? IRPC: Yes.	<ul style="list-style-type: none"> ● Policies and guidelines for the treatment of creditors exist. They include: <ul style="list-style-type: none"> ○ Collaterals ○ Capital management ○ Defaults ● 2019 Annual Report, page 100 ● Form 56-1 ● CG Handbook, page 60-61 ● 2019 Sustainability Report



No.	Criteria	Sources
C.11	Does the board provide any policies and guidelines for preventing copyright and intellectual property violations? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 112 ● Form 56-1 ● CG Handbook, page 78-79 ● 2019 Sustainability Report
C.12	Does the board provide any anti-corruption and anti-bribery policies? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 94-98, 129-130 ● Form 56-1 ● CG Handbook, page 35-46 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/wp-content/uploads/2019/08/irpc_นโยบายต่อต้านการทุจริตและคอร์รัปชัน_020862.pdf
C.13	Does the company have a process in place to <u>assess</u> corruption risks? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 141 ● Form 56-1 ● CG Handbook, page 35-46 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/wp-content/uploads/2019/08/irpc_นโยบายต่อต้านการทุจริตและคอร์รัปชัน_020862.pdf
C.14	Does the company have any guidelines for <u>controlling and preventing</u> and preventing corruption risks? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 131-134 ● Form 56-1 ● CG Handbook, page 35-46 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/wp-content/uploads/2019/08/irpc_นโยบายต่อต้านการทุจริตและคอร์รัปชัน_020862.pdf
C.15	Does the company have guidelines <u>for monitoring and assessing</u> the implementation of the anti-corruption policy? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 131-134, 141 ● Form 56-1 ● CG Handbook, page 35-46 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/wp-content/uploads/2019/08/irpc_นโยบายต่อต้านการทุจริตและคอร์รัปชัน_020862.pdf
C.16	Does the company provide <u>training</u> to employees to educate them about the company's anti-corruption policy and guidelines? IRPC: Yes, there is internal training.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 134 ● Form 56-1 ● CG Handbook, page 35-46 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/wp-content/uploads/2019/08/irpc_นโยบายต่อต้านการทุจริตและคอร์รัปชัน_020862.pdf

No.	Criteria	Sources
C.17	Does the board provide any policies and guidelines for the treatment of society? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 221 ● Form 56-1 ● CG Handbook, page 62-63 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/social-dimension/social-Responsibility//
C.18	Does the board organize any activities or support the organization of any activities for community development? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 112, 227-239 ● Form 56-1 ● CG Handbook, page 62 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/social-dimension/social-Responsibility//
C.19	Does the board provide any policies on business operations within an environmental framework? IRPC: Yes.	<ul style="list-style-type: none"> ● ISO14000, 14001 <input type="radio"/> Green Label ● Others. Please specify: ● 2019 Annual Report, page 112, 241-247 ● Form 56-1 ● CG Handbook, page 81 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/wep-content/uploads/2019/09/QSHE-Policy-2019.pdf
C.20	Does the board support the optimization of the use of resources? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 241-247 ● Form 56-1 ● CG Handbook, page 81 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/wep-content/uploads/2019/09/QSHE-Policy-2019.pdf
C.21	Does the board provide employees with any environmental knowledge and training? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 241-247 ● Form 56-1 ● CG Handbook, page 69 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/social-dimension/human-resources-management/



No.	Criteria	Sources
C.22	Does the board provide any <u>channels</u> by which any stakeholder can contact or <u>submit a report about a possible violation</u> to the board directly? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 115, 130 ● Form 56-1 ● CG Handbook, page 45 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/en/corporate-governance/whistleblowing-company-secretary/
C.23	Does the company have a <u>process to deal with</u> employees' reports of possible violations? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 115 ● Form 56-1 ● CG Handbook, page 45 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/en/corporate-governance/whistleblowing-company-secretary/
C.24	Does the company have any policies or guidelines for <u>whistleblower protection</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 115, 130 ● Form 56-1 ● CG Handbook, page 46 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/en/corporate-governance/whistleblowing-company-secretary/
C.25	Does the company clearly provide a <u>channel</u> by which a stakeholder can report an instance of <u>violation</u> ? Is there sufficient <u>contact information</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 115, 130 ● Form 56-1 ● CG Handbook, page 45 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/en/corporate-governance/whistleblowing-company-secretary/
C.26	Is the company's employee remuneration policy suitable for its short- and long-term performance? IRPC: Yes.	<ul style="list-style-type: none"> ○ Balanced Scorecard ○ ESOP ○ EJIP ○ Others. Please specify: ... ● 2019 Annual Report, page 121 ● Form 56-1 ● CG Handbook, page 70 ● 2019 Sustainability Report ● Company website, please specify the URL to this information: https://www.irpc.co.th/corporate-Governance/corporat-Govenance-policy/
C.27	Has the company violated any labor, employment, consumer, competition, or environmental law? (Penalty) IRPC: No.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 112, 130

No.	Criteria	Sources
C.28	Has the company been penalized for failing to disclose information about any significant event within the specified time frame? (Penalty) IRPC: No.	● 2019 Annual Report, page 90
C.29	Does the company prepare and publish an integrated report? (Bonus) IRPC: Yes, for four consecutive years now.	● 2019 Annual Report, page 112-113 ● Sustainability Report (CSR Report)

Disclosure and Transparency

Transparent Disclosure of Shareholding Structure

D.1	Does the company disclose details of its shareholding structure? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 150 ● Form 56-1 ● SET website, please specify the URL to this information: http://www.set.or.th/set/companyholder.do?symbol=IRPC&ssoPageId=6&language=th&country=TH
D.2	Does the disclosed shareholding structure clearly show the company's actual shareholders? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 150 ● Form 56-1 ● SET website, please specify the URL to this information: http://www.set.or.th/set/companyholder.do?symbol=IRPC&ssoPageId=6&language=th&country=TH
D.3	Do the directors disclose their directly or indirectly possession of shares in the company? IRPC: Yes.	<ul style="list-style-type: none"> ○ The company discloses only direct shareholding <u>or does not distinguish</u> between direct and indirect shareholding. ● The company distinguishes between direct and indirect shareholding and discloses both. ● 2019 Annual Report, page 88-90 ● Form 56-1
D.4	Do the executive officers disclose their directly or indirectly possession of shares in the company? IRPC: Yes.	<ul style="list-style-type: none"> ○ The company discloses direct shareholding <u>only or does not distinguish</u> between direct and indirect shareholding. ● The company distinguishes between direct and indirect shareholding and discloses both. ● 2019 Annual Report, page 90 ● Form 56-1



No.	Criteria	Sources
Quality of the Annual Report (D.05–D.21)		
D.5	Does the company disclose its compliance with good corporate governance principles in the report? If not, why? IRPC: Yes.	<ul style="list-style-type: none"> ● The company complies with all of the SEC's corporate governance principles. ○ The company discloses corporate governance principles of the SEC that it has not complied with, along with an explanation. ● 2019 Annual Report, page 99
D.6	Corporate objectives / long term goals IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 2, 186-198
D.7	Financial standing and performance IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 8-9
D.8	Non-financial key performance indicators, such as market share and customer satisfaction IRPC: Yes.	<ul style="list-style-type: none"> ○ Market share statistics (percentage) ○ Customer satisfaction statistics (percentage) ● 2019 Annual Report, page 165-177
D.9	Business nature and market condition IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 151-177
D.10	Group structure (if applicable) IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 150
D.11	Key risks facing the business IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 52-53, 135-145
D.12	Dividend payment policy IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 59
D.13	Whistleblowing Policy IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 115 ● SET website, please specify the URL to this information: https://www.irpc.co.th/wp-content/uploads/2019/08/irpc-นโยบายต่อต้านการทุจริตและคอร์รัปชัน-020862-pdf
D.14	Directors' background IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 16-30 ● Name & Last Name ● Age ● Position(s) ● Education ● Experience ● Shareholding ratio ● Date of appointment ● Directorships at other organizations are clearly separated into two categories: listed and non-listed companies

No.	Criteria	Sources
D.15	Independent directors are clearly indicated. IRPC: Yes.	● 2019 Annual Report, page 16-30
D.16	Board remuneration is disclosed. IRPC: Yes.	● 2019 Annual Report, page 73, 82-85
D.17	The policy and criteria on the remuneration of senior executives are disclosed. IRPC: Yes.	● 2019 Annual Report, page 82-85
D.18	The remuneration of each director is disclosed individually IRPC: Yes.	● 2019 Annual Report, page 84
D.19	The number of board meetings is disclosed. IRPC: Yes.	● 2019 Annual Report, page 78
D.20	The meeting attendance of each director is disclosed. IRPC: Yes.	● 2019 Annual Report, page 78
D.21	Development training information of each director is disclosed. IRPC: Yes.	○ No training within the past year. ● Information about every director's development training is disclosed. ● 2019 Annual Report, page 18-30, 122
D.22	Does the company disclose related-party transaction information thoroughly? IRPC: Yes.	● 2019 Annual Report, page 179-183 Financial Statement
D.23	Does company policy require every director to disclose all of their trading of company shares and holding of company securities? IRPC: Yes.	● 2019 Annual Report, page 125 ● Form 56-1 ● CG Handbook, page 77
D.24	Does the company disclose the shareholding of its directors and senior executives in the annual report , detailing the number of shares in each person's possession at the start and end of the year, and every instance of trading during the year? IRPC: Yes.	● 2019 Annual Report, page 88-90
D.25	Does the company have any policies on reporting a director's conflict(s) of interest? IRPC: Yes.	● 2019 Annual Report, page 125 ● Form 56-1 ● CG Handbook, page 27



No.	Criteria	Sources
D.26	Does the company have and disclose its policy on related-party transactions that <u>require board consideration and approval</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 126 ● Form 56-1 ● CG Handbook, page 27
D.27	Does the company employ a credible and independent auditor? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 126 Auditor: Deloitte Touche Tohmatsu Jaiyos Audit Co., Ltd.
D.28	Does the company disclose the <u>audit fee</u> paid to the auditor or auditing company in the annual report? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 126 Audit Fee: THB3,100,000 (three million and one hundred thousand baht)
D.29	Does the company disclose <u>non-audit fees</u> paid to the auditor or auditing company in the annual report? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 126 Non-Audit Fees: THB3,623,085 (three million six hundred and twenty-three thousand and eighty-five baht)
D.30	Does the auditor certify the company's financial statement conditionally? IRPC: No.	<ul style="list-style-type: none"> ● Annual Report, page 113, 287
D.31	Does the company publish its annual report within 120 days after the end of the fiscal year? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report publication date: March. 5, 2019 ● SET Website ● Company Website ● Annual Report, page 101

Variety of Communications

D.32	Annual Report IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report,
D.33	Quarterly Report IRPC: Yes.	<ul style="list-style-type: none"> ● SET website, please specify the URL to this information: http://www.set.or.th/set/companyprofile.do?symbol=IRPC&ssoPageId=4&language=th&country=TH ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/ir_home_th.php ● 2019 Annual Report, page 292
D.34	Company website IRPC: Yes.	<ul style="list-style-type: none"> ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/index.php?intro=1

No.	Criteria	Sources
D.35	Analyst meetings IRPC: Yes.	<ul style="list-style-type: none"> ● Analyst meetings: 4 times ● Opportunity Day participation: 4 times ● 2019 Annual Report, page 115 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/ir_home_th.php
D.36	Press conferences and newsletters to provide information about the company's financial standing IRPC: Yes.	<ul style="list-style-type: none"> ● Press conferences to provide information about the company's performance: 11 times ● Newsletters to provide information about the company's performance: 40 issues ● 2019 Annual Report, page 115 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/ir_home_th.php
D.37	Does the company have a history of late financial statement (annual and quarterly) submissions? IRPC: No.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 90, 113

Company website with up-to-date information

D.38	Business nature IRPC: Yes.	<ul style="list-style-type: none"> ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/ir_home_th.php
D.39	Financial statements IRPC: Yes.	<ul style="list-style-type: none"> ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/ir_home_th.php
D.40	Press releases IRPC: Yes.	<ul style="list-style-type: none"> ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/ir_home_th.php
D.41	Shareholding structure IRPC: Yes.	<ul style="list-style-type: none"> ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/cg_shareholder.php
D.42	Organizational structure IRPC: Yes.	<ul style="list-style-type: none"> ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_organiz.php
D.43	Business group structure (if applicable) IRPC: Yes.	<ul style="list-style-type: none"> ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/ir_home_th.php



No.	Criteria	Sources
D.44	Information about the board and executive officers IRPC: Yes.	<ul style="list-style-type: none"> ● Company website, please specify the URL to this information: Board : http://www.irpc.co.th/th/about_board.php Executive officers: http://www.irpc.co.th/th/about_management.php
D.45	Investor Relations IRPC: Yes.	<ul style="list-style-type: none"> ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/ir_home_th.php
D.46	Articles of Association IRPC: Yes.	<ul style="list-style-type: none"> ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/pdf/CG/Articles%20of%20Association_280458_TH.pdf
D.47	Downloadable annual reports IRPC: Yes.	<ul style="list-style-type: none"> ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/ir_home_th.php
D.48	Downloadable shareholder meeting invitation letters IRPC: Yes.	<ul style="list-style-type: none"> ● Company website, please specify the URL to this information: http://irpc.listedcompany.com/newsroom/010320161809390811T.pdf
D.49	Downloadable shareholder meeting minutes IRPC: Yes.	<ul style="list-style-type: none"> ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/ir_home_th.php
D.50	Localization of the website in Thai and English IRPC: Yes.	<ul style="list-style-type: none"> ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/ir_home_th.php
D.51	Does the company have an investor relations department or person or channel through which investors may contact the company to make inquiries easily and conveniently? IRPC: Yes.	<ul style="list-style-type: none"> ● Investor Relations Department ○ Investor Relations personnel Contact channels: ● Phone ● Email ● Fax. ○ Others. Please specify ● 2019 Annual Report, page 114 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/ir_home_th.php
D.52	Within the past year, has the SEC asked the company to correct any of its financial statements? (Penalty) IRPC: No.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 90
D.53	Does the company disclose details of its CEO's remuneration package? (Bonus) IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 85

No.	Criteria	Sources
Board Responsibilities		
E.1	Does the board issue its own corporate governance policy? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 93 ● Form 56-1 ● CG Handbook, page 6 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/pdf/library/09/Corporate%20Governance_th.pdf
E.2	Does the board <u>provide</u> a code of conduct policy and/or a code of conduct manual for directors, executive officers, and employees? If so, <u>is it available on the company's website or disclosed in the annual report?</u> IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 93-94 ● Form 56-1 ● CG Handbook, page 47 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/pdf/library/09/Code_of_Conduct.pdf
E.3	Does the board require directors, executive officers, and employees <u>to comply with</u> the code of conduct or code of conduct manual? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 93-99 ● Form 56-1 ● CG Handbook, page 47 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/pdf/library/09/Code_of_Conduct.pdf
E.4	Does the company have and disclose its guidelines for <u>promoting compliance</u> with the code of conduct or code of conduct manual? Does it <u>monitor compliance</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 93-99 ● Form 56-1 ● CG Handbook, page 47 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/pdf/library/09/Code_of_Conduct.pdf
E.5	Does the board issue vision and mission statements? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 2, 93 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_vision.php
E.6	Has the board reviewed the company's vision and mission statements, as well as strategies, within this past fiscal year? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 67-68 ● Form 56-1
E.7	Does the board monitor the implementation of strategies? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 67-68 ● Form 56-1 ● CG Handbook, page 20



No.	Criteria	Sources
E.8	Does the board require, as part of its corporate governance policy, that each of its members cannot hold more than 5 directorships? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 65 ● Form 56-1
E.9	Does the board require, as part of its corporate governance policy, that each of its members cannot hold more than 3 directorships at listed companies? IRPC: Yes, IRPC directors cannot hold more 5 directorships at listed companies.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 65
E.10	Does the board have any policies on a directorship at another company of the managing director? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 124 ● Form 56-1 ● CG Handbook, page 21
E.11	Does board policy limit the term in office of an independent director to no more than 9 years? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 65 ● Form 56-1
E.12	Does board policy limit the term in office of an independent director to no more than 6 years? IRPC: 9 years	<ul style="list-style-type: none"> ● 2019 Annual Report, page 65 ● Form 56-1
E.13	Are there any independent directors who have served for more than 9 years? (Penalty) IRPC: No.	<ul style="list-style-type: none"> ● No.Yes. ○ Yes, there are ● 2019 Annual Report, page 64 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_board.php
E.14	Has the company failed to disclose which directors are independent? (Penalty) IRPC: No.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 64-66 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_board.php

No.	Criteria	Sources
E.15	Did any director or senior executive officer of the company <u>use to be</u> an employee or partner of any of the independent auditing firms that the company has contracted <u>over the past 2 years</u> ? (Penalty) IRPC: No.	<ul style="list-style-type: none"> ● None <input type="radio"/> Yes, there are ● 2019 Annual Report, page 18-44 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_management.php
E.16	Are there any independent directors serving on the board who currently hold <u>more than 5 directorships</u> at listed companies? IRPC: No.	<ul style="list-style-type: none"> ● None. <input type="radio"/> Yes, there are ● 2019 Annual Report, page 18-30 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_board.php
E.17	Are there any executive directors serving on the board who currently hold more than 2 directorships at <u>listed companies outside the business group</u> ? IRPC: No.	<ul style="list-style-type: none"> ● None <input type="radio"/> Yes, there are ● 2019 Annual Report, page 18-30 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_board.php
E.18	Is there <u>at least one non-executive director</u> with experience in the company's business field serving on the board? IRPC: Yes.	<ul style="list-style-type: none"> <input type="radio"/> None ● Yes, there are ● 2019 Annual Report, page 18-30, 66 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_management.php
E.19	Does the company have a history of violating SET/SEC regulations within the past year? IRPC: No.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 90
E.20	Does the company have a <u>compliance unit</u> ? (Bonus) IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 131-134 ● Form 56-1
E.21	Has the board established internal audit as a branch within the company? IRPC: Yes.	<ul style="list-style-type: none"> ● Internal audit established ● Independent auditor hired ● 2019 Annual Report, page 48-49, 70-71 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_organiz.php
E.22	If there is an internal audit unit, does it report to the company's audit committee? IRPC: Yes, Internal Audit reports directly to the Audit Committee.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 31, 33, 70-71 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_organiz.php



No.	Criteria	Sources
E.23	Does the company disclose <u>the name of the head of internal audit</u> ? If an independent auditor is hired, does the company disclose the name of the firm? IRPC: Yes, the head of Internal Audit is Mr. Thammasak Panyowatkool.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 31, 33, 70 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_management.php

Quality of the Report of the Audit Committee

E.24	Is the number of the audit committee's meetings within the year disclosed? IRPC: Yes, the Audit Committee met 12 times.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 78
E.25	Is the internal control system assessed and reviewed? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 45
E.26	Connected transactions IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 179-183
E.27	Auditor nomination IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 102, 126
E.28	Review of financial statements IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 287
E.29	Compliance supervision IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 131-134
E.30	Summary/opinions of the audit committee on the overall operations IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 45-49
E.31	Does the board have a policy on board diversity, such as experiences, fields of expertise, and genders, disclosed? Has this policy been made known? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 66-67, 73, 122-123 ● Form 56-1 ● CG Handbook, page 17
E.32	Does the board disclose its director candidate nomination <u>criteria</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 66-67, 73, 122-123 ● Form 56-1 ● CG Handbook, page 17
E.33	Does the board disclose the appointment <u>process</u> of a director? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 66-67, 73, 122-123 ● Form 56-1 ● CG Handbook, page 17

No.	Criteria	Sources
E.34	Do qualifications that respond to business strategies play a role in the director candidate nomination process? (Bonus) IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 67, 72-73, 122-123 ● Form 56-1 ● CG Handbook, page 17
E.35	Does the board make use of any professional search firms or director pools in the director candidate nomination process? (Bonus) IRPC: Yes, the company uses the director pool with every nomination.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 72-73 ● Form 56-1
E.36	Are there orientation sessions for new directors? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 121-122 ● Form 56-1
E.37	Is it board policy to encourage directors to develop their knowledge further? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 74-75 ● Form 56-1
E.38	Have board members undergone any training programs pertaining to their role as a director? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 122 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_board.php
E.39	Does the board encourage its members to continue to undergo training or attend seminars that will benefit their position? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 122 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_board.php
E.40	How many board meetings have there been within the past year? IRPC: 13 meetings	<ul style="list-style-type: none"> ● There have been 13 board meetings ● 2019 Annual Report, page 78 ● Form 56-1
E.41	What is the board meeting attendance rate of this past year? IRPC: The board as a whole attended 96%	<ul style="list-style-type: none"> ● 2019 Annual Report, page 66, 78 ● Form 56-1
E.42	Does company policy require <u>at least 2/3</u> of all board members to be present at a board meeting to constitute a quorum, which is <u>needed for the board to pass a resolution</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 77 ● Form 56-1 ● CG Handbook, page 23-24



