

TO SHAPE MATERIAL AND ENERGY SOLUTIONS IN HARMONY WITH



VISION

TO SHAPE MATERIAL
AND ENERGY
SOLUTIONS IN
HARMONY WITH LIFE



MISSION

TO DELIVER WITH INNOVATIONS
THE BETTER ATTRIBUTES AND
SOLUTIONS OF SUSTAINABLE
MATERIAL AND ENERGY FOR
THE FUTURE

VALUES



I INDIVIDUAL OWNERSHIP

S SYNERGY

P PERFORMANCE EXCELLENCE

I INNOVATION

R RESPONSIBILITY FOR SOCIETY

I INTEGRITY & ETHICS

T 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

An aerial photograph of a city, likely Bangkok, showing a mix of modern high-rise buildings, older urban structures, a multi-lane highway with traffic, and a large green park area. Overlaid on the image is a circular graphic with a dashed outer ring and a solid inner ring. Inside the circle, the text "TO SHAPE MATERIAL AND ENERGY SOLUTIONS IN HARMONY WITH LIFE" is centered. The word "MATERIAL" is in dark blue, "AND ENERGY" is in green, "SOLUTIONS" is in blue, and "IN HARMONY WITH LIFE" is in black. Surrounding the text are eight circular icons: a cloud with CO2 and arrows, a solar panel, a molecular structure, a person with a hard hat and wrench, a recycling symbol, a leaf with a plug, a hand pointing at a screen, and a bar chart.

TO SHAPE
MATERIAL
AND **ENERGY**
SOLUTIONS
IN HARMONY
WITH LIFE



IRPC seeks to build material innovation knowledge base to create value and satisfy the needs of modern society and energy efficiency for a better life in harmony with the environment.

MATERIAL

Building on the solid foundation of our petrochemical business, IRPC actively pursues material innovation solutions to the modern lifestyle of today and tomorrow.

ENERGY

The technological accomplishment of IRPC's petroleum business is the driving force behind diversification into new, alternative energy businesses of the future to meet the eco-efficiency requirements of the changing world of low-carbon business and green society.

SOLUTIONS

IRPC's quest for new businesses that provide creative solutions to the new eco-friendly lifestyle is based on its knowledge base of material innovation and energy expertise, guided by its vision and supported by an extensive network of partners.

LET'S BEGIN THE NEW JOURNEY

In order to continue achieving goals and success going forward, IRPC must embark on a new journey, in other words, adjusting to IRPC New Normal, with firm emphasis on sustainable growth and a delicate balance between economic, social and environmental well-being.



1 MINDSET SOLUTION

To foster a new mindset that constantly seeks out creative ways of doing business to make positive contribution to every life and the environment.



2 INNOVATION COMPANY

To transform IRPC into an innovation company that thrives on its solid knowledge base and a culture of innovation to achieve excellence in everything it sets out to do for a better tomorrow.



3 KNOWLEDGE BASE FOR SMART MATERIAL AND SMART ENERGY

To focus effective use of materials and smart energy solutions from IRPC's body of knowledge to satisfy the society's every need while maintaining a livable environment.

4



NEW FRONTIER

To diversify business by stepping out of the petrochemical industry in order to reach out to diverse consumer groups wherever they are in the world while building new network of business partners.

5



**EBITDA
35,000 MB
IN 2030**

To aim for IRPC's EBITDA of Baht 35,000 million by 2030.

6



**GHG REDUCTION
IN 2030**

To target to reduce 20% of the current greenhouse gas emissions in 2030.