No.	Criteria	Sources
E.43	Are board meetings scheduled in advance annually? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 76 ● Form 56-1
E.44	Does <u>every</u> board member attend at least 75% of all board meetings throughout the year? IRPC: Yes,	<ul style="list-style-type: none"> ● 2019 Annual Report, page 66, 78 ● Form 56-1
E.45	Does the board receive relevant <u>documents</u> at least 5 business days before every board meeting? IRPC: 5 business days before a board meeting	<ul style="list-style-type: none"> ● 2019 Annual Report, page 77 ● Form 56-1
E.46	Have the non-executive directors met with one another during this past year? IRPC: Yes, they met 1 times.	<ul style="list-style-type: none"> ○ No.Yes. ● Yes, they met 1 times. ● 2019 Annual Report, page 77-78 ● Form 56-1
E.47	Does the board have a risk management policy? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 75-76 ● Form 56-1 ● CG Handbook, page 30
E.48	Does the board <u>provide</u> and disclose <u>internal control and risk management systems</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 45-49, 52-53 ● Form 56-1
E.49	Has <u>the board</u> considered internal control and risk management systems? Are they <u>disclosed</u> in the annual report? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 45-49
E.50	Are the <u>audit committee's comments on the adequacy</u> of the company's internal control and risk management systems included in the annual report? (Bonus) IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 48-49
E.51	Does the board disclose its <u>guidelines for managing key risks</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 45-47 ● Form 56-1
E.52	Does the board provide any policies on managing conflicts of interest? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 125 ● Form 56-1 ● CG Handbook, page 74

No.	Criteria	Sources
E.53	Has the board distinctively separated its roles and responsibilities from those of the executives? IRPC: Yes.	Separation of board roles and responsibilities from <ul style="list-style-type: none"> ● those of the executive branch ● and those of the CEO. ● 2019 Annual Report, page 65-82 ● Form 56-1 ● CG Handbook page 39
E.54	Does the company disclose the scope of the board's authority? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 67-68 ● Form 56-1 ● CG Handbook, page 20
E.55	Is there an annual performance assessment of the board <u>as a whole</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 117-120 ● Form 56-1
E.56	Does the board disclose the <u>process</u> for the annual performance assessment of the board <u>as a whole</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 117-120 ● Form 56-1
E.57	Does the board disclose the <u>criteria</u> for the annual performance assessment of the board <u>as a whole</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 117-120 ● Form 56-1
E.58	Is there an annual performance assessment of <u>each director</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 117-120 ● Form 56-1
E.59	Does the board disclose the <u>process</u> for the annual performance assessment of <u>each director</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 117-120 ● Form 56-1
E.60	Does the board disclose the <u>criteria</u> for the annual performance assessment of <u>each director</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 117-120 ● Form 56-1
E.61	Is there an annual performance assessment of <u>each board committee</u> ? IRPC: Yes.	The company has 4 board committees: <ol style="list-style-type: none"> 1. The Nomination and Remuneration Committee 2. The Audit Committee 3. The Risk Management Committee 4. The Corporate Governance Committee <ul style="list-style-type: none"> ● 2019 Annual Report, page 117-120 ● Form 56-1
E.62	Is there an annual performance assessment of the CEO? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 121 ● Form 56-1



No.	Criteria	Sources
E.63	Does the board have executive succession planning? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 123 ● Form 56-1
E.64	Does the board disclose its policy on the remuneration of the CEO, both short- and long-term? Is it <u>subject to the CEO's performance</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 82-85 ● Form 56-1 ● CG Handbook, page 25-26
E.65	Does the board disclose the remuneration structure of <u>non-executive directors</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 82-84 ● Form 56-1
E.66	Do shareholders / Does the board of directors approve the remuneration of the board / senior executives? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 82-85 ● Form 56-1
E.67	Has the board appointed a company secretary? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 82 ● Form 56-1 ● Company website, please specify the URL to this information: https://www.irpc.co.th/about-us/management-team/#persondetailcover
E.68	Does the company secretary have an education background in law <u>or</u> account, <u>or</u> has the company secretary undergone any training pertaining to the role? IRPC: The company secretary has undergone relevant training programs.	Education background in <input type="radio"/> Accounting <input type="radio"/> Law <input checked="" type="radio"/> Training <input checked="" type="radio"/> CSP <input type="radio"/> FPCS/ FCS <ul style="list-style-type: none"> ● 2019 Annual Report, page 41 ● Form 56-1 ● Company website, please specify the URL to this information: https://www.irpc.co.th/about-us/management-team/#persondetailcover
E.69	Is the chairman of the board an independent director? IRPC: No. However, clear separation of duties and responsibilities are ensured.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 18, 122-123 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_board.php#nogo
E.70	Is the chairman and the CEO the same person? IRPC: No, they are not. (President/ CEO: Mr. Noppadol Pinsupa)	<ul style="list-style-type: none"> ● 2019 Annual Report, page 26, 122-123 ● Form 56-1 ● Company website, please specify the URL to this information: http://www.irpc.co.th/th/about_board.php#nogo

No.	Criteria	Sources
E.71	Does the board specify and disclose the roles and responsibilities of the chairman? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 69 ● Form 56-1

Appointment of the Audit Committee

E.72	Has the board <u>appointed</u> an audit committee? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 60-70 ● Form 56-1
E.73	Are the <u>roles and responsibilities</u> of the audit committee clearly specified? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 71 ● Form 56-1
E.74	Are the profiles and qualifications of the members of the Audit Committee publicly disclosed? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 20, 23, 25 ● Form 56-1
E.75	Are directors on the audit committee <u>all independent directors</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 20, 23, 25, 70 ● Form 56-1
E.76	Does the audit committee meet at <u>least 4 times a year</u> ? IRPC: Yes, they met 12 times.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 71, 78 ● Form 56-1
E.77	Are the <u>attendance statistics</u> of the audit committee and <u>each of its members</u> disclosed in the annual report? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 78 ● Form 56-1
E.78	Does <u>at least one member</u> of the audit committee have an <u>educational background in accounting</u> ? IRPC: Yes. (Mr. Jessada Promjart)	<ul style="list-style-type: none"> ● 2019 Annual Report, page 23 ● Form 56-1
E.79	Is the audit committee responsible for <u>nominating and terminating the contract of an independent auditor</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 71 ● Form 56-1
E.80	Is the audit committee responsible for <u>nominating, removing, and terminating the contract of the internal auditor</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 71 ● Form 56-1



No.	Criteria	Sources
Appointment of the Remuneration Committee		
E.81	Has the board <u>appointed</u> a remuneration committee? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 71-74 ● Form 56-1
E.82	Are the <u>roles and responsibilities</u> of the remuneration committee clearly specified? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 71-74 ● Form 56-1
E.83	Are directors on the remuneration committee <u>mostly independent directors</u> (more than 50%)? IRPC: Yes. (Exactly 50%)	<ul style="list-style-type: none"> ● 2019 Annual Report, page 71 ● Form 56-1 <p>Of the two directors on the committee, one is an independent director, accounting for 50%.</p>
E.84	Is the <u>chairman</u> of the remuneration committee an <u>independent director</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 71 ● Form 56-1
E.85	Does the remuneration committee meet <u>at least twice a year</u> ? IRPC: Yes, they met 10 times.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 78 ● Form 56-1
E.86	Are the <u>attendance statistics</u> of the remuneration committee and <u>each of its members</u> disclosed in the annual report? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 78 ● Form 56-1
Appointment of the Nomination Committee		
E.87	Has the company <u>established</u> a nomination committee? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 71 ● Form 56-1
E.88	Are the <u>roles and responsibilities</u> of the nomination committee clearly specified? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 71-74 ● Form 56-1
E.89	Are directors on the nomination committee <u>all independent directors</u> ? (Bonus) IRPC: No.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 71 ● Form 56-1
E.90	Are directors on the nomination committee <u>mostly independent directors</u> (more than 50%)? IRPC: No. (Exactly 50%)	<ul style="list-style-type: none"> ● 2019 Annual Report, page 71 ● Form 56-1 <p>Of the three directors on the committee, two are independent directors, accounting for 67%.</p>

No.	Criteria	Sources
E.91	Is the <u>chairman</u> of the nomination committee an independent director? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 71 ● Form 56-1
E.92	Does the nomination committee meet <u>at least twice a year</u> ? IRPC: Yes, they met 10 times.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 78 ● Form 56-1
E.93	Are the <u>number of nomination committee meetings</u> and the attendance of its members disclosed? IRPC: Yes, they met 10 times.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 78 ● Form 56-1
E.94	Has the board established a (board-level) corporate governance committee? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 74-75 ● Form 56-1
E.95	Has the board established a <u>Risk Management Committee</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 75-76 ● Form 56-1
E.96	Does the board comprise 5–12 directors? IRPC: No.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 63-65 ● Form 56-1 <p>The board comprises 15 directors.</p>
E.97	Is there <u>at least one female independent director</u> serving on the board? (Bonus) IRPC: Yes. (Miss Siriwan Chierapong)	<ul style="list-style-type: none"> ● 2019 Annual Report, page 17, 23 ● Form 56-1 <p>Number of female independent directors: 1</p>
E.98	How many <u>non-executive directors</u> are there? IRPC: 14 (From the total of 15 or 93.33%)	<ul style="list-style-type: none"> ● 2019 Annual Report, page 16-17, 63-64 ● Form 56-1 <p>Number of non-executive directors: 14</p>
E.99	How many <u>independent directors</u> are there? IRPC: 8 (From the total of 15 or 53.33%)	<ul style="list-style-type: none"> ● 2019 Annual Report, page 16-17, 63-64 ● Form 56-1 <p>Number of independent directors: 8</p>
E.100	Does the company have and <u>disclose its definition of an independent director</u> ? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 65 ● Form 56-1



No.	Criteria	Sources
Appointment of the Nomination Committee		
E.101	Are independent directors <u>free from the influence</u> of executive officers and the majority shareholders? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 65 ● Form 56-1
E.102	Does the board prepare a report on its responsibility for financial statements and include it as part of the annual report? IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 286 ● Form 56-1
E.103	Does the company grant executives the right to trade its securities under the following conditions: 1. the right is valid for more than 3 years; 2. the price for this right is higher than the market price at the time; and 3. the concentration is less than 5%? (Bonus/Penalty) IRPC: No.	<ul style="list-style-type: none"> <input type="radio"/> Approval granted for <input type="radio"/> ESOP <input type="radio"/> EJIP <input type="radio"/> warrant ● None
E.104	Is the company a certified member of Thailand's Private Sector Collective Action against Corruption? (Bonus) IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 97
E.105	Does every board committee prepare a report detailing its performance and disclose it in the annual report? (Bonus) IRPC: Yes.	<ul style="list-style-type: none"> ● 2019 Annual Report, page 69-78, 94 ● Form 56-1
E.106	Have there been any fraud cases or ethical violations within the past year? (Penalty) IRPC: No.	
E.107	Has any of the non-executive directors resigned due to a governance issue? (Penalty) IRPC: No.	
E.108	Has the company's reputation been tarnished by the board's failure to oversee the company? (Penalty) IRPC: No.	





FINANCIAL STATEMENTS

Report of the Board of Directors'
Responsibility for Financial Reporting

Independent Auditor's Report

Financial Statements

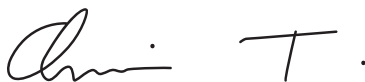
Notes to the Consolidated
and Separate Financial Statements

REPORT OF THE BOARD OF DIRECTOR' RESPONSIBILITY FOR FINANCIAL REPORTINGS

Dear Shareholders,

The financial statements of IRPC Public Company Limited and subsidiaries for the year ended on December 31, 2018, were prepared under the financial reporting standard enforced by the Federation of Accounting Professions under the Accounting Act, B.E. 2543 (2000), and the requirements of the Securities and Exchange Act, B.E. 2535 (1992) on the preparation and presentation of financial reports.

To promote confidence that its financial position, performance outcomes, and cash flow statements are materially correct, the Board certifies that it is responsible for IRPC's and subsidiaries' financial reports. IRPC has established an effective internal control system with accurate, complete, and due journal entries designed to maintain assets, prevent fraud, and materially irregular transactions. In preparing these reports, IRPC has adopted a suitable and consistently practiced accounting policy in line with proper financial report standards. Material data have also been duly disclosed in the notes to the financial statements. Having scrutinized the consolidated statements, the external auditor expressed its views as shown in this annual report.



Chansin Treenuchagron

Chairman

IRPC Public Company Limited



Noppadol Pinsupa

President

IRPC Public Company Limited



REPORT OF THE INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS

TO THE SHAREHOLDERS AND BOARD OF DIRECTORS

IRPC PUBLIC COMPANY LIMITED

Opinion

We have audited the consolidated financial statements of IRPC Public Company Limited and its subsidiaries (the “Group”) and the separate financial statements of IRPC Public Company Limited (the “Company”) which comprise the consolidated and separate statements of financial position as at December 31, 2019, and the related consolidated and separate statements of profit or loss, comprehensive income, changes in shareholders’ equity and cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated and separate financial statements present fairly, in all material respects, the financial position of IRPC Public Company Limited and its subsidiaries and of IRPC Public Company Limited as at December 31, 2019, and financial performance and cash flows for the year then ended in accordance with Thai Financial Reporting Standards (“TFRSs”).

Basis for Opinion

We conducted our audit in accordance with Thai Standards on Auditing (“TSAs”). Our responsibilities under those standards are further described in the Auditor’s Responsibilities for the Audit of the Consolidated and Separate Financial Statements section of our report. We are independent of the Group in accordance with the Federation of Accounting Professions’ Code of Ethics for Professional Accountants together with the ethical requirements that are relevant to the audit of the consolidated and separate financial statements, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated and separate financial statements of the current period. These matters were addressed in the context of our audit of the consolidated and separate financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Key Audit Matter	Audit Responses
<p>The measurement of inventories valuation</p> <p>Inventories of the Group are significant balance to the consolidated and separate financial statements. The raw material and finished goods are commodities that contain intense price volatility. This volatility may lead to valuation of inventories at the end of reporting period as inventories are measured at the lower of cost or net realizable value.</p> <p>The accounting policy of inventories valuation of the Group and the detail of inventories are disclosed in notes to the financial statement no. 3.5 and 12, respectively</p>	<p>Key audit procedures included:</p> <ul style="list-style-type: none"> • Gain understanding and performing test of design and implementation as well as operating effectiveness of the relevant controls over inventories valuation measurement process. • Assessing the appropriateness of the methodology used to calculate the net realizable value of inventories at the end of reporting period, considering the reasonableness of the market price used by reference to commodity prices, and testing the accuracy of the calculation. • If the net realizable value is lower than the cost, considering to propose the adjustment of allowance for diminution in value of inventories in the consolidated and separate financial statements. • Assessing the adequate disclosure in relation to the estimation of allowance for diminution in value of inventories in notes to the financial statements.

Other Information

Management is responsible for the other information. The other information comprise the information included in the annual report, but does not include the consolidated and separate financial statements and our auditor's report thereon.

Our opinion on the consolidated and separate financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated and separate financial statements, our 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 our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of Management and Those Charged with Governance for the Consolidated and Separate Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRSs, and for such internal control as management determines is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated and separate financial statements, management is responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the Consolidated and Separate Financial Statements

Our 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 our 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, we exercise professional judgment and maintain professional skepticism throughout the audit. We 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 our 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 internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.



- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our 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. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we 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 our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we 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. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Mongkol Somphol
Certified Public Accountant (Thailand)
Registration No. 8444

BANGKOK
February 12, 2020

DELOITTE TOUCHE TOHMATSU JAIYOS AUDIT CO., LTD.

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES

STATEMENTS OF FINANCIAL POSITION

AS AT DECEMBER 31, 2019

Unit : Baht

	Notes	CONSOLIDATED		SEPARATE	
		FINANCIAL STATEMENTS		FINANCIAL STATEMENTS	
		2019	2018	2019	2018
ASSETS					
CURRENT ASSETS					
Cash and cash equivalents	9	3,036,126,995	2,337,651,943	2,764,412,068	1,882,753,852
Trade accounts receivable	10	10,100,386,072	12,197,109,932	10,153,973,023	12,223,917,217
Other receivables	11	1,582,071,126	766,790,262	1,581,312,950	765,208,050
Amounts due from related parties	35	162,173,173	86,884,805	172,097,599	99,604,425
Short-term loans and interest receivables					
to related parties	35	-	-	179,037,408	548,778,359
Inventories	12	25,995,287,572	28,458,831,441	25,748,043,100	28,165,602,320
Refundable value-added tax		1,585,139,773	1,862,746,883	1,583,313,869	1,843,482,128
Prepaid excise tax		330,935,214	240,675,896	330,935,214	240,675,896
Other current assets		854,795,147	678,164,776	823,842,123	649,164,255
Total Current Assets		43,646,915,072	46,628,855,938	43,336,967,354	46,419,186,502
NON-CURRENT ASSETS					
Investments in associates	13	8,000,186,834	7,688,760,328	6,840,489,963	6,840,489,963
Investments in subsidiaries	13	-	-	1,635,587,818	1,614,244,627
Investment in joint ventures	13	257,283,107	110,428,497	259,999,990	141,935,611
Other long-term investments	14	1,667,182,327	641,819,952	1,666,582,328	641,219,954
Long-term loans to related party	35	-	-	240,000,000	-
Investment property	15	921,963,149	1,227,691,813	886,096,147	1,199,390,425
Property, plant and equipment	16	121,068,812,418	124,737,118,385	119,215,976,401	123,000,362,036
Intangible assets	17	563,509,194	546,474,067	559,421,318	542,119,953
Deferred tax assets	18	1,376,314,408	322,651,618	1,260,764,295	178,660,535
Other non-current assets	19	348,222,387	541,863,488	345,892,726	540,143,598
Total Non-current Assets		134,203,473,824	135,816,808,148	132,910,810,986	134,698,566,702
TOTAL ASSETS		177,850,388,896	182,445,664,086	176,247,778,340	181,117,753,204

Notes to the financial statements form an integral part of these statements



IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF FINANCIAL POSITION (CONTINUED)
AS AT DECEMBER 31, 2019

Unit : Baht

	Notes	CONSOLIDATED FINANCIAL STATEMENTS		SEPARATE FINANCIAL STATEMENTS	
		2019	2018	2019	2018
LIABILITIES AND SHAREHOLDERS' EQUITY					
CURRENT LIABILITIES					
Short-term borrowings from					
financial institutions	20.1	6,900,000,000	6,700,000,000	6,900,000,000	6,700,000,000
Trade payables	21	24,871,426,899	26,211,854,979	24,846,535,740	26,169,105,336
Other payables		1,997,433,138	5,015,062,419	1,965,275,904	4,989,807,769
Amounts due to related parties	35	241,947,300	236,573,453	259,915,151	248,408,637
Interest payables		103,960,198	125,258,668	103,960,657	125,258,668
Accrued bonus expense		1,880,920,998	2,191,034,634	1,857,238,620	2,165,592,724
Advance receipts for goods		740,502,462	495,241,425	732,695,218	484,816,993
Current portion of long-term borrowings from					
financial institutions and debentures	20.2	8,189,878,000	7,104,100,000	8,189,878,000	7,104,100,000
Other current liabilities		780,492,654	816,669,653	737,758,755	755,429,817
Total Current Liabilities		<u>45,706,561,649</u>	<u>48,895,795,231</u>	<u>45,593,258,045</u>	<u>48,742,519,944</u>
NON-CURRENT LIABILITIES					
Long-term borrowings from financial institutions					
and debentures	20.2	43,881,479,672	43,561,263,008	43,881,479,672	43,561,263,008
Employee benefit obligations	22	4,835,708,158	2,582,486,108	4,788,137,698	2,553,928,060
Other non-current liabilities		24,528,784	26,487,410	-	-
Total Non-current Liabilities		<u>48,741,716,614</u>	<u>46,170,236,526</u>	<u>48,669,617,370</u>	<u>46,115,191,068</u>
TOTAL LIABILITIES		<u>94,448,278,263</u>	<u>95,066,031,757</u>	<u>94,262,875,415</u>	<u>94,857,711,012</u>

Notes to the financial statements form an integral part of these statements

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF FINANCIAL POSITION (CONTINUED)
AS AT DECEMBER 31, 2019

Unit : Baht

	Notes	CONSOLIDATED		SEPARATE	
		FINANCIAL STATEMENTS		FINANCIAL STATEMENTS	
		2019	2018	2019	2018
LIABILITIES AND SHAREHOLDERS' EQUITY					
(CONTINUED)					
SHAREHOLDERS' EQUITY					
SHARE CAPITAL					
Authorized shares capital					
20,475,000,000 ordinary shares					
of Baht 1 each		20,475,000,000	20,475,000,000	20,475,000,000	20,475,000,000
Issued and paid-up share capital					
20,434,419,246 ordinary shares					
of Baht 1 each		20,434,419,246	20,434,419,246	20,434,419,246	20,434,419,246
PREMIUM ON ORDINARY SHARES		28,554,212,397	28,554,212,397	28,554,212,397	28,554,212,397
RETAINED EARNINGS					
Appropriated					
Legal reserve	23	2,047,500,000	2,047,500,000	2,047,500,000	2,047,500,000
Unappropriated		32,349,454,358	36,365,831,850	30,969,521,834	35,230,655,816
Less Treasury stock - ordinary shares					
held by a subsidiary	24	(124,282,649)	(124,282,649)	-	-
Premium on treasury stock - ordinary shares					
held by a subsidiary		15,177,080	15,177,080	-	-
Other components of shareholders' equity		(20,750,552)	(6,745,267)	(20,750,552)	(6,745,267)
Total attribution to owners of the parent		83,255,729,880	87,286,112,657	81,984,902,925	86,260,042,192
Non-controlling interests	25	146,380,753	93,519,672	-	-
TOTAL SHAREHOLDERS' EQUITY		83,402,110,633	87,379,632,329	81,984,902,925	86,260,042,192
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		177,850,388,896	182,445,664,086	176,247,778,340	181,117,753,204



IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES

STATEMENTS OF PROFIT OR LOSS

FOR THE YEAR ENDED DECEMBER 31, 2019

Unit : Baht

	Notes	CONSOLIDATED		SEPARATE	
		FINANCIAL STATEMENTS		FINANCIAL STATEMENTS	
		2019	2018	2019	2018
Revenues from sales and services	8	239,314,608,086	280,551,099,146	238,173,656,170	279,080,770,850
Cost of sales and cost of rendering of services		(236,569,491,409)	(264,637,319,228)	(235,719,267,979)	(263,506,630,914)
Gross profit		<u>2,745,116,677</u>	<u>15,913,779,918</u>	<u>2,454,388,191</u>	<u>15,574,139,936</u>
Other income	26	2,309,245,116	1,520,540,643	2,602,013,579	1,761,794,869
Selling expenses		(1,464,306,903)	(1,524,449,707)	(1,649,638,238)	(1,712,600,798)
Administrative expenses	27	(5,591,711,400)	(5,448,741,710)	(5,370,450,979)	(5,237,540,991)
Net derivative gain (loss)	28	<u>1,645,193,767</u>	<u>(264,064,475)</u>	<u>1,645,193,767</u>	<u>(264,064,475)</u>
Profit (loss) from operations		<u>(356,462,743)</u>	<u>10,197,064,669</u>	<u>(318,493,680)</u>	<u>10,121,728,541</u>
Finance costs	31	(1,931,223,468)	(1,960,988,419)	(1,931,223,927)	(1,958,711,962)
Share of profit on investments in associates and joint ventures	13	<u>363,448,401</u>	<u>679,156,106</u>	<u>-</u>	<u>-</u>
Profit (loss) before income tax benefit (expense)		<u>(1,924,237,810)</u>	<u>8,915,232,356</u>	<u>(2,249,717,607)</u>	<u>8,163,016,579</u>
Income tax benefit (expense)	18	<u>778,672,577</u>	<u>(1,146,588,101)</u>	<u>826,427,440</u>	<u>(1,062,114,506)</u>
Profit (loss) for the year		<u><u>(1,145,565,233)</u></u>	<u><u>7,768,644,255</u></u>	<u><u>(1,423,290,167)</u></u>	<u><u>7,100,902,073</u></u>
Profit (loss) attributable to					
Owners of the parent		(1,174,044,420)	7,734,991,640	(1,423,290,167)	7,100,902,073
Non-controlling interests		<u>28,479,187</u>	<u>33,652,615</u>	<u>-</u>	<u>-</u>
Profit (loss) for the year		<u><u>(1,145,565,233)</u></u>	<u><u>7,768,644,255</u></u>	<u><u>(1,423,290,167)</u></u>	<u><u>7,100,902,073</u></u>
Basic Earnings (loss) per Share (Baht)	32	(0.06)	0.38	(0.07)	0.35

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF COMPREHENSIVE INCOME
FOR THE YEAR ENDED DECEMBER 31, 2019

Unit : Baht

	CONSOLIDATED		SEPARATE	
	FINANCIAL STATEMENTS		FINANCIAL STATEMENTS	
	2019	2018	2019	2018
Profit (loss) for the year	(1,145,565,233)	7,768,644,255	(1,423,290,167)	7,100,902,073
Other comprehensive loss :				
Items that will be reclassified subsequently to profit or loss				
- Losses on revaluation of				
available for sale investments	(17,506,606)	(1,721,959)	(17,506,606)	(1,721,959)
- Income tax relating to revaluation of				
available for sale investments	3,501,321	344,392	3,501,321	344,392
Items that will not be reclassified subsequently to profit or loss				
- Remeasurements of retirement benefit obligations	(1,254,401,318)	-	(1,248,596,716)	-
- Income tax relating to remeasurements of				
retirement benefit obligations	249,719,343	-	249,719,343	-
- Share of other comprehensive loss on				
investment in an associate	(829,212)	(1,258,506)	-	-
Other comprehensive loss for the year - net of tax	(1,019,516,472)	(2,636,073)	(1,012,882,658)	(1,377,567)
Total comprehensive income (loss) for the year	(2,165,081,705)	7,766,008,182	(2,436,172,825)	7,099,524,506
Total comprehensive income (loss) attributable to:				
Owners of the parent	(2,193,560,892)	7,732,355,567	(2,436,172,825)	7,099,524,506
Non-controlling interests	28,479,187	33,652,615	-	-
	(2,165,081,705)	7,766,008,182	(2,436,172,825)	7,099,524,506

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENT OF CHANGES IN SHAREHOLDERS' EQUITY
FOR THE YEAR ENDED DECEMBER 31, 2019

	Consolidated financial statements										Unit : Baht
	Note	Issued and paid-up share capital	Premium on ordinary shares	Retained earnings		Treasury stock - ordinary shares held by a subsidiary	Premium on treasury stock - ordinary shares held by a subsidiary	Other components of shareholders' equity			Total shareholders' equity
				Appropriated - Legal reserve	Unappropriated			Treasury stock - loss - net of tax Available for sale investments	Total attribution to owners of the parent	Non-controlling interests	
Balance as at January 1, 2018		20,434,419,246	28,554,212,397	2,047,500,000	36,591,031,567	(124,282,649)	15,177,080	(5,367,700)	87,512,689,941	137,309,295	87,649,999,236
Dividends paid		-	-	-	(7,958,932,851)	-	-	-	(7,958,932,851)	(23,174,780)	(7,982,107,631)
Profit for the year		-	-	-	7,734,991,640	-	-	-	7,734,991,640	33,652,615	7,768,644,255
Other comprehensive loss for the year		-	-	-	(1,258,506)	-	-	(1,377,567)	(2,636,073)	-	(2,636,073)
Impact from changing status from a subsidiary to be a joint venture		-	-	-	-	-	-	-	-	(54,267,458)	(54,267,458)
Balance as at December 31, 2018		20,434,419,246	28,554,212,397	2,047,500,000	36,365,831,850	(124,282,649)	15,177,080	(6,745,267)	87,286,112,657	93,519,672	87,379,632,329
Balance as at January 1, 2019		20,434,419,246	28,554,212,397	2,047,500,000	36,365,831,850	(124,282,649)	15,177,080	(6,745,267)	87,286,112,657	93,519,672	87,379,632,329
Dividends paid		-	-	-	(1,836,821,885)	-	-	-	(1,836,821,885)	(30,212,585)	(1,867,034,470)
Profit (loss) for the year		-	-	-	(1,174,044,420)	-	-	-	(1,174,044,420)	28,479,187	(1,145,565,233)
Other comprehensive loss for the year		-	-	-	(1,005,511,187)	-	-	(14,005,285)	(1,019,516,472)	-	(1,019,516,472)
Increase in portion of investment of non-controller of subsidiaries	13	-	-	-	-	-	-	-	-	54,594,479	54,594,479
Balance as at December 31, 2019		20,434,419,246	28,554,212,397	2,047,500,000	32,349,454,358	(124,282,649)	15,177,080	(20,750,552)	83,255,729,880	146,380,753	83,402,110,633

Notes to the financial statements form an integral part of these statements

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES

STATEMENT OF CHANGES IN SHAREHOLDERS' EQUITY (CONTINUED)

FOR THE YEAR ENDED DECEMBER 31, 2019

	Note	Separate financial statements						Total shareholders' equity	
		Issued and paid-up share capital	Premium on ordinary shares	Retained earnings		Available for sale investments	Other components of shareholders' equity		
				Appropriated - Legal reserve	Unappropriated				Other comprehensive loss - net of tax
Balance as at January 1, 2018		20,434,419,246	28,554,212,397	2,047,500,000	36,097,979,670	(5,367,700)	87,128,743,613		
Dividends paid	33	-	-	-	(7,968,225,927)	-	(7,968,225,927)		
Profit for the year		-	-	-	7,100,902,073	-	7,100,902,073		
Other comprehensive loss for the year		-	-	-	-	(1,377,567)	(1,377,567)		
Balance as at December 31, 2018		20,434,419,246	28,554,212,397	2,047,500,000	35,230,655,816	(6,745,267)	86,260,042,192		
Balance as at January 1, 2019		20,434,419,246	28,554,212,397	2,047,500,000	35,230,655,816	(6,745,267)	86,260,042,192		
Dividends paid	33	-	-	-	(1,838,966,442)	-	(1,838,966,442)		
Loss for the year		-	-	-	(1,423,290,167)	-	(1,423,290,167)		
Other comprehensive loss for the year		-	-	-	(998,877,373)	(14,005,285)	(1,012,882,658)		
Balance as at December 31, 2019		20,434,419,246	28,554,212,397	2,047,500,000	30,969,521,834	(20,750,552)	81,984,902,925		

Unit : Baht

Notes to the financial statements form an integral part of these statements



IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES

STATEMENTS OF CASH FLOWS

FOR THE YEAR ENDED DECEMBER 31, 2019

Unit : Baht

	CONSOLIDATED		SEPARATE	
	FINANCIAL STATEMENTS		FINANCIAL STATEMENTS	
	2019	2018	2019	2018
CASH FLOWS FROM OPERATING ACTIVITIES				
Profit (loss) before income tax benefit (expense)	(1,924,237,810)	8,915,232,356	(2,249,717,607)	8,163,016,579
Adjustments for:				
Depreciation	8,434,652,783	8,011,868,183	8,349,258,878	7,927,083,158
Amortisation	107,636,292	225,523,325	106,670,055	224,604,505
Interest income	(28,332,995)	(28,809,289)	(37,209,265)	(39,626,115)
Dividends income	(2,123,409)	(626,486)	(188,742,260)	(256,261,870)
Bad debts and doubtful accounts (Reversal)	(14,944,715)	6,963,628	(18,756,920)	660,143
Allowance for declining in value of inventories (Reversal)	(594,921,762)	959,186,929	(594,921,762)	952,263,493
Income from returned available for sale investment	-	(1,320)	-	(1,320)
(Gain) loss on exchange rate	(1,425,210,496)	277,341,936	(1,425,157,359)	277,101,318
Gain on disposals of fixed assets and investment property	(78,008,960)	(163,120,950)	(77,970,817)	(167,387,693)
(Gain) loss on sales of investment in a subsidiary and a related party	(3,167,721)	100	(240,717,426)	22,631,202
Loss on impairment of investment in a joint venture	-	-	76,935,614	73,063,986
Reversal of loss on impairment of other long-term investments	(441,563,134)	-	(441,563,134)	-
Reversal of loss on impairment of fixed assets and investment property	(250,736,691)	(132,879,751)	(150,600,005)	(132,879,751)
Share of profit on investments in associates and joint ventures	(363,448,401)	(679,156,106)	-	-
Finance costs	1,931,223,468	1,960,988,419	1,931,223,927	1,958,711,962
Employee benefit expenses	1,077,013,733	290,400,653	1,063,397,099	325,511,591
Profit from operations before changes in operating assets and liabilities	6,423,830,182	19,642,911,627	6,102,129,018	19,328,491,188
Operating assets (increase) decrease				
Trade receivables	2,091,525,178	458,840,821	2,068,052,522	478,590,861
Other receivables	(797,376,991)	(212,765,109)	(797,695,832)	(212,833,032)
Amounts due from related parties	(75,288,368)	(82,220,319)	(72,493,174)	(67,480,311)
Inventories	2,740,934,757	292,847,715	2,694,950,108	360,243,618
Refundable value-added tax	277,607,110	(883,012,527)	260,168,259	(875,854,806)
Prepaid excise tax	(90,259,319)	(2,569,250)	(90,259,319)	(2,569,250)
Other current assets	(177,704,141)	107,771,421	(174,677,868)	89,322,022
Operating liabilities increase (decrease)				
Trade payables	(1,339,653,484)	332,459,521	(1,321,848,136)	299,426,203
Other payables	(1,329,339,375)	161,409,163	(1,336,241,960)	157,426,894
Amounts due to related parties	5,373,847	(67,547,493)	11,506,514	(79,545,996)
Accrued bonus expenses	(310,113,636)	226,593,142	(308,354,103)	257,720,108
Advance receipts for goods	245,261,038	(389,906,736)	247,878,225	(289,634,794)
Other current liabilities	38,129,809	24,801,287	49,676,863	15,223,141
Cash paid for employee benefits	(78,193,002)	(43,640,715)	(77,784,178)	(42,792,690)
Other non-current liabilities	(1,958,626)	14,655,493	-	-
Cash received from operations	7,622,774,979	19,580,628,041	7,255,006,939	19,415,733,156
Income tax paid	(95,597,066)	(1,276,515,668)	(69,803,579)	(1,244,537,695)
Net cash provided by operating activities	7,527,177,913	18,304,112,373	7,185,203,360	18,171,195,461

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF CASH FLOWS (CONTINUED)
FOR THE YEAR ENDED DECEMBER 31, 2019

Unit : Baht

	CONSOLIDATED		SEPARATE	
	FINANCIAL STATEMENTS		FINANCIAL STATEMENTS	
	2019	2018	2019	2018
CASH FLOWS FROM INVESTING ACTIVITIES				
Interest received	28,332,995	28,868,939	38,029,885	39,711,780
Dividends received	2,123,409	626,486	89,404,195	221,359,307
Cash received (paid) for short-term loans to related parties	-	-	128,920,332	(13,233,407)
Proceeds from sales of investment in subsidiaries	3,960,400	52,468,527	280,572,435	52,368,798
Dividends received from an associate and a joint venture	99,338,065	34,902,563	99,338,065	34,902,563
Cash paid for increase in share capital of a subsidiary	-	-	(61,000,000)	-
Cash paid for investment in an associate and a joint venture	(194,999,993)	(64,999,967)	(194,999,993)	(69,999,967)
Cash paid for other-long term investment	(601,504,046)	-	(601,504,046)	-
Cash paid for purchases of fixed assets and investment property	(5,950,493,166)	(6,453,229,866)	(5,841,541,192)	(6,356,889,571)
Proceeds from sales of fixed assets and investment property	589,918,654	409,313,464	589,831,037	408,804,819
Cash paid for purchases of intangible assets	(124,671,419)	(89,456,058)	(123,971,419)	(89,340,442)
Cash paid in advance for investment in an oversea company	-	(321,189,685)	-	(321,189,685)
Other non-current assets	193,641,103	(134,052,482)	194,250,871	(133,945,483)
Net cash used in investing activities	<u>(5,954,353,998)</u>	<u>(6,536,748,079)</u>	<u>(5,402,669,830)</u>	<u>(6,227,451,288)</u>
CASH FLOWS FROM FINANCING ACTIVITIES				
Interest paid and financing fees	(2,055,517,949)	(2,181,722,836)	(2,055,517,949)	(2,179,421,502)
Net proceeds (paid) on settlements of financial derivative contracts	969,359,882	(294,342,980)	969,359,882	(294,342,980)
Dividends paid	(1,836,821,885)	(7,958,932,851)	(1,838,966,442)	(7,968,225,927)
Dividends paid to non-controlling interests	(30,212,585)	(23,174,780)	-	-
Proceeds from non-controlling interests of subsidiaries	54,594,479	-	-	-
Net proceeds from short-term borrowings from financial institutions	200,000,000	4,031,300,044	200,000,000	3,926,279,630
Paid for long-term borrowings from financial institutions and debentures	(7,104,100,000)	(11,644,916,249)	(7,104,100,000)	(11,644,916,249)
Proceeds from long-term borrowings from financial institutions	8,928,349,195	6,497,217,033	8,928,349,195	6,497,217,033
Net cash used in financing activities	<u>(874,348,863)</u>	<u>(11,574,572,619)</u>	<u>(900,875,314)</u>	<u>(11,663,409,995)</u>
Net increase in cash and cash equivalents	698,475,052	192,791,675	881,658,216	280,334,178
Cash and cash equivalents as at January 1,	2,337,651,943	2,144,860,268	1,882,753,852	1,602,419,674
Cash and cash equivalents as at December 31,	<u><u>3,036,126,995</u></u>	<u><u>2,337,651,943</u></u>	<u><u>2,764,412,068</u></u>	<u><u>1,882,753,852</u></u>

Notes to the financial statements form an integral part of these statements



IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED DECEMBER 31, 2019

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IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED DECEMBER 31, 2019

1. THE COMPANY'S OPERATIONS AND GENERAL INFORMATION

IRPC Public Company Limited (the "Company") is a public company incorporated in Thailand. The address of the Company's registered office is 299 Moo 5, Sukhumvit Road, Choengnue District, Aumthur Muang, Rayong Province. The Company's office is located at 555/2 Energy Complex, Building B, 6th floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900.

The Company is listed on the Stock Exchange of Thailand. For reporting purposes, the Company and its subsidiaries are referred to as the "Group".

The Group is engaged in petroleum and petrochemical with its products being refinery, lubricant, olefins, aromatics, plastic resins and other petrochemical products.

As at December 31, 2019, PTT Public Company Limited is the major shareholder of the Company, holding 47.55%. The other major shareholders is Thai NVDR Company Limited holding 7.93%.

As at December 31, 2018, PTT Public Company Limited is the major shareholder of the Company, holding 48.05%. The other major shareholders is Thai NVDR Company Limited holding 9.45%.

2. BASIS FOR PREPARATION AND PRESENTATION OF THE FINANCIAL STATEMENTS

- 2.1 The Group maintains its accounting records in Thai Baht and prepares its statutory financial statements in the Thai language in conformity with Thai Financial Reporting Standards and accounting practices generally accepted in Thailand.
- 2.2 The Group's financial statements have been prepared in accordance with the Thai Accounting Standard ("TAS") No. 1 (Revised 2018) "Presentation of Financial Statements", which was effective for financial periods beginning on or after January 1, 2019 onward, and the Regulation of The Stock Exchange of Thailand ("SET") dated October 2, 2017, regarding the preparation and submission of financial statements and reports for the financial position and results of operations of the listed companies B.E. 2560 and the Notification of the Department of Business Development regarding "The Brief Particulars in the Financial Statements (No. 2) B.E. 2559" dated October 11, 2016.
- 2.3 The financial statements have been prepared under the historical cost convention except as disclosed in the significant accounting policies.
- 2.4 The preparation of the financial statements in conformity with Thai Financial Reporting Standards requires the use of certain critical accounting estimates. It also requires the management to exercise its judgement in the process of applying the Group's accounting policies. The areas involve a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements (see Note 5).
- 2.5 Significant intercompany transactions between the Company and its subsidiaries have been eliminated from this consolidated financial statements. The consolidated financial statements for the year ended December 31, 2019 have included the subsidiaries' financial statements for the year ended December 31, 2019 which had been previously audited.
- 2.6 The English version of the consolidated and separate financial statements have been prepared from the financial statements that are in the Thai language under law. In the event of a conflict or a difference in interpretation between the two languages, the Thai version of financial information shall prevail.

2.7 Thai Financial Reporting Standards affecting the presentation and disclosure in the current period financial statements

During the year, the Group has adopted the revised and new financial reporting standards and guidelines on accounting issued by the Federation of Accounting Professions which become effective for fiscal years beginning on or after January 1, 2019. These financial reporting standards were aimed at alignment with the corresponding International Financial Reporting Standards, with most of the changes directed towards revision of wording and terminology, and provision of interpretations and accounting guidance to users of standards. In addition, the Group has first-time adopted TFRS 15 “Revenue from Contracts with Customers”. The adoption of these Thai Financial Reporting Standards does not have any significant impact on the Group’s financial statements.

2.8 Thai Financial Reporting Standards announced in the Royal Gazette but not yet effective

The Federation of Accounting Professions has issued the Notification regarding the new and revised Thai Financial Reporting Standards (TFRSs) that will be effective for the financial statements for the periods beginning on or after January 1, 2020 onwards. These financial reporting standards were aimed at alignment with the corresponding International Financial Reporting Standards, with most of the changes directed towards revision of wording and terminology, and provision of interpretations and accounting guidance to users of standards without material change in key concept except for Thai Accounting Standards (“TAS”), Thai Financial Reporting Standards (“TFRS”) and Thai Financial Reporting Interpretation (“TFRIC”).

The following TAS and TFRS have revision or additional paragraph and accounting guidance:

Thai Accounting Standards (“TAS”)

TAS 12	Income Taxes
TAS 19	Employee Benefits
TAS 23	Borrowing Costs
TAS 28	Investments in Associates and Joint Ventures

Thai Financial Reporting Standards (“TFRS”)

TFRS 3	Business Combinations
TFRS 11	Joint Arrangements

The Group’s management will adopt the relevant financial reporting standards in the preparation of Group’s financial statements when they become effective. The Group’s management has assessed the impact of financial reporting standards and considered that the adoption of financial reporting standards does not have any significant impact on the financial statements of the Group in the period of initial application.

The following financial reporting standards have material change in key concept:

Group of Financial Instruments Standards

Thai Accounting Standards (“TAS”)

TAS 32	Financial Instruments: Presentation
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Thai Financial Reporting Standards (“TFRS”)

TFRS 7	Financial Instruments: Disclosures
TFRS 9	Financial Instruments

Thai Financial Reporting Standard Interpretations (“TFRIC”)

TFRIC 16	Hedges of a Net Investment in a Foreign Operation
TFRIC 19	Extinguishing Financial Liabilities with Equity Instruments

These group of Standards make stipulations relating to the classification of financial instruments and their measurement at fair value or amortised cost; taking into account the type of instrument, the characteristics of the contractual cash flows and the Company's business model, the calculation of impairment using the expected credit loss method, and the concept of hedge accounting. These include stipulations regarding the presentation and disclosure of financial instruments. These Standards will supersede the Standards and Interpretations relating to the financial instruments upon its effective date.

The Group's management will adopt such TFRS in the preparation of the Group's financial statements when it becomes effective. The Group's management is in the process to assess the impact of the TFRS on the financial statements of the Group in the period of initial application. The Group's management expected to apply the TFRS as an adjustment to the opening balance of retained earnings as at January 1, 2020.

Thai Financial Reporting Standards No. 16 "Leases" ("TFRS 16")

This TFRS provides a comprehensive model for the identification if lease arrangements and their treatment in the financial statements of both lessees and lessors.

This TFRS will supersede the following lease Standards and Interpretations upon its effective date, which are Thai Accounting Standard No. 17 "Leases" ("TAS 17"), Thai Accounting Standard Interpretation No. 15 "Operating Lease - Incentives", Thai Accounting Standard Interpretation No. 27 "Evaluating the Substance of Transactions involving the Legal Form of a Lease" and Thai Financial Reporting Standard Interpretation No. 4 "Determining whether an Arrangement contains a Lease".

For lessee accounting, there are significant changes to lease accounting in this TFRS by removing the distinction between operating and finance leases under TAS 17 and requiring a lessee to recognise a right-of-use asset and a lease liability at commencement for all leases, except for short-term leases and leases of low value assets. However, the lessor accounting treatment continues to require a lessor to classify a lease either as an operating lease or a finance lease, using the same concept as TAS 17.

The Group's management will adopt such TFRS in the preparation of the Group's financial statements when it becomes effective. The Group's management is in the process to assess the impact of the TFRS on the financial statements of the Group in the period of initial application. The Group's management expected to apply the TFRS using the cumulative effect recognized at the date of initial application as at January 1, 2020.

2.9 Basis for preparation of consolidated financial statements

The consolidated financial statements included the accounts of the Company and subsidiaries, after elimination of intercompany transactions, of which the percentage of shareholding as at December 31, is as follows:

	Note	Business type	Country of registration	Percentage of shareholdings (%)	
				2019	2018
IRPC Oil Company Limited		Sales of oil products and gas	Thailand	99.99	99.99
IRPC Technology Company Limited		Vocational school	Thailand	99.99	99.99
IRPC A&L Company Limited	13	Distributing of petrochemical products	Thailand	57.48	59.98
I-Polymer Company Limited	13	Distributing plastic resin and chemical products via E-Commerce system	Thailand	55.00	99.99
Indirectly invested by					
IRPC Oil Company Limited					
Rak Phasak Company Limited		Oil vessel renting	Thailand	99.99	99.99

3. SIGNIFICANT ACCOUNTING POLICIES

Significant accounting policies of the Group are summarized below:

3.1 Group accounting - Investment in associates and subsidiaries and interest in joint ventures

Subsidiaries

Subsidiaries are all entities (including structured 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 fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases.

Intercompany transactions, balances and unrealised gains on transactions among the Group are eliminated. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the transferred asset. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by the Group.

In the separate financial statements, investments in subsidiaries are accounted for at cost less impairment. Cost is adjusted to reflect changes in consideration arising from contingent consideration amendments. Cost also includes direct attributable costs of investment.

Transaction with non-controlling interests

The Group treats transactions with non-controlling interests as transactions with equity owners of the Group. For purchases from non-controlling interests, the difference between any consideration paid and the relevant share acquired of the carrying value of net assets of the subsidiary is recorded in shareholders' equity. Gains or losses on disposals to non-controlling interests are also recorded in shareholders' equity.

Disposal of subsidiaries

When the Group ceases to have control, any retained interest in the entity is re-measured to its fair value, with the change in carrying amount recognised in profit or loss. The fair value is the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate, joint venture or financial assets. In addition, any amounts previously recognised in other comprehensive income in respect of that entity are accounted for as if the Group had directly disposed of the related assets or liabilities.

Associates

Associates are all entities over which the Group has significant influence but not control, generally accompanying a shareholding of between 20% and 50% of the voting rights. Investments in associates are accounted for using the equity method in the consolidated financial statements. Under the equity method, the investment is initially recognised at cost, and the carrying amount is increased or decreased to recognise the investor's share of the profit or loss of the investee after the date of acquisition. The Group's investment in associates including goodwill are identified on acquisition date.

If the ownership interest in an associate is reduced but significant influence is retained, only a proportionate share of the amounts previously recognised in other comprehensive income is reclassified to profit or loss where appropriate.

The Group's share of its associates' post-acquisition profits or losses is recognised in the profit or loss, and its share of post-acquisition movements in other comprehensive income is recognised in other comprehensive income. The cumulative post-acquisition movements are adjusted against the carrying amount of the investment. When the Group's share of losses in an associate equals or exceeds its interest in the associate, the Group does not recognise further losses, unless it has incurred obligations or made payments on behalf of the associate.

The Group determines at each reporting date whether there is any objective evidence that the investment in the associate is impaired. If this the case, the Group calculates the amount of impairment as the difference between the recoverable amount of the associate and its carrying value and recognises the amount adjacent to share of profit/(loss) of associates in the statement of profit or loss.

Unrealised gains on transactions between the Group and its associates are eliminated to the extent of the Group's interest in the associates. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred.

Accounting policies of associates have been changed where necessary to ensure consistency with the policies adopted by the Group. Dilution gains and losses arising in investments in associates are recognised in the statement of profit or loss.

In the separate financial statements, investments in associates are accounted for at cost less impairment. Cost is adjusted to reflect changes in consideration arising from contingent consideration amendments. Cost also includes direct attributable costs of investment.

3.2 Foreign currency translation

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 Company's functional and the Group's presentation currency.

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 statement of profit or loss.

3.3 Cash and cash equivalents

Cash and cash equivalents includes cash on hand, deposits held at call with banks, other short-term highly liquid investments with original maturities of three months or less.

3.4 Trade receivables

Trade receivables are carried at the original invoice amount and subsequently measured at the remaining amount less any allowance for doubtful accounts based on a review of all outstanding amounts at the year-end. The amount of the allowance is the difference between the carrying amount of the receivable and the amount expected to be collectible. Bad debts are written-off during the year in which they are identified and recognised in the statement of profit or loss within administrative expenses.

3.5 Inventories

Inventories are stated at the lower of cost and net realisable value. Cost is determined by the weighted average method.

The cost of purchase comprises both the purchase price and costs directly attributable to the acquisition of the inventory, such as import duties and transportation charges, less all attributable discounts, allowances or rebates. The cost of finished goods and work in progress comprises raw materials, direct labour, other direct costs and related production overheads (based on normal operating capacity).

Net realizable value is calculated based on the estimated selling price in the ordinary course of business less the estimated costs of completion and the necessary costs to make the sale

Allowance for obsolescence, slow moving or defective inventories is recorded based on the consideration of future use of those inventories and the aging analysis at the end of each reporting period.

3.6 Other investments

The Group classifies investments other than investments in subsidiaries and associates into the two categories which are (1) available for sale investments and (2) general investments. The classification is dependent on the purpose for which the investments were acquired. Management determines the appropriate classification of its investments at the time of the purchase and re-evaluates such designation on a regular basis.

- (1) Investments intended to be held for an indefinite period of time, which may be sold in response to liquidity needs or changes in interest rates, are classified as available for sale investments; and are included in non-current assets unless management has expressed the intention of holding the investment for less than 12 months from the statement of financial position date or unless they will need to be sold to raise operating capital, in which case they are included in current assets.
- (2) Investments in non-marketable equity securities are classified as general investments.

All categories of investment are initially recognised at cost, which is equal to the fair value of consideration paid plus transaction cost.

Available for sale investments are subsequently measured at fair value. The fair value of investments is based on quoted bid price at the close of business on the statement of financial position date by reference to the Stock Exchange of Thailand. The unrealised gains and losses of available for sale investments are recognised in other comprehensive income.

General investments are carried at cost less impairment loss.

A test for impairment is carried out when there is a factor indicating that an investment might be impaired. If the carrying value of the investment is higher than its recoverable amount, impairment loss is recognised in the statement of profit or loss.

On disposal of an investment, the difference between the net disposal proceeds and the carrying amount is recognised in the statement of profit or loss. When disposing of part of the Group's holding of a particular investment in debt or equity securities, the carrying amount of the disposed part is determined by the weighted average carrying amount of the total holding of the investment.

3.7 Investment property

Property that is held for long-term rental yields or for capital appreciation or both, and that is not occupied by the companies in the consolidated Group, is classified as investment property. Investment property also includes property that is being constructed or developed for future use as investment property.

Investment property of the Group is land and building held for long-term rental yields or for capital appreciation, including certain land which is currently undetermined for future use.

Investment property is measured initially at its cost, including related transaction costs and borrowing costs. Borrowing costs incurred for the purpose of acquiring, constructing or producing a qualifying investment property are capitalised as part of its cost. Borrowing costs are capitalised while acquisition or construction is actively underway and cease once the asset is substantially complete, or suspended if the development of the asset is suspended.

After initial recognition, investment property is carried at cost less any accumulated depreciation and any accumulated impairment losses.

Land is not depreciated. Depreciation on other investment properties which are buildings is calculated using the straight line method to allocate their cost to their residual values over their estimated useful lives for 20 years.

Subsequent expenditure is capitalised to the asset's carrying amount only when it is probable that future economic benefits associated with the expenditure will flow to the Group and the cost of the item can be measured reliably. All other repairs and maintenance costs are expensed when incurred. When part of an investment property is replaced, the carrying amount of the replaced part is derecognised.

3.8 Property, plant and equipment

Land and land improvement is stated at cost less allowance for impairment. Plant and equipment are initially recorded at cost and subsequently stated at historical cost less accumulated depreciation. Costs include directly attributable expenses in acquiring such asset.

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 recognised in the statement of profit or loss during the financial period in which they are incurred.

Land and land improvement is not depreciated.

Depreciation on other assets is calculated on the straight-line method or units of production to allocate their costs to their residual values over their estimated useful life, as follows:

Buildings and building improvements	20 - 40 years
Machinery and pipes	20 - 30 years
Other machinery	Unit of production
Tools and factory equipment	10 years
Furniture, fixtures and office equipment	5 - 10 years
Vehicles	5 - 10 years

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at the end of the 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 (Note 3.10).

Gains or losses on disposals are determined by comparing the proceeds with the carrying amount and are recognised as other income in the statement of profit or loss.

3.9 Intangible assets

Intangible assets are dredging expenses and computer software which are stated at cost less accumulated amortisation and impairment loss.

Dredging expenses is expenditure paid to prepare the undersea area around the jetty.

Intangible assets of the Group are definite life assets which are amortised on a straight-line basis over the estimated useful lives of the assets. Amortisation is recognised in the statement of profit or loss.

Dredging expenses	10 - 20 years
Computer software	5 - 10 years

3.10 Impairment of assets

Assets that have an indefinite useful life, for example goodwill, are not subject to amortisation and are tested annually for impairment at the end of reporting period. Assets that are subject to amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. 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 sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest level for which there are separately identifiable cash flows. Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at the end of reporting period.

3.11 Leases

Leases - where the Group is the lessee

Leases in which a significant portion of the risks and rewards of ownership are retained by the lessor are classified as operating leases. Payments made under operating leases (net of any incentives received from the lessor) are recognised in the statement of profit or loss on a straight-line basis over the period of the lease.

Leases of property, plant or equipment where the Group has substantially all the risks and rewards of ownership are classified as finance leases. Finance leases are capitalised at the inception of the lease at the lower of the fair value of the leased property and the present value of the minimum lease payments.

Each lease payment is allocated between the liability and finance charges so as to achieve a constant rate on the finance balance outstanding. The corresponding rental obligations, net of finance charges, are included in other long-term payables. The interest element of the finance cost is recognised in the statement of profit or loss over the lease period so as to achieve a constant periodic rate of interest on the remaining balance of the liability for each period. The property, plant or equipment acquired under finance leases is depreciated over the shorter period of the useful life of the asset and the lease term.

Leases - where the Group is the lessor

Assets leased out under operating leases are included in property, plant and equipment in the statement of financial position. They are depreciated over their expected useful lives on a basis consistent with other similar property, plant and equipment owned by the Group. Rental income (net of any incentives given to lessees) is recognised on a straight-line basis over the lease term.

3.12 Borrowings and debentures

Borrowings and debentures are recognised initially at the fair value, net of transaction costs incurred. Borrowings and debentures are subsequently stated at amortised cost using the effective yield method; any difference between proceeds (net of transaction costs) and the redemption value is recognised in the statement of profit or loss over the period of the borrowings.

Fees paid on the establishment of loan facilities are recognised as transaction costs of the loan to the extent that it is probable that some or all of the facility will be drawn down. In this case, the fee is deferred until the draw-down occurs. To the extent that there is no evidence that it is probable that some or all of the facility will be drawn down, the fee is capitalised as a pre-payment for liquidity services and amortised over the period of the facility to which it relates.

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 end of reporting period.

3.13 Borrowings costs

General and specific borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use or sale, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale.

Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalisation.

All other borrowing costs are recognised as expenses in the period in which they are incurred.

3.14 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. In this case the tax is also recognised in other comprehensive income or directly in shareholders' equity, respectively.

The current income tax charge is calculated based on taxable profit using the tax laws enacted or substantively enacted at the end of reporting period in the countries where the Group operates and generates taxable income. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. It establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

Deferred income tax is recognised in full amount, using the liability method, on temporary differences arising from differences between the tax base of assets and liabilities and their carrying amounts in the financial statements.

Deferred tax assets are generally recognized for temporary differences to the extent that it is probable that taxable profits will be available against which those temporary differences can be utilized. The carrying amount of a deferred tax assets is reviewed at the end of each reporting period. Deferred tax assets shall be reduced to the extent that utilized taxable profits decreased. Any such reduction shall be reversed to the extent that it becomes probable that sufficient taxable profit will be available to allow total or part of the deferred tax assets to be recovered.

Deferred income tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities where there is an intention to settle the balances on a net basis.

3.15 Employee benefits

The Group has both defined contribution plans and defined benefit. A defined contribution plan is a pension plan under which the Group pays fixed contributions into a separate entity. The Group has no legal or constructive obligations to pay further contributions if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service in the current and prior periods. A defined benefit plan is a pension plan that is not a defined contribution plan. Typically defined benefit plans define an amount of pension benefit that an employee will receive on retirement, usually dependent on one or more factors such as age, years of service and compensation.

- Defined contribution plans

- Provident fund

The Group pays contributions to a separate fund which is managed by an external fund manager in accordance with the provident fund Act. B.E. 2530. The Group has no further payment obligations once the contributions have been paid. The contributions are recognised as employee benefit expense when they are due.

- Defined benefit plans

- Retirement benefits

Under Labour Laws applicable in Thailand and the Group's employment policy, all employees completing 120 days of service are entitled to severance pay on termination or retrenchment without cause or upon retirement age of 60. The severance pay will be at the rate according to number of years of service as stipulated in the Labour Law which is currently at a maximum rate of 400 days of final salary. In addition, the Group has a policy to reward gold to the employees upon retirement.

- Other long-term benefits

The Group has a policy to reward gold to employees who have provided their services to the Group at their 10, 20 and 30 year anniversaries.

The liability recognised in the statement of financial position in respect of defined benefit pension plans is the present value of the defined benefit obligation at the end of the reporting period together with adjustments for unrecognised past-service costs. The defined benefit obligation is calculated by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using market yield of government bonds that have terms to maturity approximating to the terms of the related pension liability. The estimated future cash flows shall reflect employee salaries, turnover rate, mortality rate, length of service and others.

Remeasurement gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to other comprehensive income in the period in which they arise.

Past-service costs are recognised immediately in the statement of profit or loss.

Past-service costs related to plan amendment is recognised as expense in the statement of profit or loss when the plan amendment is effective.

3.16 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 a reliable estimate of the amount can be made. Where the Group expects a provision to be reimbursed, the reimbursement is recognised as a separate asset but only when the reimbursement is virtually certain.

3.17 Treasury stock

Treasury stock is presented in the consolidated statement of financial position at cost and presented as a deduction from total shareholders' equity. Gains on disposal of treasury stock are determined by referring to its carrying amount and are taken to "Premium on treasury stock". Losses on disposal of treasury stock are determined by referring to its carrying amount and are taken to "Premium on treasury stock" and "Retained earnings" consecutively.

3.18 Revenue recognition

Revenues from sales and services

Revenue comprises the fair value of the consideration received or receivable for the sale of goods and service in the ordinary course of the Group's activities including excise tax, municipal tax and oil fund. Revenue is shown net of returns, rebates and discounts, and after eliminating sales within the Group. Revenue from sales of goods is recognised when control of the goods has transferred to the customer, being at the point the goods are delivered to the customer. Revenues from rendering of services is recognised as a performance obligation satisfied at a point in time when services underlying the particular performance obligation is transferred to the customer.

Interest and dividend income

Interest income is recognised using the effective interest method. Dividends are recognised when the right to receive payment is established.

Other income

Other income is recognised in the statement of profit or loss on an accrual basis.

3.19 Dividends payment

Dividends are recorded in the consolidated and separate financial statements in the period in which they are approved by the shareholders of the Group. Interim dividends are recorded in the consolidated and separate financial statements in the period in which they are approved by the Board of directors' of the Group.

3.20 Segment reporting

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision-maker. The chief operating decision-maker, who is responsible for allocating resources and assessing performance of the operating segments, has been identified as Chief Executive Officer that makes strategic decisions.

Segment information is presented in respect of the Group's business segments which is based on the Group's management and internal reporting structure (see Note 8).

3.21 Fair value measurement for disclosure purpose

The Group regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair values, then the Group assesses the evidence obtained from the third parties to support the conclusion that such valuations meet the requirements of TFRS 13, including the level in the fair value hierarchy.

When measuring the fair value of an asset or a liability, Group uses market observable data as the first priority. Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques for fair value measurement as follows:

- Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity can access at the measurement date.
- Level 2 inputs are inputs, other than quoted prices included within Level 1, which are observable for the asset or liability, either directly or indirectly.
- Level 3 inputs are unobservable inputs for the asset or liability.

Fair value estimation of derivatives for disclosure information in the financial statements

The fair value of publicly traded derivatives is based on quoted market prices at the financial position date. The fair value of forward foreign exchange contracts and the interest rate swap contracts is determined by the market rate of each agreement which is calculated by financial institutions dealing with the Group at the financial position date (Level 1). The fair values of commodity derivatives are calculated by the offering selling and buying price quoted by the financial institutions of the Group at the financial position date. Details of fair values of derivative contracts are disclosed in Note 36.

3.22 Accounting for derivative financial instruments

The Group is a party to derivative financial instruments, which mainly comprise foreign currency forward contracts, interest rate swap agreements, and commodity derivatives. Such financial instruments are not recognised in the financial statement on inception but only when they are settled according to the contract terms.

Foreign currency forward contracts protect the Group from movements in exchange rates by establishing the rate at which a foreign currency asset will be realised or a foreign currency liability settled. Any increase or decrease in the amount required to realise the asset or settle the liability is offset by a corresponding movement in the value of the forward exchange contract. The gains and losses on the derivative instruments which relate to borrowings and trading business are offset for financial reporting purposes and are recognised as net derivative gain (loss) in the statement of profit or loss.

Interest rate swap agreements protect the Group from movements in interest rates. Any difference to be paid or received on an interest rate swap agreements is recognised as a component of interest revenue or expense over the period of the agreements. Gains and losses on early termination of interest rate swap contracts or on repayment of the borrowings are presented as part of finance costs in the statement of profit or loss.

Commodity derivative contracts such as crack spread swap contracts, time spread swap contracts and crude oil and petroleum products swap contracts protect the Group from movements in crude oil price by establishing the agreed price. The difference between the price at contract settlement date and agreed price will be recognised as net derivative gain (loss) in the statement of profit or loss.

3.23 Basic earnings per share

Basic earnings per share are calculated by dividing the profit attributable to owner of the parent by the weighted average number of ordinary shares outstanding during the year less shares of the parent held by a subsidiary excluding treasury shares.

4. FINANCIAL RISK AND PRICING RISK MANAGEMENT REGARDING RAW MATERIALS AND PRODUCT

4.1 Financial risk factors

The Group's activities expose it to a variety of financial risks: market risk (including currency risk, fair value interest rate risk, cash flow 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 financial performance of the Group, if possible. The Group uses derivative financial instruments which are forward foreign exchange contracts and interest rate swap contracts to protect certain exposures. In execution of the aforementioned derivative transactions, it should be in line with the policies determined by the Board of Directors. Management is approved to execute the transactions according to the table of authority of the Group and has to report the results to the Board of Directors.

4.1.1 Foreign exchange rate risk

The Group operates internationally and is exposed to foreign exchange rate risk arising from various currency exposures primarily with respect to US Dollar. The Group has a hedging policy to mitigate foreign exchange rate risk by entering into forward foreign exchange contracts in order to match the foreign currency that the Group expected to receive in future from its revenue.

4.1.2 Interest rate risk

The Group's income and operating cash flows are substantially independent of changes in market interest rates. The Group has interest rate risk arising from borrowings and debentures with floating and fixed interest rates. The Group uses interest rate swap contracts by agreeing with the counterparties to exchange, at specified intervals, the difference between fixed contract rates and floating rate interest amounts calculated by reference to the agreed notional principal amounts.

4.1.3 Credit risk

The Group has no significant concentrations of credit risks. The Group has policies in place to ensure that sales of products and services are made to customers with an appropriate credit history. Derivative counterparties and cash transactions are limited to high-credit quality financial institutions. The Group has policies that limit the amount of credit exposure to any one financial institution.

4.1.4 Liquidity risk

Prudent liquidity risk management implies maintaining sufficient cash and marketable securities, the availability of funding and the ability to manage risk. Due to the dynamic nature of the underlying business, the Group's treasury aims at maintaining flexibility in funding by keeping committed credit lines available.

4.2 Pricing risk factors regarding raw materials and products

The Group has managed the pricing risks of raw materials and products by setting up the Hedging Committee so as to manage risk exposures following policies approved by the Board of Directors. The Hedging Committee identifies, evaluates and hedges product risks by working closely with the Group's operating units under the approved framework. The Group uses financial instruments such as crack spread swap contracts, time spread swap contracts and crude oil and petroleum products swap contracts to minimise its exposure to the fluctuation in oil prices and products. In execution of the aforementioned derivative transactions, it should be in line with the policies determined by the Board of Directors. The Hedging Committee is authorised to execute the transactions according to the specified policies.

Crude oil price fluctuation risk

The Group is exposed to oil price risk from substantial fluctuations in oil prices which arise from the movement of oil prices in the world market. The Group uses crack spread swap contracts, time spread swap contracts and crude oil and petroleum products swap contracts to minimise its exposure to the fluctuation of oil prices in its business operations.

5. CRITICAL ACCOUNTING ESTIMATES AND JUDGMENTS

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.

5.1 Allowance for diminution in value of inventories

Net realizable value is calculated based on the estimated selling prices by management in the ordinary course of business less the estimated costs of completion and the necessary costs to make the sale.

5.2 Impairment of short-term loans to related parties, amounts due from related parties and investments in subsidiaries, associates and other long-term investments

The Group estimates the possibility of the recoverability of short-term loans and receivables from related parties by considering the ability of settlement. For the investments in subsidiaries, associates and other long-term investments, the Group reviews whether the investments have suffered any impairment. The recoverable amounts have been determined based on their expected future cash flow.

5.3 Employee benefits

The present value of the defined benefit plans depend on a number of factors that are determined on an actuarial basis using a number of assumptions. The assumptions used include the discount rate, salary increase rate and turnover. Any changes in these assumptions will have an impact on the carrying amount the employee benefit obligations. Additional information is disclosed in Note 22.

6. CAPITAL RISK MANAGEMENT

The Group's objectives of capital management 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.

In order to maintain or adjust the capital structure, the Group may adjust the amount of dividends paid to shareholders, return capital to shareholders, issue new shares, or sell assets to reduce debt.

7. SUPPLEMENTARY DISCLOSURE OF CASH FLOWS INFORMATION

7.1 Accounts payable - acquisition of fixed assets for the years ended December 31, are as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Accounts payable - acquisition ⁽¹⁾ of fixed assets brought forward	2,175	2,852	2,175	2,852
<u>Add</u> Purchase of fixed assets (net of capitalized borrowing costs)	4,262	5,776	4,154	5,680
<u>Less</u> Cash payment	(5,950)	(6,453)	(5,842)	(6,357)
Accounts payable - acquisition ⁽¹⁾ of fixed assets carried forward	487	2,175	487	2,175

⁽¹⁾ Accounts payable - acquisition of fixed assets has been presented including in other payables in the statements of financial position as at December 31, 2019 and 2018.

7.2 Reconciliation of liabilities arising from financing activities

The table below details changes in the liabilities arising from financing activities, including both cash and non-cash changes.

As at December 31, 2019

Unit : Million Baht

	Balance as at January 1, 2019	Net financing cash flows	Consolidated financial statements					Balance as at December 31, 2019
			Interest expense	Interest expense capitalized as part of fixed assets	Amortisation of deferred financing fees	Amortisation of discount on debentures	Gain on exchange rate	
Accrued interest expense	125	(2,055)	1,893	141	-	-	-	104
Short-term borrowings from financial institutions	6,700	200	-	-	-	-	-	6,900
Financial derivative contracts	-	969	-	-	-	-	(969)	-
Long-term borrowings from financial institutions and debentures	50,666	1,824	-	-	37	2	(458)	52,071
Total	57,491	938	1,893	141	37	2	(1,427)	59,075

As at December 31, 2018

Unit : Million Baht

	Consolidated financial statements							Balance as at December 31, 2018
	Balance as at January 1, 2018	Net financing cash flows	Interest expense	Interest expense capitalized as part of fixed assets	Amortisation of deferred financing fees	Impact from changing status from a subsidiary to be a joint venture	(Gain) loss on exchange rate	
Accrued interest expense	225	(2,182)	1,917	165	-	-	-	125
Short-term borrowings from financial institutions	2,957	4,031	-	-	-	(288)	-	6,700
Financial derivative contracts	-	(294)	-	-	-	-	294	-
Long-term borrowings from financial institutions and debentures	55,812	(5,148)	-	-	44	-	(42)	50,666
Total	58,994	(3,593)	1,917	165	44	(288)	252	57,491



As at December 31, 2019

Unit : Million Baht

	Balance as at January 1, 2019	Net financing cash flows	Separate financial statements Non-cash changes				Gain on exchange rate	Balance as at December 31, 2019
			Interest expense	Interest expense capitalized as part of fixed assets	Amortisation of deferred financing fees	Amortisation of discount on debentures		
Accrued interest expense	125	(2,055)	1,893	141	-	-	-	104
Short-term borrowings from financial institutions	6,700	200	-	-	-	-	-	6,900
Financial derivative contracts	-	969	-	-	-	-	(969)	-
Long-term borrowings from financial institutions and debentures	50,666	1,824	-	-	37	2	(458)	52,071
Total	57,491	938	1,893	141	37	2	(1,427)	59,075

As at December 31, 2018

Unit : Million Baht

	Balance as at January 1, 2018	Net financing cash flows	Separate financial statements Non-cash changes				(Gain) loss on exchange rate	Balance as at December 31, 2018
			Interest expense	Interest expense capitalized as part of fixed assets	Amortisation of deferred financing fees			
Accrued interest expense	225	(2,179)	1,915	164	-	-	-	125
Short-term borrowings from financial institutions	2,774	3,926	-	-	-	-	-	6,700
Financial derivative contracts	-	(294)	-	-	-	-	294	-
Long-term borrowings from financial institutions and debentures	55,812	(5,148)	-	-	44	44	(42)	50,666
Total	58,811	(3,695)	1,915	164	44	44	252	57,491

8. SEGMENT INFORMATION

Segment information is presented in respect of the Group's business segments which are based on the Group's management and internal reporting structure.

The Group's main business segments are:

Petroleum products:	Refinery, lubricant, asphalt
Petrochemical products:	Olefins, aromatics and related products including special products
Other business segments:	Power plant, jetty and other utilities

The accounting policies for the operating segments are described in the summaries significant accounting policies.

	Unit : Million Baht			
	Consolidated financial statements			
	Petroleum Products	Petrochemical products	Other businesses	Total
For the year ended December 31, 2019				
Revenues from sales and services	174,996	59,656	4,663	239,315
Profit (loss) from operating segments	(4,085)	459	1,022	(2,604)
Unallocated other incomes				2,248
Loss from operations				(356)
Finance costs				(1,931)
Share of profit on investments in associates and joint ventures				363
Income tax expense				779
Loss for the year				(1,145)

	Unit : Million Baht				
	Consolidated financial statements				
	Petroleum Products	Petrochemical products	Other businesses	Elimination entries	Total
As at December 31, 2019					
Segment fixed assets	56,976	31,797	14,655	143	103,571
Unallocated fixed assets					17,498
Segment other assets	27,514	8,782	3,436	(433)	39,299
Unallocated other assets					17,482
Consolidated total assets					177,850

	Unit : Million Baht			
	Consolidated financial statements			
	Petroleum Products	Petrochemical products	Other businesses	Total
For the year ended December 31, 2018				
Revenues from sales and services	203,438	72,739	4,374	280,551
Profit from operating segments	1,215	7,927	964	10,106
Unallocated other incomes				91
Profit from operations				10,197
Finance costs				(1,961)
Share of profit on investments in associates and joint ventures				679
Income tax expense				(1,146)
Profit for the year				7,769



	Consolidated financial statements				Unit : Million Baht
	Petroleum Products	Petrochemical products	Other businesses	Elimination entries	Total
As at December 31, 2018					
Segment fixed assets	58,922	33,440	15,235	21	107,618
Unallocated fixed assets					17,119
Segment other assets	28,916	12,483	2,312	(808)	42,903
Unallocated other assets					14,806
Consolidated total assets					<u>182,446</u>

Geographic information

The Group's revenue from sales from external customers are reported by the geographical information as follows:
In addition, non-current assets of the Group are located in Thailand.

Country's name	Consolidated financial statements		Separate financial statements		Unit : Million Baht
	2019	2018	2019	2018	
Thailand	150,434	174,293	149,295	173,045	
Singapore	41,089	48,031	41,089	48,028	
Others	47,792	58,227	47,790	58,008	
Total	<u>239,315</u>	<u>280,551</u>	<u>238,174</u>	<u>279,081</u>	

Major customers

The Group's sales and service revenues mainly comprise revenue from one customer of Petroleum products and Other business segment representing Baht 26,830 million (2018 : Baht 15,390 million).

9. CASH AND CASH EQUIVALENTS

Cash and cash equivalents as at December 31, consist of the following:

	Consolidated financial statements		Separate financial statements		Unit : Million Baht
	2019	2018	2019	2018	
Cash on hand	1	2	-	-	
Bank deposits in current accounts	69	123	70	121	
Bank deposits in savings accounts	2,966	2,213	2,694	1,762	
Total cash and cash equivalents	<u>3,036</u>	<u>2,338</u>	<u>2,764</u>	<u>1,883</u>	

As at December 31, 2019, bank deposits in current accounts and savings accounts bear interest at rates between 0.1% to 1.0% per annum (2018 : 0.1% to 1.1% per annum). Cash and cash equivalents are mainly in Thai Baht.

10. TRADE RECEIVABLES

Trade receivables as at December 31, consist of the following:

	Note	Consolidated financial statements		Unit : Million Baht Separate financial statements	
		2019	2018	2019	2018
Trade receivables					
- Other parties		5,683	7,622	5,578	7,459
- Related parties	35 (b)	4,449	4,602	4,598	4,788
Total		10,132	12,224	10,176	12,247
<u>Less</u> Allowance for doubtful accounts		(32)	(27)	(22)	(23)
Total trade receivables		10,100	12,197	10,154	12,224

Aging analysis of trade receivables is as follows:

	Note	Consolidated financial statements		Unit : Million Baht Separate financial statements	
		2019	2018	2019	2018
Other parties					
Current		5,259	7,018	5,166	6,872
Overdue					
- less than 3 months		390	574	389	564
- over 3 months but less than 12 months		8	6	1	1
- over 12 months		26	24	22	22
		424	604	412	587
		5,683	7,622	5,578	7,459
<u>Less</u> Allowance for doubtful accounts		(32)	(27)	(22)	(23)
Total trade receivables from other parties		5,651	7,595	5,556	7,436
Related parties					
Current		4,023	4,323	4,181	4,509
Overdue					
- less than 3 months		417	277	408	277
- over 3 months but less than 12 months		9	2	9	2
- over than 12 months		-	-	-	-
		426	279	417	279
Total trade receivables from related parties	35 (b)	4,449	4,602	4,598	4,788
Total trade receivables		10,100	12,197	10,154	12,224

Normal credit term of trade receivables is determined at 30 days to 60 days.

11. OTHER RECEIVABLES

Other receivables as at December 31, consist of the following:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Receivables from Excise Department and Oil Fund	619	488	619	488
Others	963	279	962	277
Total other receivables	1,582	767	1,581	765

12. INVENTORIES

Inventories as at December 31, consist of the following:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Raw materials	4,674	5,321	4,674	5,321
Work in process	14	16	14	16
Finished goods	13,680	16,734	13,446	16,464
Chemicals and fuel oil	994	1,193	982	1,180
Spare parts and repair materials	2,780	2,601	2,779	2,600
Goods in transit	5,083	4,102	5,083	4,093
<u>Less</u> Transfer to Property, Plant and Equipment	(317)	-	(317)	-
<u>Less</u> Allowance for diminution in value and obsolescence of inventories	(913)	(1,508)	(913)	(1,508)
Total inventories	25,995	28,459	25,748	28,166

According to the Ministry of Energy's regulations, the Company is required to reserve crude oil at 6% of commercial volume and liquid petroleum gas and petroleum products at 1% of the total production output in each period. As at December 31, 2019, the inventories presented in the consolidated and separate financial statements included minimum mandatory reserve on crude oil, liquid petroleum gas, and petroleum products amounting to Baht 5,384 million and Baht 5,381 million, respectively (as at December 31, 2018: Baht 5,215 million and Baht 5,212 million in the consolidated and separate financial statements, respectively), which were net amount of allowance for diminution in value and obsolescence of inventories.

The cost of inventories recognised as expense and included in cost of sales amounting to Baht 211,052 million and Baht 210,466 million in the consolidated and separate statements of profit or loss, respectively (2018 : Baht 238,671 million and Baht 237,774 million in the consolidated and separate statements of profit or loss, respectively).

As at December 31, 2019, inventories are presented net of allowance for diminution in value and obsolescence of inventories amounting to Baht 913 million in the consolidated and separate statements of financial position (2018 : Baht 1,508 million in the consolidated and separate statements of financial position). During the year 2019, the allowance for diminution in value and obsolescence of inventories amounting to Baht 595 million has been reversed and recognised in the consolidated and separate statements of profit or loss (2018 : Baht 959 million and Baht 952 million were recognised in the consolidated and separate statements of profit or loss, respectively).

13. INVESTMENTS IN ASSOCIATES, SUBSIDIARIES AND JOINT VENTURES

Movements of investments in associates, subsidiaries and joint ventures for the years ended December 31, are as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Opening net book amount	7,799	6,992	8,597	8,675
Increase in investment in a joint venture ¹⁾	195	65	195	65
Increase in investment in a subsidiary ²⁾	-	-	61	5
Sales of investment in a subsidiary ³⁾	-	-	(1)	(75)
Loss on impairment of investment in a joint venture	-	-	(77)	(73)
Increase in investment from changing status from a subsidiary to be a joint venture	-	104	-	-
Disposal of investment in a subsidiary ⁴⁾	-	-	(39)	-
Disposal of investment in a joint venture	-	(5)	-	-
Dividend received from an associate	(99)	(35)	-	-
Share of profit on investments in associates and a joint venture	363	679	-	-
Share of other comprehensive loss on investment in an associate	(1)	(1)	-	-
Closing net book amount	<u>8,257</u>	<u>7,799</u>	<u>8,736</u>	<u>8,597</u>

- 1) During 2018, investment in a joint venture increased from investment in WHA Industrial Estate Rayong Co., Ltd. ("WHA IER"), 40% owned by the Company which was registered as a limited company in Thailand on July 25, 2018. As at December 31, 2018, WHA IER has registered share capital of 65 million shares at par value Baht 10, totalling Baht 650 million and paid-up share capital of 25% totalling Baht 162.5 million. The Company paid the share capital for the investment of Baht 65 million on August 29, 2018.

During 2019, WHA IER called for the additional paid-up at 75% amounting to Baht 487.5 million. The Company paid for additional paid-up share capital of Baht 195 million on September 9, 2019.

- 2) During 2018, investment in a subsidiary increased from investment in I-Polymer Company Limited ("I-Polymer"), 99.99% owned by the Company which was registered as a limited company in Thailand on November 23, 2018. As at December 31, 2018, I-Polymer has registered and paid-up share capital of 0.5 million shares at par value Baht 10, totalling Baht 5 million. In August 2019, the Company paid the share capital for the investment of Baht 5 million on December 18, 2018.

On July 19, 2019, the Board of Director of I-Polymer passed a resolution to increase the registered share capital from Baht 5 million to be Baht 120 million by issuing new 11.5 million ordinary shares at par value of Baht 10 each totalling Baht 115 million. In August 2019, the Company executed a partial right for this increase share capital by additionally paid of Baht 61 million that result to the percentage of shareholding has been changed to 55%. The remaining shares of 45% is held by Guangzhou Saiju Performance Polymer Ltd. ("GZSJ") incorporated in the People's Republic of China.

- 3) On April 30, 2018, the Company sold additional shares of IRPC Polyol Company Limited of 25% to PCC Rokita Spolka Akcyjna ("PCC") with selling price of Baht 54 million (cost at par value totalling Baht 75 million) which there was loss on sales of investment of Baht 23 million. According to the sales transaction, as at December 31, 2018, the Company and PCC each hold 50% of IRPC Polyol Company Limited's shares and the status of investment in IRPC Polyol Company Limited was changed from a subsidiary to be a joint venture.

On December 26, 2019, the Company sold shares of IRPC A&L Company Limited by 2.5% to another shareholder at selling price of Baht 3.96 million (cost at Baht 0.6 million) which there was gain on sales of investment of Baht 3.37 million. As a result, the percentage of shareholding has been changed to 57.48%.



- 4) On December 20, 2018, the official receiver ordered the bankruptcy proceedings of R. Solution Co., Ltd. The Company reversed the loss on impairment and disposal the investment in R. Solution Co., Ltd. amounting to Baht 198,200 in the first quarter of 2019.

On April 25, 2019, the Extraordinary General Meeting No. 1/2019 of shareholders of Thai ABS Co., Ltd. ("Thai ABS") passed a resolution to dissolve the business, register the completion on dissolution and return the capital investment and share profit to the shareholders. The Company received the capital refund from Thai ABS of Baht 276.61 million and disposed the investments in a subsidiary of Baht 39 million in the second quarter of 2019. In addition, the Company recognised the share of profit from dissolution of such subsidiary of Baht 237 million in the separate statements of profit or loss for the year ended December 31, 2019.

a) Details of investments in associates and joint ventures in the consolidated financial statements as at December 31, are as follows:

	Consolidated financial statements						Unit : Million Baht	
	Paid-up share capital		Cost method		Equity method		Dividend income	
	2019	2018	2019	2018	2019	2018	2019	2018
<u>Associates</u>								
PTT Energy Solutions Co., Ltd.	150	150	30	30	35	42	-	-
UBE Chemicals (Asia) Public Co., Ltd.	10,739	10,739	5,300	5,300	4,915	5,112	99	35
IRPC Clean Power Co., Ltd.	3,083	3,083	1,510	1,510	3,050	2,534	-	-
			6,840	6,840	8,000	7,688	99	35
<u>Joint ventures</u>								
WHA Industrial Estate Rayong Co., Ltd.	650	163	260	65	257	64	-	-
IPRC Polyol Co., Ltd.	300	300	150	150	-	46	-	-
			410	215	257	110	-	-

b) Details of investments in associates, subsidiaries and joint ventures in the separate financial statements as at December 31, are as follows:

	Business type	Separate financial statements										Unit : Million Baht	
		Ownership interest (%)		Paid-up capital		Cost method		Impairment		Net		Dividend income	
		2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Associates													
PTT Energy Solutions Co., Ltd.	Engineering consulting	20.00	20.00	150	150	30	30	-	-	30	30	-	-
UBE Chemicals (Asia) Public Co., Ltd.	Manufacturing and sales of petrochemical products	25.00	25.00	10,739	10,739	5,300	5,300	-	-	5,300	5,300	99	35
IRPC Clean Power Co., Ltd.	Manufacturing and sales of electricity and steam	48.99	48.99	3,083	3,083	1,510	1,510	-	-	1,510	1,510	-	-
Total investments in associates						6,840	6,840	-	-	6,840	6,840	99	35
Subsidiaries													
Active subsidiaries													
IRPC Oil Company Limited	Sales of oil products and gas	99.99	99.99	2,000	2,000	2,000	2,000	(718)	(718)	1,282	1,282	42	186
IRPC Technology Company Limited	Vocational school	99.99	99.99	750	750	750	750	(476)	(476)	274	274	-	-
IRPC A&L Company Limited	Distributing of petrochemical products	57.48	59.98	10	10	14	14	-	-	14	14	45	35
I-Polymer Company Limited	Distributing of plastic resin and chemical products via E-Commerce system	55.00	99.99	120	5	66	5	-	-	66	5	-	-
Subsidiary under bankruptcy process													
R. Solution Co., Ltd. (Below Baht 1 million)	Service for security	-	99.50	-	-	-	-	-	-	-	-	-	-
Subsidiaries under liquidation process													
Thai ABS Co., Ltd.	Manufacturing and sales of plastic resin	-	99.99	-	39	-	39	-	-	-	39	-	-
Total investments in subsidiaries						2,830	2,808	(1,194)	(1,194)	1,636	1,614	87	221
Joint Ventures													
WHA Industrial Estate Rayong Co., Ltd.	Industrial estate development	40.00	40.00	650	163	260	65	-	-	260	65	-	-
IRPC Polyoil Company Limited	Manufacturing and sales of chemical products for polyurethanes	50.00	50.00	300	300	150	150	(150)	(73)	-	77	-	-
Total investments in joint ventures						410	215	(150)	(73)	260	142	-	-

Reconciliation of summarised financial information

Reconciliation of the summarised financial information presented to the carrying amount of its interest in the associates.

Summarised financial Information for the years ended December 31, is as follows:

	UBE Chemicals (Asia) Public Co., Ltd.		Unit : Million Baht IRPC Clean Power Co., Ltd.	
	2019	2018	2019	2018
Opening net assets at January 1,	13,961	13,057	4,799	3,725
Dividend paid during the years	(407)	(169)	-	-
Net profit (loss) for the years	(238)	1,073	1,068	1,074
Closing net assets at December 31,	13,316	13,961	5,867	4,799
Interest in associates (%)	25.00	25.00	48.99	48.99
Carrying value at December 31,	3,329	3,490	2,874	2,351

14. OTHER LONG-TERM INVESTMENTS

Other long-term investments as at December 31, are as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Available for sales investments at cost method	67	67	67	67
Less Allowances for revaluation of investments	(26)	(8)	(26)	(8)
	41	59	41	59
General investments at cost method	4,663	4,061	4,661	4,059
Less Allowances for impairment	(3,037)	(3,478)	(3,036)	(3,477)
	1,626	583	1,625	582
Total other long-term investments	1,667	642	1,666	641

The fair value measurement of available for sale investments is based on quoted bid price as at the end of reporting period by reference from the Stock Exchange of Thailand which fair value hierarchy is level 1.

General investments as at December 31, can be summarised as follows:

	% of investment		Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018	2019	2018
Investments with the former management and the entities relating to the former Management						
Pornchai Enterprise Co., Ltd.	23.65	23.65	1,119	1,119	1,117	1,117
TPI EOEG Co., Ltd.	36.31	36.31	829	829	829	829
TPI Holding Co., Ltd.	35.00	35.00	1,416	1,416	1,416	1,416
Thai Special Steel Industry Plc.	16.24	16.24	673	673	673	673
			4,037	4,037	4,035	4,035
Less Allowance for impairment ¹⁾			(3,037)	(3,475)	(3,036)	(3,474)
			1,000	562	999	561
General investments - others ²⁾			626	24	626	24
Less Allowance for impairment			-	(3)	-	(3)
			626	21	626	21
Total general investments			1,626	583	1,625	582

- 1) During 2019, the Company recognised the reversal of impairment of Baht 438 million in the consolidated and separate financial statements for its investments with the former managements and the entities relating to the former management of three companies which consisted of Pornchai Enterprise Co., Ltd., TPI EOEG Co., Ltd. and TPI Holding Co., Ltd. This amount is calculated in consideration of the recoverable amount of such investment as at December 31, 2019.
- 2) On October 16, 2018, the Board of Directors' meeting of the Company passed a resolution to invest in Guangzhou Saiju Performance Polymer Ltd. ("GZSJ") incorporated in the People's Republic of China ("PRC") by acquiring the capital increased shares equivalent to 15% of total registered capital, in amount of RMB 135 million. The main objective of GZSJ is to operate the trading business via e-commerce for plastic products in PRC. As at December 31, 2018, the Company processed the advance payment for 50% shares of the investment in amount of Baht 321 million. During the third quarter of 2019, the Company received refund of advance payment in full amount and paid for the total shares in amount of Baht 600 million (see Note 19).

During 2019, Social Energy Enterprise Company Limited, 15% owned by the Company, called for the additional paid-up at 75% of registered capital amounting to Baht 10 million. On June 21, 2019, the Company paid for addition paid-up share capital of Baht 1.13 million.

15. INVESTMENT PROPERTY

Investment property as at December 31, consists of:

As at December 31, 2019

	Unit : Million Baht			
	Consolidated financial statements			
	Balances as at January 1, 2019	Additions	Disposals	Balances as at December 31, 2019
Cost				
Land	1,444	6	(464)	986
Buildings	18	-	-	18
Total cost	1,462	6	(464)	1,004
Accumulated depreciation				
Buildings	(18)	-	-	(18)
Total accumulated depreciation	(18)	-	-	(18)
<u>Less</u> Allowance for impairment	(216)	-	152	(64)
Total investment property	1,228			922

As at December 31, 2018

	Unit : Million Baht			
	Consolidated financial statements			
	Balances as at January 1, 2018	Additions	Disposals	Balances as at December 31, 2018
Cost				
Land	1,529	12	(97)	1,444
Buildings	18	-	-	18
Total cost	1,547	12	(97)	1,462
Accumulated depreciation				
Buildings	(18)	-	-	(18)
Total accumulated depreciation	(18)	-	-	(18)
<u>Less</u> Allowance for impairment	(267)	-	51	(216)
Total investment property	1,262			1,228

As at December 31, 2019

	Unit : Million Baht			
	Separate financial statements			
	Balances as at January 1, 2019	Additions	Disposals	Balances as at December 31, 2019
Cost				
Land	1,396	6	(464)	938
<u>Less</u> Allowance for impairment	(197)	-	145	(52)
Total investment property	1,199			886

As at December 31, 2018

	Unit : Million Baht			
	Separate financial statements			
	Balances as at January 1, 2018	Additions	Disposals	Balances as at December 31, 2018
Cost				
Land	1,481	12	(97)	1,396
<u>Less</u> Allowance for impairment	(248)	-	51	(197)
Total investment property	1,233			1,199

Amounts recognised in the statements of profit or loss that are related to investment property for the years ended December 31, are as follows:

	Unit : Million Baht			
	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Rental income	29	28	29	28

The fair values of investment property as at December 31, are as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Land	996	1,559	960	1,531
Buildings	9	5	-	-
	1,005	1,564	960	1,531

In December 2018, the Company sold land approximately 152 rai in Rayong province to PTT Public Company Limited, a major shareholder with the selling price at Baht 325 million.

The fair values of investment property as disclosed above are from the appraisal of independent valuers by using market approach during 2019 which the environment and the assumptions used for the assessment have not been significantly changed from prior appraisal.

16. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment as at December 31, are as follows:

As at December 31, 2019

Unit : Million Baht

	Consolidated financial statements					Balances as at December 31, 2019
	Balances as at January 1, 2019	Additions	Disposals/Write off	Transfers in (out)	Transfers from inventory	
Cost						
Land and land improvement	11,537	-	-	-	-	11,537
Buildings and building improvements	39,029	25	(5)	773	-	39,822
Machinery and pipes	141,150	237	(299)	6,104	317	147,509
Tools and factory equipment	3,194	97	(40)	74	-	3,325
Furniture, fixtures and office equipment	1,199	55	(29)	30	-	1,255
Vehicles	691	7	(14)	-	-	684
Total	196,800	421	(387)	6,981	317	204,132
Accumulated depreciation						
Buildings and building improvements	(16,988)	(1,297)	2	(41)	-	(18,324)
Machinery and pipes	(60,173)	(6,834)	254	(3)	-	(66,756)
Tools and factory equipment	(2,122)	(196)	40	-	-	(2,278)
Furniture, fixtures and office equipment	(901)	(86)	29	-	-	(958)
Vehicles	(590)	(22)	14	-	-	(598)
Total	(80,774)	(8,435)	339	(44)	-	(88,914)
Assets under construction and assets under installation	9,003	3,984	-	(6,981)	-	6,006
Less Allowance for impairment	(292)	-	93	44	-	(155)
Total property, plant and equipment	124,737					121,069

As at December 31, 2018

Unit : Million Baht

	Consolidated financial statements					Balances as at December 31, 2018
	Balances as at January 1, 2018	Additions	Disposals/Write off	Transfers in (out)	Effects of changing Status ⁽¹⁾	
Cost						
Land and land improvement	9,498	1,810	-	229	-	11,537
Buildings and building improvements	37,670	9	(26)	1,497	(121)	39,029
Machinery and pipes	134,709	220	(931)	7,569	(417)	141,150
Tools and factory equipment	3,165	112	(49)	23	(57)	3,194
Furniture, fixtures and office equipment	1,086	38	(35)	118	(8)	1,199
Vehicles	689	10	(7)	-	(1)	691
Total	186,817	2,199	(1,048)	9,436	(604)	196,800
Accumulated depreciation						
Buildings and building improvements	(15,833)	(1,285)	14	-	116	(16,988)
Machinery and pipes	(54,790)	(6,438)	795	-	260	(60,173)
Tools and factory equipment	(2,025)	(191)	48	-	46	(2,122)
Furniture, fixtures and office equipment	(869)	(75)	35	-	8	(901)
Vehicles	(574)	(23)	7	-	-	(590)
Total	(74,091)	(8,012)	899	-	430	(80,774)
Assets under construction and assets under installation	14,707	3,732	-	(9,436)	-	9,003
Less Allowance for impairment	(372)	-	80	-	-	(292)
Total property, plant and equipment	127,061					124,737

Depreciation for the years ended December 31,

2019

Baht 8,435

2018

Baht 8,012

(1) According to the sales transaction for the shares of IRPC Polyol Company Limited, as at December 31, 2018, investment in IRPC Polyol Company Limited was changed status from investment in a subsidiary to be investment in a joint venture (see Note 13(3)).

As at December 31, 2019

Unit : Million Baht

	Separate financial statements					Balances as at December 31, 2019
	Balances as at January 1, 2019	Additions	Disposals/ Write off	Transfers in (out)	Transfers from Inventory	
Cost						
Land and land improvement	10,901	-	-	-	-	10,901
Buildings and building improvements	37,270	-	(5)	759	-	38,024
Machinery and pipes	140,822	235	(298)	6,095	317	147,171
Tools and factory equipment	2,362	82	(40)	74	-	2,478
Furniture, fixtures and office equipment	1,074	24	(29)	30	-	1,099
Vehicles	510	7	(14)	-	-	503
Total	192,939	348	(386)	6,958	317	200,176
Accumulated depreciation						
Buildings and building improvements	(15,600)	(1,293)	2	-	-	(16,891)
Machinery and pipes	(60,205)	(6,820)	254	-	-	(66,771)
Tools and factory equipment	(1,673)	(138)	40	-	-	(1,771)
Furniture, fixtures and office equipment	(831)	(76)	29	-	-	(878)
Vehicles	(413)	(22)	14	-	-	(421)
Total	(78,722)	(8,349)	339	-	-	(86,732)
Assets under construction and assets under installation	8,863	3,947	-	(6,958)	-	5,852
Less Allowance for impairment	(80)	-	-	-	-	(80)
Total property, plant and equipment	123,000					119,216

As at December 31, 2018

Unit : Million Baht

	Separate financial statements					Balances as at December 31, 2018
	Balances as at January 1, 2018	Additions	Disposals/ Write off	Transfers in (out)		
Cost						
Land and land improvement	8,862	1,810	-	229		10,901
Buildings and building improvements	35,831	1	(21)	1,459		37,270
Machinery and pipes	133,968	219	(925)	7,560		140,822
Tools and factory equipment	2,284	101	(43)	20		2,362
Furniture, fixtures and office equipment	977	7	(27)	117		1,074
Vehicles	510	7	(7)	-		510
Total	182,432	2,145	(1,023)	9,385		192,939
Accumulated depreciation						
Buildings and building improvements	(14,332)	(1,282)	14	-		(15,600)
Machinery and pipes	(54,572)	(6,422)	789	-		(60,205)
Tools and factory equipment	(1,582)	(133)	42	-		(1,673)
Furniture, fixtures and office equipment	(791)	(67)	27	-		(831)
Vehicles	(396)	(23)	6	-		(413)
Total	(71,673)	(7,927)	878	-		(78,722)
Assets under construction and assets under installation	14,558	3,690	-	(9,385)		8,863
Less Allowance for impairment	(160)	-	80	-		(80)
Total property, plant and equipment	125,157					123,000

Depreciation for the years ended December 31,

2019

Baht 8,349

2018

Baht 7,927

For the year ended December 31, 2019, borrowing costs of Baht 141 million was included in the purchases of assets in the consolidated and separate financial statements (2018 : Baht 165 million in the consolidated and separate financial statements) arising from financing specifically for the construction of new factories. The Group used the capitalisation rates between 3.78% and 4.09% to calculate the capitalized borrowing costs.

As at December 31, 2019 and 2018, costs of plant and equipment in the consolidated financial statements that were fully depreciated but still in use were Baht 9,202 million and Baht 8,961 million, respectively.

As at December 31, 2019 and 2018, costs of plant and equipment in the separate financial statements that were fully depreciated but still in use were Baht 8,765 million and Baht 8,535 million, respectively.

17. INTANGIBLE ASSETS

Intangible assets as at December 31, consist of:

As at December 31, 2019

	Consolidated financial statements				Unit : Million Baht
	Balances as at January 1, 2019	Additions	Disposals	Transfers in (out)	Balances as at December 31, 2019
Cost					
Dredging expenses	2,640	-	-	-	2,640
Computer software	1,094	7	(18)	73	1,156
Total	3,734	7	(18)	73	3,796
Accumulated amortisation					
Dredging expenses	(2,524)	(38)	-	-	(2,562)
Computer software	(908)	(68)	18	-	(958)
Total	(3,432)	(106)	18	-	(3,520)
Computer software under installation	245	116	-	(73)	288
Total intangible assets	547				564

As at December 31, 2018

	Consolidated financial statements				Unit : Million Baht
	Balances as at January 1, 2018	Additions	Disposals	Transfers in (out)	Balances as at December 31, 2018
Cost					
Dredging expenses	2,640	-	-	-	2,640
Computer software	1,037	4	-	53	1,094
Total	3,677	4	-	53	3,734
Accumulated amortisation					
Dredging expenses	(2,382)	(142)	-	-	(2,524)
Computer software	(824)	(84)	-	-	(908)
Total	(3,206)	(226)	-	-	(3,432)
Computer software under installation	212	86	-	(53)	245
Total intangible assets	683				547

Amortisation for the years ended December 31,

2019

Baht 106

2018

Baht 226

As at December 31, 2019

Unit : Million Baht

	Separate financial statements				Balances as at December 31, 2019
	Balances as at January 1, 2019	Additions	Disposals	Transfers in (out)	
Cost					
Dredging expenses	2,640	-	-	-	2,640
Computer software	1,087	6	(18)	73	1,148
Total	3,727	6	(18)	73	3,788
Accumulated amortisation					
Dredging expenses	(2,524)	(38)	-	-	(2,562)
Computer software	(905)	(67)	18	-	(954)
Total	(3,429)	(105)	18	-	(3,516)
Computer software under installation	244	116	-	(73)	287
Total intangible assets	542				559

As at December 31, 2018

Unit : Million Baht

	Separate financial statements				Balances as at December 31, 2018
	Balances as at January 1, 2018	Additions	Disposals	Transfers in (out)	
Cost					
Dredging expenses	2,640	-	-	-	2,640
Computer software	1,030	4	-	53	1,087
Total	3,670	4	-	53	3,727
Accumulated amortisation					
Dredging expenses	(2,382)	(142)	-	-	(2,524)
Computer software	(822)	(83)	-	-	(905)
Total	(3,204)	(225)	-	-	(3,429)
Computer software under installation	211	86	-	(53)	244
Total intangible assets	677				542

Amortisation for the years ended December 31,

2019

Baht 105

2018

Baht 225



18. DEFERRED INCOME TAX/INCOME TAX

The movement of deferred tax assets and liabilities during the years is as follows:

	Consolidated financial statements				
	Employee benefit obligations	Fixed assets	Taxable loss carried forward	Others	Total
Deferred tax assets					
As at January 1, 2018	465	276	159	142	1,042
Impact from changing status from a subsidiary to be a joint venture	-	-	(25)	-	(25)
Net charged/(credited) to profit or loss	49	(8)	(77)	27	(9)
As at December 31, 2018	514	268	57	169	1,008
Net charged/(credited) to profit or loss	199	(11)	453	(2)	639
Net charged/(credited) to other comprehensive income	250	-	-	3	253
As at December 31, 2019	963	257	510	170	1,900
Unit : Million Baht					
Consolidated financial statements					
Fixed assets					
Deferred tax liabilities					
As at January 1, 2018					851
Net (charged)/credited to profit or loss					(166)
As at December 31, 2018					685
As at January 1, 2019					685
Net (charged)/credited to profit or loss					(161)
As at December 31, 2019					524
Presentation in the statements of financial position					
As at December 31, 2019					
Deferred tax assets - net					1,376
As at December 31, 2018					
Deferred tax assets - net					323

Unit : Million Baht

	Separate financial statements				
	Employee benefit obligations	Fixed assets	Taxable loss carried forward	Others	Total
Deferred tax assets					
As at January 1, 2018	455	160	31	164	810
Net charged/(credited) to profit or loss	56	2	(31)	27	54
As at December 31, 2018	511	162	-	191	864
Net charged/(credited) to profit or loss	197	2	466	3	668
Net charged/(credited) to other comprehensive income	250	-	-	3	253
As at December 31, 2019	958	164	466	197	1,785

Unit : Million Baht

**Separate
financial statements
Fixed assets**

Deferred tax liabilities

As at January 1, 2018	851
Net (charged)/credited to profit or loss	(166)
As at December 31, 2018	685
As at January 1, 2019	685
Net (charged)/credited to profit or loss	(161)
As at December 31, 2019	524

Presentation in the statements of financial position**As at December 31, 2019**

Deferred tax assets - net	1,261
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As at December 31, 2018

Deferred tax assets - net	179
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Income tax

Unit : Million Baht

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
For the years ended December 31,				
Income tax for the current period	21	1,303	3	1,282
Deferred income tax benefit	(800)	(157)	(829)	(220)
Income tax (benefit) expense	(779)	1,146	(826)	1,062

For the years ended December 31, 2019 and 2018, the Group's effective tax rate is not equal to the statutory tax rate of 20% under the Revenue Code because income tax expense is calculated from accounting profit adjusted by non-deductible expenses, deducted income or expense exemption under the Revenue Code and utilized the tax losses carried forward from prior years and also had the exempted net profit from the promoted business.

Income tax expenses for the years ended December 31, are reconciled as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Profit (loss) before income tax expense	(1,924)	8,915	(2,250)	8,163
Tax calculated at a tax rate of 20%	(385)	1,783	(450)	1,633
Tax effect of:				
Profit from operations of associates - net of tax	(73)	(136)	-	-
Income subject to tax	-	3	-	3
Income not subject to tax	(109)	(43)	(153)	(86)
Income subject to tax exemption	(299)	(485)	(290)	(485)
Expenses not deductible for tax purpose	105	30	85	33
Expenses with additional deduction	(18)	(37)	(18)	(36)
Tax losses not recognised as deferred income tax	-	31	-	-
Income tax (benefit) expense	(779)	1,146	(826)	1,062

19. OTHER NON-CURRENT ASSETS

Other non-current assets as at December 31, consist of:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Advance payment for investment in an oversea company	-	321	-	321
Prepaid expense	308	183	308	183
Others	40	38	38	36
Total other non-current assets	348	542	346	540

20. BORROWINGS

20.1 Short-term borrowings from financial institutions

Unsecured short-term borrowings from financial institutions with maturities of 1 - 3 months as at December 31, are as follows:

	Unit : Million Baht			
	Consolidated financial statements			
	2019	2018		
	% Interest rate per annum	% Interest rate per annum		
Principal	Principal	Principal		
Short-term borrowings from financial institutions	6,900	1.45 - 1.56	6,700	1.73 - 2.01

	Unit : Million Baht			
	Separate financial statements			
	2019	2018		
	% Interest rate per annum	% Interest rate per annum		
Principal	Principal	Principal		
Short-term borrowings from financial institutions	6,900	1.45 - 1.56	6,700	1.73 - 2.01

20.2 Long-term borrowings from financial institutions and debentures

Long-term borrowings from financial institutions and debentures as at December 31, consist of:

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2019	2018	2019	2018
Long-term borrowings from financial institutions	45,286	40,533	45,286	40,533
<u>Less</u> Current portion of long-term borrowings from financial institutions	(8,190)	(3,740)	(8,190)	(3,740)
<u>Less</u> Deferred financing fees	(103)	(119)	(103)	(119)
Total long-term borrowings from financial institutions	36,993	36,674	36,993	36,674
Debentures	6,890	10,254	6,890	10,254
<u>Less</u> Current portion of debentures	-	(3,364)	-	(3,364)
<u>Less</u> Deferred debentures issuance costs	(2)	(3)	(2)	(3)
Total debentures	6,888	6,887	6,888	6,887
Total current portion of long-term borrowings from financial institutions and debentures	8,190	7,104	8,190	7,104
Total long-term borrowings from financial institutions and debentures	43,881	43,561	43,881	43,561

Long- term borrowings

The Company entered into the following long-term loan agreements with local and foreign financial institutions for capital expenditure projects of the Group as follows:

- Unsecured loans with facilities of Baht 3,700 million are for a period of 8 years with an interest rate at 3-month THBFIX plus a certain margin per annum. The interest will be paid every 3 months whereas the principal repayment is separated into 10 semi-annually instalments, starting from July 31, 2015 (the last business day of the 42nd month from the first drawn down). The loans were fully drawn down.
- On June 29, 2018, the Company entered into the Facility Agreement of US Dollar 200 million with two financial institutions. The agreement is for a period of 7 years with an interest rate at LIBOR plus a certain margin per annum. The principal repayment is separated into 9 semi-annually instalments, starting from the 24th month from the agreement date. On July 10, 2018 and August 23, 2018 the Company drawdown the facility of US Dollar 40 million and US Dollar 160 million, respectively.
- Unsecured loans with facilities of Baht 10,000 million with three local financial institutions are for a period of 8 years with the interest rate of the average maximum 6-month fixed deposit rate of four commercial banks plus a certain margin per annum. The payment of interest is monthly whereas the principal repayment is separated into 12 semi-annually instalments, starting from June 2016. The loans were fully drawn down.
- Unsecured loans with facilities of Baht 3,000 million with a local financial institution are for a period of 8 years with the interest rate of the maximum 6-month fixed deposit rate of an individual plus a certain margin per annum. The payments of interest is semi-annually whereas the principle repayment is separated into 10 semi-annually instalments, starting from September 30, 2017 (the 42nd month from the loan agreement date). The loans were fully drawn down.

- Unsecured loans with facilities of Baht 4,000 million with a local financial institution are for a period of 8 years from the first draw down with the interest rate of the maximum 6-month fixed deposit rate plus a certain margin per annum. The interest will be paid every month whereas the principal repayment is separated into 12 semi-annually instalments, starting from December 28, 2018 (the 30th month from the first draw down). The loans were fully drawn down.
- Unsecured loans with facilities of Baht 5,000 million with a local financial institution are for a period of 8 years from the first draw down with the interest rate of the maximum 6-month fixed deposit rate of an individual plus a certain margin per annum. The payment of interest is monthly whereas the principal repayment is separated into 10 semi-annually instalments, starting from May 31, 2020 (the 42th month from the first draw down). The loans were fully drawn down.
- Unsecured loans with facilities of Baht 15,000 million with four local financial institutions are for a period of 8 years from the first draw down with the interest rate of the average maximum 6-month fixed deposit rate of four commercial banks plus a certain margin per annum. The payment of interest is monthly whereas the principal repayment is separated into 10 semi-annually instalments, starting from November 30, 2020 (the 42th month from the first draw down). The loans were fully drawn down.
- On July 1, 2019, the Company entered into the unsecured Facility Agreement of Baht 3,500 million with a local financial institution. The agreement is for a period of 8 years with an interest rate at 6-month fixed deposit rate plus a certain margin per annum. The interest will be paid every month whereas the principal repayment is separated into 10 semi-annually instalments, starting from the end of 42nd month from the first drawdown date. The Company does not draw down the facility yet.
- On July 1, 2019, the Company entered into the unsecured Facility Agreement of Baht 2,500 million with a local financial institution. The agreement is for a period of 7 years with an interest rate at 6-month fixed deposit rate plus a certain margin per annum. The interest will be paid every 6 months whereas the principal repayment is separated into 10 semi-annually instalments, starting from March 2022. The facility was fully drawn down.
- On July 1, 2019, the Company entered into the unsecured Facility Agreement of Baht 3,000 million with a local financial institution. The agreement is for a period of 8 years with an interest rate at 6-month fixed deposit rate plus a certain margin per annum. The interest will be paid every month whereas the principal repayment is separated into 10 semi-annually instalments, starting from January 2023. The facility was fully drawn down.
- On July 1, 2019, the Company entered into the unsecured Facility Agreement of Baht 1,550 million with a local financial institution. The agreement is for a period of 8 years with an interest rate at 6-month fixed deposit rate plus a certain margin per annum. The interest will be paid every month whereas the principal repayment is separated into 10 semi-annually instalments, starting from the end of 42nd month from the first drawdown date. The Company does not draw down the facility yet.
- On July 1, 2019, the Company entered into the unsecured Facility Agreement of Baht 450 million with a local financial institution. The agreement is for a period of 7 years with an interest rate at 6-month THBFIX plus a certain margin per annum. The interest will be paid every 3 months whereas the principal repayment is separated into 14 quarterly instalments, starting from April 2023. The facility was fully drawn down.
- On July 1, 2019, the Company entered into the unsecured Facility Agreement of Baht 3,000 million with a local financial institution. The agreement is for a period of 8 years with an interest rate at 6-month fixed deposit rate plus a certain margin per annum. The interest will be paid every month whereas the principal repayment is separated into 10 semi-annually instalments, starting from June 2023. The facility was fully drawn down.
- On July 5, 2019, the Company entered into the unsecured Facility Agreement of Baht 1,000 million with a local financial institution. The agreement is for a period of 8 years with an interest rate at 6-month fixed deposit rate plus a certain margin per annum. The interest will be paid every month whereas the principal repayment is separated into 10 semi-annually instalments, starting from the end of 42nd month from the first drawdown date. The Company does not draw down the facility yet.

The facility agreements contain normal covenants related to various matters, such as the maintenance of certain debt to equity ratio and the maintenance of certain debt service coverage ratio.

Debentures

On May 9, 2014, the Company issued debentures which are non-subordinated, unsecured with a debenture holders' representative in the name-registered certificate, totalling Baht 15,000 million. The details are as follows:

- Tranche 1 debentures amounting to Baht 1,366 million and Tranche 4 debentures amounting to Baht 3,380 million with a fixed interest rate at 3.96% per annum, they were matured on May 9, 2017;
- Tranche 2 debentures amounting to Baht 1,944 million and Tranche 5 debentures amounting to Baht 1,420 million with a fixed interest rate at 4.50% per annum, they were matured on May 9, 2019; and
- Tranche 3 debentures amounting to Baht 2,940 million and Tranche 6 debentures amounting to Baht 3,950 million with a fixed interest rate at 4.96% per annum, and redemption date is on May 9, 2021.

Interest is payable on semi-annual for all six tranches of debentures. The first interest payment period is on November 9, 2014 with final interest payments at the redemption dates of each Tranche.

Under the terms of the debentures, the Company has to comply with certain conditions as stipulated, such as not creating any future lien or other security interest of the Group, maintaining direct and indirect ownership interest of PTT Public Company Limited in the Company and maintaining certain financial ratios as stipulated in the requirements of the debenture's issuer.

The movement of long-term borrowings from financial institutions and debentures for the year ended December 31, 2019 is as follow:

	Unit : Million Baht
	Consolidated and Separate
	financial statements
Opening net book amount	50,666
Repayment of long-term borrowings and debentures	(7,104)
Drawdown for long-term borrowings	8,950
Financing cost of long-term borrowings	(22)
Unrealised gain on exchange rate	(458)
Amortisation of deferred financing fees	37
Amortisation of discount on debentures	2
Closing net book amount	<u>52,071</u>

20.3 Interest rates on borrowings and debentures

The interest rates on borrowings and debentures of the Group as at December 31, are as follows:

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2019	2018	2019	2018
Short-term borrowings and debentures at fixed interest rates	13,788	16,951	13,788	16,951
Long-term borrowings at floating interest rates	45,183	40,414	45,183	40,414
	<u>58,971</u>	<u>57,365</u>	<u>58,971</u>	<u>57,365</u>



	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2019	2018	2019	2018
Effective interest rates (%)				
Debtentures	4.960	4.500 - 4.960	4.960	4.500 - 4.960
Long-term borrowings from financial institutions	2.432 - 3.788	2.438 - 3.725	2.432 - 3.788	2.438 - 3.725

20.4 Maturity of long-term borrowings from financial institutions and debtentures

Maturity of long-term borrowings from financial institutions and debtentures as at December 31, is as follows:

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2019	2018	2019	2018
Within 1 year	8,190	7,104	8,190	7,104
Later than 1 year but no later than 5 years	36,918	35,634	36,918	35,634
Later than 5 years	6,963	7,928	6,963	7,928
	<u>52,071</u>	<u>50,666</u>	<u>52,071</u>	<u>50,666</u>

20.5 Fair values

The carrying amounts and fair values of debtentures in the consolidated and separate financial statements as at December 31, are as follows:

	Unit : Million Baht			
	Consolidated and Separate financial statements			
	Carrying Amounts	Fair Values	Fair Values	Fair Values
	2019	2018	2019	2018
Debtentures - Thai Baht	6,890	10,254	7,178	10,659
Total	<u>6,890</u>	<u>10,254</u>	<u>7,178</u>	<u>10,659</u>

The fair values of Thai Baht debtentures are calculated by applying the latest reference yield rate referred from the Thai Bond Market Association.

The fair values of short-term borrowings with fixed interest rate approximate their carrying values because of their short-term maturities. The long-term borrowings from financial institutions have floating interest rates; thus, the fair values approximate the carrying amounts.

20.6 Credit facilities

The Group has credit facilities with the commercial banks and a major shareholder totalling Baht 45,640 million and Baht 10,000 million, respectively, with the market interest rates. As at December 31, 2019, the Group has unused credit facilities with the commercial banks and a major shareholder of Baht 27,009 million and Baht 10,000 million, respectively.

21. TRADE PAYABLES

Trade payables as at December 31, consist of:

	Note	Consolidated		Unit : Million Baht	
		financial statements		Separate	
		2019	2018	2019	2018
Trade payables					
- Other parties		1,151	901	1,126	851
- Related parties	35 (f)	23,720	25,311	23,721	25,318
Total trade payables		<u>24,871</u>	<u>26,212</u>	<u>24,847</u>	<u>26,169</u>

22. EMPLOYEE BENEFIT OBLIGATIONS

Statements of financial position As at December 31,	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2019	2018	2019	2018
Retirement benefits	4,630	2,424	4,583	2,397
Other long-term benefits	206	158	205	157
	<u>4,836</u>	<u>2,582</u>	<u>4,788</u>	<u>2,554</u>
Statements of profit or loss For the years ended December 31,	Consolidated		Separate	
	financial statements		financial statements	
	2019	2018	2019	2018
Retirement benefits	1,015	234	1,001	267
Other long-term benefits	62	57	62	59
	<u>1,077</u>	<u>291</u>	<u>1,063</u>	<u>326</u>

The movements of employee benefit obligations for the years ended December 31, are as follows:

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2019	2018	2019	2018
Opening book amount	2,582	2,336	2,554	2,271
Current service costs	159	141	156	116
Interest cost	108	93	107	76
Past service cost	763	96	754	95
Loss on remeasurement of retirement benefit obligations	1,255	-	1,248	-
Loss on remeasurement of other long-term benefit obligations	47	-	47	-
Transfer employee benefits from subsidiary	-	(39)	-	39
Impact from changing status from a subsidiary to be a joint venture	-	(1)	-	-
Benefits paid	(78)	(44)	(78)	(43)
Closing book amount	<u>4,836</u>	<u>2,582</u>	<u>4,788</u>	<u>2,554</u>

Total current service costs, interest cost, past service cost and loss on remeasurement of other long-term benefit obligation are recognised in the statements of profit or loss.

The expenses of Baht 615 million and Baht 612 million were included in cost of sales in the consolidated and separate statements of profit or loss for the year ended December 31, 2019, respectively (2018 : Baht 133 million and Baht 164 million).

The expenses of Baht 462 million and Baht 452 million were included in administrative expenses in the consolidated and separate statements of profit or loss for the year ended December 31, 2019, respectively (2018 : Baht 158 million and Baht 162 million).

The principle actuarial assumptions used for calculating the employee benefit obligations as at December 31, are as follows:

	Consolidated		Unit : Percentage	
	financial statements		Separate	
	2019	2018	2019	2018
Discount rate	1.8	3.3	1.8	3.3
Salary growth rate	4.0 - 8.0	4.0 - 8.0	5.0 - 8.0	5.0 - 8.0
Turnover rate	0 - 7.0	0 - 7.0	0 - 2.0	0 - 2.0

The sensitivity analysis of the above actuarial assumptions impacted on increase (decrease) in present value of the employee benefit obligations as at December 31, are as follows:

	Unit : Million Baht				
	Consolidated financial statements				
	2019		2018		
	Impact on defined benefit obligation		Impact on defined benefit obligation		
	Change in assumption	Increase in assumption	Decrease in assumption	Increase in assumption	Decrease in assumption
Discount rate	1%	(489)	571	(278)	327
Salary growth rate	1%	521	(458)	301	(262)

	Unit : Million Baht				
	Separate financial statements				
	2019		2018		
	Impact on defined benefit obligation		Impact on defined benefit obligation		
	Change in assumption	Increase in assumption	Decrease in assumption	Increase in assumption	Decrease in assumption
Discount rate	1%	(484)	565	(270)	318
Salary growth rate	1%	516	(453)	293	(255)

The above sensitivity analyses are based on a change in an assumption while holding all other assumptions constant. In practice, this is unlikely to occur, and changes in some of the assumptions may be correlated.

The methods and types of assumptions used in preparing the sensitivity analysis did not change compared to the previous year.

Through its defined benefit retirement benefit plans and other long-term benefits plans, the Group is exposed to a number of risks, the most significant of which are detailed below:

Changes in effective bond yields

A decrease in effective government bond yields will increase plan liabilities.

The weighted average duration of the defined benefit obligation is 11 years (2018 : 17 years).

The Group uses the cash flows from operating activities to pay the retirement and other long-term benefits.

Expected maturity analysis of retirement and other long-term benefits as at December 31, 2019 are as follows:

	Unit : Million Baht			
	Consolidated financial statements			
	Less than 1 year	Between 1 - 5 years	More than 5 years	Total
Retirement benefits	115	516	3,999	4,630
Other long-term benefits	15	67	124	206
Total	130	583	4,123	4,836

	Unit : Million Baht			
	Separate financial statements			
	Less than 1 year	Between 1 - 5 years	More than 5 years	Total
Retirement benefits	115	504	3,964	4,583
Other long-term benefits	15	67	123	205
Total	130	571	4,087	4,788

Expected maturity analysis of retirement and other long-term benefits as at December 31, 2018 are as follows:

	Unit : Million Baht			
	Consolidated financial statements			
	Less than 1 year	Between 1 - 5 years	More than 5 years	Total
Retirement benefits	35	317	2,072	2,424
Other long-term benefits	11	59	88	158
Total	46	376	2,160	2,582

	Unit : Million Baht			
	Separate financial statements			
	Less than 1 year	Between 1 - 5 years	More than 5 years	Total
Retirement benefits	35	310	2,052	2,397
Other long-term benefits	11	59	87	157
Total	46	369	2,139	2,554

The Labor Protection Act (No. 7) B.E. 2562 has been announced in the Royal Gazette on April 5, 2019, which will be effective after 30 days from the date announced in Royal Gazette. This Labor Protection Act stipulates additional legal severance pay rates for employees who have worked for an uninterrupted period of twenty years or more. Such employees are entitled to receive compensation of not less than 400 days at the employees' latest wage rate. This change is considered an amendment to post-employment benefits plan. The Group has reflected the effect of such change by recognizing past service cost as an expense in the consolidated and separate statements of profit or loss for the year ended December 31, 2019.



23. LEGAL RESERVE

Under the Public Company Act of B.E. 2535, the Company is required to set aside a statutory reserve of at least 5% of its net profit after accumulated deficit is brought forward (if any) until the reserve reaches not less than 10% of the registered capital. The legal reserve is not available for distribution as dividends.

The legal reserve has been fully provided to comply with the law since 2007.

24. PREMIUM ON TREASURY STOCK - ORDINARY SHARES HELD BY A SUBSIDIARY

Premium on treasury stock - ordinary shares held by a subsidiary as at December 31, consists of the following:

	Unit : Million Baht Consolidated financial statements	
	2019	2018
IRPC Oil Company Limited	124	124
	<u>124</u>	<u>124</u>

As at December 31, 2019, the Company's ordinary shares of 23,828,400 shares have been held by IRPC Oil Company Limited, a subsidiary (2018 : 23,828,400 shares). These shares are stated at costs and presented in the consolidated statements of financial position as a deduction of total shareholders' equity.

The subsidiary plans to dispose of the Company's shares when returns are higher than its costs.

25. NON-CONTROLLING INTERESTS

The movements of non-controlling interests for the years ended December 31, are as follows:

	Unit : Million Baht Consolidated financial statements	
	2019	2018
Beginning balance	94	137
Dividends paid	(30)	(23)
Share of profit for the year	28	34
Increase in portion of investment of non-controller of subsidiaries	54	-
Impact from changing status from a subsidiary to be a joint venture	-	(54)
Ending balance	<u>146</u>	<u>94</u>

26. OTHER INCOME

For the years ended December 31,	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2019	2018	2019	2018
Interest income	28	29	37	40
Dividend income	2	1	189	256
Gain on exchange rate from borrowings and interest payable	458	68	458	63
Gain on exchange rate	216	696	212	691
Gain on disposals of fixed assets and investment property	78	163	78	167
Gain (loss) on sales of investment in a subsidiary	3	-	240	(23)
Loss on impairment of investment in a joint venture	-	-	(77)	(73)
Reversal of loss on impairment of other long-term investments	442	-	442	-
Reversal of loss on impairment of fixed assets and investment property	251	133	151	133
Income from tax refund from the customs import duty	105	86	105	86
Income from warranty claim	271	-	271	-
Others	455	345	496	422
Total other income	<u>2,309</u>	<u>1,521</u>	<u>2,602</u>	<u>1,762</u>

27. ADMINISTRATIVE EXPENSES

For the years ended December 31,	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2019	2018	2019	2018
Staff costs	3,654	3,250	3,603	3,249
Consultant fees	269	408	266	407
Depreciation	226	185	121	81
Rental	175	171	174	172
Advertising	34	56	34	56
Bad debts and doubtful accounts (reversal)	(15)	7	(19)	1
Directors' remuneration	47	60	44	56
Others	1,202	1,312	1,147	1,216
Total administrative expenses	<u>5,592</u>	<u>5,449</u>	<u>5,370</u>	<u>5,238</u>

28. NET DERIVATIVE GAIN (LOSS)

For the years ended December 31,	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2019	2018	2019	2018
Realised gain (loss) on financial derivative contracts	969	(294)	969	(294)
Realised gain on commodity derivative contracts	676	30	676	30
Total net derivative gain (loss)	<u>1,645</u>	<u>(264)</u>	<u>1,645</u>	<u>(264)</u>

Gain (loss) on commodity derivative instruments are due to the fluctuation in price of crude oil and petroleum products and the contract price of commodity derivatives which is nature of normal business (see Note 36 (b)).

29. SIGNIFICANT EXPENSES BY NATURE

For the years ended December 31,	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2019	2018	2019	2018
Changes of finished goods	(1,299)	1,578	(1,245)	1,584
Cost of raw materials used	192,385	224,021	192,158	223,542
Staff costs	10,171	9,270	10,021	9,142
Depreciation	8,435	8,012	8,349	7,927
Amortisation	108	226	107	225
Directors' and managements' remuneration	105	190	102	186

30. STAFF COSTS

For the years ended December 31,	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2019	2018	2019	2018
Salary and wages	4,642	4,227	4,550	4,122
Overtime	776	602	775	599
Bonus	1,879	2,191	1,854	2,165
Provident fund and social security	540	484	537	479
Employee benefits	1,077	291	1,063	326
Others	1,257	1,475	1,242	1,451
Total staff costs	10,171	9,270	10,021	9,142

Staff costs of Baht 6,517 million and Baht 6,418 million have been included in cost of sales in the consolidated and separate statements of profit or loss for the year ended December 31, 2019, respectively (2018 : Baht 6,020 million and Baht 5,893 million in the consolidated and separate statements of profit or loss, respectively).

Staff costs of Baht 3,654 million and Baht 3,603 million have been included in administrative expenses in the consolidated and separate statements of profit or loss for the year ended December 31, 2019, respectively (2018 : Baht 3,250 million and Baht 3,249 million in the consolidated and separate statements of profit or loss, respectively).

31. FINANCE COSTS

For the years ended December 31,	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2019	2018	2019	2018
Interest expense	1,883	1,911	1,883	1,909
Amortisation of deferred financing fees	37	41	37	41
Amortisation of discount on debentures	2	3	2	3
Financing fees	9	6	9	6
Total finance costs	1,931	1,961	1,931	1,959

32. BASIC EARNINGS (LOSS) PER SHARE

Basic earnings (loss) per share are calculated by dividing the profit (loss) attributable to owner of the parent for the years ended December 31, by the weighted average number of ordinary shares outstanding during the years less shares of the parent held by a subsidiary excluding treasury shares.

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Profit (loss) attributable to owner of the parent (million Baht)	(1,174)	7,735	(1,423)	7,101
Weighted average number of ordinary shares outstanding during the years less shares of the parent held by a subsidiary (million shares)	20,410	20,410	20,434	20,434
Basic earnings (loss) per share (Baht)	<u>(0.06)</u>	<u>0.38</u>	<u>(0.07)</u>	<u>0.35</u>

In the consolidated financial statements, the weighted average numbers of ordinary shares outstanding during the years are deducted by 24 million shares of the parent held by a subsidiary.

There are no dilutive potential ordinary shares in issue during the years presented, so no diluted earnings per share is presented.

33. DIVIDENDS PAID

On April 4, 2018, the Annual General Meeting of shareholders of the Company approved a dividend payment for the operating results of 2017 at Baht 0.29 per share for 20,434 million shares, totalling Baht 5,925 million. The dividends were paid to the shareholders on April 19, 2018.

On April 3, 2019, the Annual General Meeting of shareholders of the Company approved a dividend payment for the operating results of 2018 at Baht 0.19 per share for 20,434 million shares, totalling Baht 3,883 million. The dividend consists of interim dividend at Baht 0.10 per share totalling Baht 2,043 million which was paid on September 19, 2018 and the remaining dividend of Baht 0.09 per share totalling Baht 1,839 million which was paid on April 19, 2019.

34. PROMOTIONAL PRIVILEGES

By virtue of the provisions of the Industrial Investment Promotion Act of B.E. 2520, the Company has been granted privileges by the Board of Investment relating to the manufacture of Compounded Plastic, The cogeneration and steam power plant project ("CHP"), Propylene project ("PRP"), EBSM Upgrading for ABS Specialties project ("EBSM"), Multi Product Pipeline project ("MPPL"), Polypropylene Resin project ("PPE"), Polypropylene Compound project ("PPC"), High Pressure HDPE Compound project, Investment project in Industrial area and Improve Efficiency for Saving Energy of Petroleum project ("UHV") and Floating Solar project. The privileges granted include:

- exemption from payment of import duty and tax on materials and necessary parts including machinery as approved by the Board
- exemption from payment of corporate income tax on the net profit derived from certain operations for a period of five to eight years from the date on which the income is first derived from such operations
- a 50% reduction in the normal corporate income tax rate on the net profit derived from certain operations for a period of five years commencing from the expiry date in (b) above, and
- the double deduction of logistics, electricity and water expenses for a period of ten years since income is first derived from such operations.

As promoted companies, the Company must comply with certain terms and conditions prescribed in the promotional certificates.

To comply with the announcement of the Board of Investment No. Por. 14/2541 dated December 30, 1998 regarding the revenues reporting of a promoted industry, the Company's total revenues from sales and services, which are allocated to promoted and non-promoted activities for the years ended December 31, are as follows:

	Unit : Million Baht					
	Separate financial statements					
	2019			2018		
	BOI	Non-BOI	Total	BOI	Non-BOI	Total
Revenues from sales and services						
- Overseas	46,799	42,080	88,879	16,017	90,019	106,036
- Domestic	72,255	77,040	149,295	21,053	151,992	173,045
Total	119,054	119,120	238,174	37,070	242,011	279,081

35. RELATED PARTY TRANSACTIONS

Enterprises and individuals that directly, or indirectly through one or more intermediaries, control, or are controlled by, or are under common control with, the Company, including holding companies, subsidiaries and fellow subsidiaries are related parties of the Company. Associates and individuals owning, directly or indirectly, an interest in the voting power of the Company that gives them significant influence over the enterprise, key management personnel, including directors and officers of the Company and close members of the family of these individuals and companies associated with these individuals also constitute related parties.

In considering each possible related party relationship, attention is directed to the substance of the relationship, and not merely the legal form.

As at December 31, 2019, PTT Public Company Limited is the major shareholder of the Company, holding 47.55%. The another major shareholder is Thai NVDR Company Limited.

The pricing policies for particular types of transactions are as follows:

Transactions	Pricing policies
Revenue from sales and services	Market price
Purchases of raw material	According to the explanation below
Selling and administrative expenses which mainly are throughout fees and tank farms rental	Contractually agreed prices
Interest income and interest expense	<u>Short-term</u> - the weighted average interest rates 1-month and average interest rates 6-month of borrowing between commercial banks (BIBOR) adjusted by certain margins. <u>Long-term</u> - the weighted average interest rates of fixed deposits for four domestic commercial banks and the Minimum Loan Rate (MLR) adjusted by certain margins.
Directors' remunerations (meeting and bonus)	The rate approved by the Board of Directors and shareholders

Purchases of goods from a major shareholder - the major shareholder has provided services relating to the purchasing and payment process of goods. The purchase price includes a service fee charged by the major shareholder approximates the price of which the Group has procured by its own. In addition, the Company has also entered into commodity derivative contracts with a related party to protect the pricing risk regarding crude oil and petroleum products.

Significant transactions with related parties are summarised as follows:

(a) Sales and purchases of goods, services rendered and received

For the years ended December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Sales of goods and services				
- Major shareholder	22	14,973	22	14,472
- Subsidiaries	-	-	7,349	7,630
- Related parties	63,205	64,115	62,507	63,943
Purchases				
- Major shareholder	155,802	180,340	155,802	180,338
- Subsidiaries	-	-	13	9
- Related parties	25,031	32,942	25,028	32,929
Sales / Purchase crude oil and raw material for crude reserve				
- Related parties	2,646	1,668	2,646	1,668
Selling and administrative expenses				
- Major shareholder	54	56	54	56
- Subsidiaries	-	-	307	284
- Related parties	804	782	772	749
Net derivative gain				
- A related party	201	12	201	12
Interest income, dividend income and other income				
- Major shareholder	11	280	11	279
- Subsidiaries	-	-	155	320
- Related parties	256	155	352	188
Interest expense and other expenses				
- Major shareholder	31	-	31	-

(b) Trade receivables from related parties

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Major shareholder	2	3	2	3
Subsidiaries	-	-	217	215
Related parties	4,447	4,599	4,379	4,570
Total	4,449	4,602	4,598	4,788

(c) Amounts due from related parties

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Major shareholder	1	6	1	2
Subsidiaries	-	-	21	28
Related parties	161	81	161	81
	162	87	183	111
<u>Less</u> Allowance for doubtful accounts	-	-	(11)	(11)
Total	162	87	172	100



(d) Short-term loans and interest receivables to related parties

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Short-term loans and interest receivables				
Subsidiaries	-	-	179	549
A subsidiary under bankruptcy process				
Short-term loans and interest receivables	-	201	-	201
<u>Less</u> Allowance for doubtful accounts	-	(201)	-	(201)
	-	-	-	-
Total	-	-	179	549

Average interest rate of short-term loans to related parties are 1.8% per annum (2018: 2.05% per annum). Items that have been provided an allowance for doubtful debt have stopped charging interest.

(e) Long-term loans to related party

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Long-term loans				
Subsidiary	-	-	240	-
Total	-	-	240	-

Average interest rate of long-term loans to related party is 3.81% per annum

(f) Trade payables to related parties

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Major shareholder	21,431	22,782	21,431	22,782
Subsidiaries	-	-	1	7
Related parties	2,289	2,529	2,289	2,529
Total	23,720	25,311	23,721	25,318

(g) Amounts due to related parties

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Major shareholder	-	3	-	3
Subsidiaries	-	-	19	13
Related parties	242	234	241	232
Total	242	237	260	248

(h) Directors' and management's remuneration

For the years ended December 31,	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2019	2018	2019	2018
Salaries and other short-term benefits	103	188	100	184
Long-term benefits	2	2	2	2
Total	105	190	102	186

36. FINANCIAL INSTRUMENTS

(a) The Group's financial assets and liabilities in foreign currencies as at December 31, are as follows:

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2019	2018	2019	2018
Financial Assets				
US Dollar	4,404	5,780	4,404	5,780
Total	4,404	5,780	4,404	5,780
Financial Liabilities				
US Dollar - Borrowings	6,066	6,523	6,066	6,523
US Dollar	227	185	227	173
Euro	8	28	8	28
Others	8	3	3	3
Total	6,309	6,739	6,304	6,727

(b) The Group has significant contracts related to financial instruments as follows:

Currency swap contracts

The Company entered into a currency swap contract of Thai Baht long-term borrowing with a financial institution amounting to Baht 670 million to swap principal from Thai Baht to US Dollar at an exchange rate as specified in the contract. The contract is effective from October 5, 2017 to May 31, 2021.

The Company entered into two currency swap contracts of Thai Baht long-term borrowings with two financial institutions totalling Baht 2,003 million to swap principals from Thai Baht to US Dollar at an exchange rate as specified in the contracts. The contracts are effective from July 28, 2017 to May 31, 2021.

The above cross currency swap contracts will be swapped the principals every 6 months from the effective date until the maturity date and will recognise the transactions as financial derivative contracts in the financial statements over the period of contracts.

The Company entered into five cross currency swap contracts of Thai Baht long-term borrowings with two financial institutions totalling Baht 4,947 million to swap principals from Thai Baht to US Dollar at an exchange rate as specified in the contracts. The contracts are effective from June 21, 2018 to November 30, 2022 which are the maturity date of the related borrowings.

Cross currency interest rate swap contracts

The Company entered into a cross currency interest rate swap contract of Thai Baht debentures with a financial institution amounting to Baht 1,703 million to swap principal from Thai Baht to US Dollar at an exchange rate as specified in the contract and to swap the fixed interest rate on Thai Baht principal to a fixed interest rate on US Dollar principal. The contract is effective from June 12, 2017 to May 9, 2021 which is the maturity date of the related debentures.

The above cross currency interest rate swap contracts will be swapped the principals and interest every 6 months from the effective date until the maturity date and will recognise the transactions as financial derivative contracts in the financial statements over the period of contracts.

Interest rate swap contracts

The Company entered into four interest rate swap contracts of USD long-term borrowings with two financial institutions totalling USD 200 million to swap interests from floating rate to fixing rate as specified in the contracts. The contracts are effective from November 19, 2019 to June 29, 2025.

The above interest rate swap contracts will be swapped the interest every months from the effective date until the maturity date and will recognise the transactions as financial derivative contracts in the financial statement over the period of contracts.

Commodity derivative contracts

The Company has entered into Crack Spread Swap Contracts with a related party and several financial institutions in order to swap the spread of the average benchmark price of crude oil and petroleum products of the settlement months to the fixed price. As at December 31, 2019 and 2018, the outstanding balances under such contracts were at 14.85 million barrels and 3.87 million barrels, respectively.

The Company has entered into Crude Oil Swap Contracts with a related party and several financial institutions in order to swap the average benchmark price of crude oil and petroleum products of the settlement months to the range of fixed price. As at December 31, 2019 and 2018, the outstanding balances under such contracts were at 9 million barrels and 8.40 million barrels, respectively.

(c) Fair values

The carrying amounts of cash and cash equivalents, trade receivables, other receivables, amounts due from related parties, short-term loans and interest receivables from related parties, refundable value-added tax, short-term borrowings from financial institutions, trade payables, other payables, amounts due to related parties, interest payables, accrued bonus expense approximate their fair values due to the short maturity period.

The carrying values of long-term loans to a related party and long-term borrowings from financial institutions with floating interest rate; the fair values approximate their carrying values.

Fair values of debentures have been disclosed in Note 20.5.

Fair values of financial derivative contracts as at December 31, are as follows:

	Unit : Million Baht		
	Consolidated and Separate		
	financial statements		
	2019	2018	Fair values hierarchy
Financial derivative contracts			
Unfavourable	(5)	(28)	Level 2
Favourable	68	456	Level 2
Commodity derivative contracts			
Unfavourable	(620)	(150)	Level 2
Favourable	1,240	135	Level 2

The fair values of financial derivative contracts, which are forward foreign exchange contracts, interest rate swap contracts, currency swap contracts and cross currency interest rate swap contracts, are determined by the market price of each contract which are calculated by the financial institution of the Group as at the statement of financial position date. The fair values of commodity derivative contracts are the average quoted bid price and quoted selling price from the financial institutions that provided the services to the Group as at the statement of financial position date.

37. COMMITMENTS, LETTERS OF GUARANTEE AND SIGNIFICANT AGREEMENTS

(a) Commitments under agreements

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Contracted but not recognised in the financial statements				
- Purchase agreements for machinery and construction	1,889	2,208	1,889	2,208
- Consultation agreements	456	221	455	221
Total	2,345	2,429	2,344	2,429

(b) Non-cancellable operating lease commitments

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Office building rental agreements:				
Not later than 1 year	90	89	214	89
Later than 1 year but not later than 5 years	98	186	98	186
	188	275	312	275
Land lease agreements:				
Not later than 1 year	5	4	5	4
Later than 1 year but not later than 5 years	20	18	20	18
Later than 5 years	14	19	14	19
	39	41	39	41
Vehicle rental agreements:				
Not later than 1 year	78	80	76	78
Later than 1 year but not later than 5 years	114	171	109	168
	192	251	185	246
Computer rental agreements:				
Not later than 1 year	52	61	52	60
Later than 1 year but not later than 5 years	20	69	20	69
Later than 5 years	-	3	-	3
	72	133	72	132
Service agreements:				
Not later than 1 year	7	7	7	7
Later than 1 year but not later than 5 years	7	14	7	14
	14	21	14	21
Total	505	721	622	715

(c) Letters of guarantee and other commitments

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2019	2018	2019	2018
Letters of guarantee:				
Bank guarantees	113	1,300	111	1,297
Other commitments:				
Outstanding letters of credits	5	89	5	89

(d) The Company's tank farms and land expropriated for road construction

Some of the Company's tank farms are located in a yellow zone (low density residential zone) and a light green zone (recreational & environmental reserved zone) which are under the road project, Kor3 and Gor9, under the Ministerial Regulation on Town and Country Planning of Rayong Province B.E. 2549. Such plots of land were restricted from construction of factories, oil and gas tanks. At the present time, the Town and Country Planning Committee, Department of Public Works and Town and Country Planning has considered modifying the Rayong town plan as requested by the Company that the yellow zone and the light green zone be modified to a purple zone (industrial zone and tank farms) in order to operate oil and gas tank farms and to alter the construction plan of two public roads to be away from the Company's tank farm area. Failure of these modifications may affect the impairment of the operating assets.

The Town and Country Planning Committee has reviewed the draft of the Ministerial Regulations regarding Rayong Town Plan (4th revised) and removed the road project of Kor3 and Gor9 out from the draft of the Ministerial Regulations. As at December 31, 2019, this matter is being on process to be sent back to Rayong Province officer for further announcement.

(e) Use in public ways and gutters

Land in IRPC Industrial Zone Project located at Tambon Taphong, Tambon Choeng Noen and Tambon Ban Laeng Rayong Province included public ways and gutters in the Company's area. To solve this matter by legal means, the Company has filed a petition with the Department of Lands for the removal of public ways and gutters in accordance with Section 8 of the Land Code. In addition, the Company has purchased land for use in exchanging with the public ways and gutters in the amount not less than the appraisal value of removed public ways and gutters. The Company also filed a request for temporary use of the public ways and gutters and paid compensation under Section 9 of the Land Code. Currently, the Company is in the process of execution to the law with relevant government agencies.

(f) Significant agreements with related parties and other entities

Sales/Purchase of Refined Oil Agreement from a depot, Chumporn province

The Company entered into a Sales/Purchase of Refined Oil Agreement from the depot in Chumporn province with PTT Oil and Retail Business Public Company Limited. The Company agrees to sell refined oil from its depot in Chumporn province at a quantity and pricing rates as stipulated in the agreement. The agreement is effective for a period of 1 year with a maturity date of December 31, 2019. The Company has extended the agreement to December 31, 2020. The new terms and conditions are stipulated in the renewal agreement.

Crude and Feedstock Supply Agreement

The Company has entered into Crude and Feedstock Supply Agreements with PTT Public Company Limited. The agreements shall be effective for a period of 1 year with maturity date on December 31, 2020. The purchase quantity and pricing structure of crude and feedstock supply are as stipulated in the agreements.

Gas Sale and Purchase Agreement

On June 9, 2009, the Company entered into a Gas Sale and Purchase Agreement with PTT Public Company Limited (PTT) for the quantity and price as specified in the agreement. The agreement is effective for a period of 10 years starting from the date gas is delivered by PTT and the date the Company is in receipt on January 1, 2011. The agreement can be extended under the conditions stipulated in the agreement.

Petroleum Products Sales and Purchase Agreement

The Company entered into sales and purchases agreement of petroleum products with a related party, with agreed quantity and prices as specified in the agreement. The agreement is for a period of 15 years from the effective date specified in the agreement and will end in February 2028, unless both parties agree to terminate the agreement before the expiry date by written notify.

Power and Steam Sale and Purchase Agreements

The Company entered into the Power Sale and Purchase Agreement and Steam Sale and Purchase Agreement with a related party to purchase electricity and steam according to the agreements. The term of the Power Sale and Purchase Agreement is 25 years, and the term of the Steam Sale and Purchase Agreement is 27 years and shall expire on November 14, 2042.

Various Service Agreement

The Company entered into the Service Agreement with a related party to provide the accounting, finance, procurement, maintenance of power plant and other management services. The term of the agreement is 2 years from the effective date as stipulated in such agreement and shall expire within December 2020. The service fees are stipulated in the agreements.

Joint Venture Agreement for the industrial estate operation and development

On May 16, 2018, the Company entered into the Joint Venture Agreement with WHA Industrial Development Public Company Limited to establish WHA Industrial Estate Rayong Co., Ltd. (“WHA IER”) as a joint controlled entity with Baht 650 million registered capital, of which 40% owned by the Company (see Note 13 (1)) and 60% owned by WHA Industrial Development Public Company Limited. The main objective is to operate and develop the land in industrial estate approximately area of 2,152 Rai located at Amphur Ban Khai, Rayong, which WHA IER and the Company entered into the sales and purchase of land agreement dated August 17, 2018. The Company already sold and transferred its ownerships of the land of 2,152 Rai previously recorded as investment property at the selling price of Baht 624 million to WHA IER during 2019.

38. SIGNIFICANT CLAIMS AND LEGAL PROCEEDINGS

As at December 31, 2019, the Company was involved in significant legal proceedings as follows:

The President of the Administrative Organization-Tambon Ban Laeng and 11 government agencies

Ms. Phayung Meesabai and the other 44 plaintiffs filed a lawsuit to the President of the Administrative Organization - Tambon Ban Laeng and 11 government agencies as the 1st to 11th defendant requesting the Administrative Court to suspend or dismiss any activities of the Company in expansion IRPC Industrial Zone Project, which it is the public ways and gutters shared to people in disputed area (see Note 37 (e)). In addition, they requested the Administrative Court to suspend or dismiss the opinion of the Environmental Health Impact Assessment (“EHIA”) report. Subsequently, the defendants filed the case and additionally submitted all docket to the Administrative Court. On March 31, 2017, the Company submitted the petition to Administrative Court of Rayong Province to include the Company as 12th defendant in this lawsuit and the Administrative Court has agreed on this matter. On December 6, 2018, 11 plaintiffs submitted to withdraw from the case with Administrative Court which on December 12, 2018, the Administrative Court approved to withdraw the case. As at December 31, 2019, the case is currently being considered by the Administrative Court of Rayong Province.

**39. EVENTS AFTER THE REPORTING PERIOD**

- 39.1 On January 20, 2020, IRPC Clean Power Company Limited, which is an associate of the Company, called for the additional paid-up at Baht 0.83 per share. The Company paid for additional paid-up share capital at the same proportion of investment of Baht 136.86 million.
- 39.2 During February 2020, the Company has settled the currency swap contracts and cross currency interest rate swap contracts with the financial institutions totalling 9 contracts with totalling Baht 9,323 million as disclosed in notes to the financial statement no. 36(b) prior to the maturity date. In this regard, the Company received cash from settlement of such contracts totalling Baht 469 million without terminating fee.
- 39.3 On February 12, 2020, the Board of Directors' meeting of the Company passed a resolution to distribute an annual dividends for retained earnings of 2019 at Baht 0.10 per share for 20,434 million shares, totalling Baht 2,043 million. In this regard, the approval for the dividend shall be proposed to the Annual General Meeting of shareholders of the Company for the year 2020 for further consideration and approval.

40. APPROVAL OF THE FINANCIAL STATEMENTS

These financial statements have been approved for issue by the Company's Board of Directors on February 12, 2020.



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