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KEY PERFORMANCE

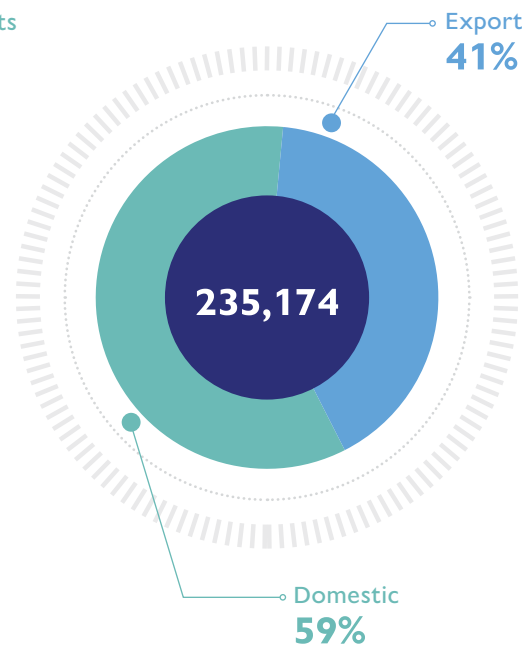
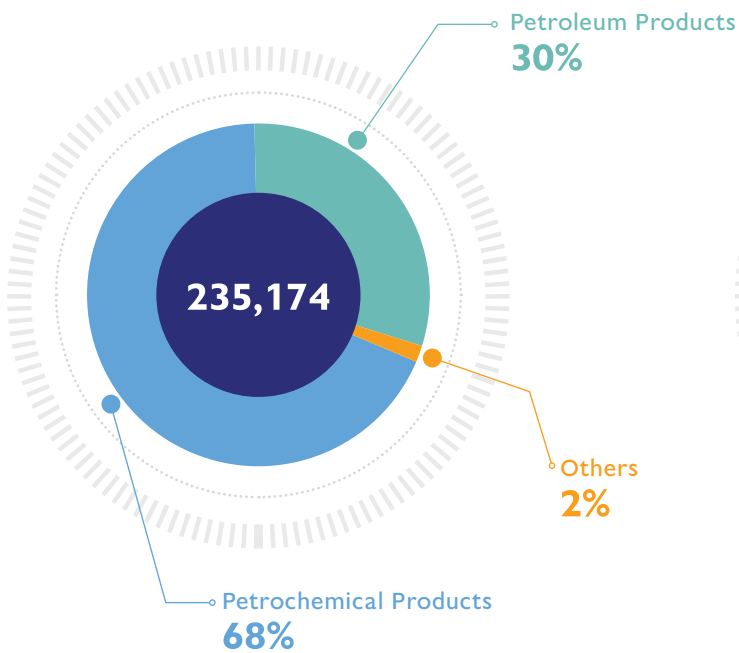


Net Sales



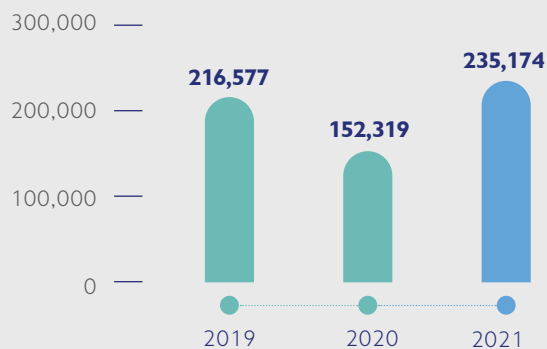
Sales Distribution

(Unit: Million Baht)



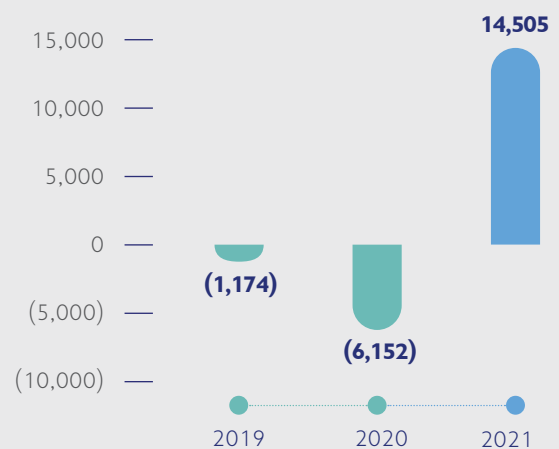
Net Sales

(Unit: Million Baht)



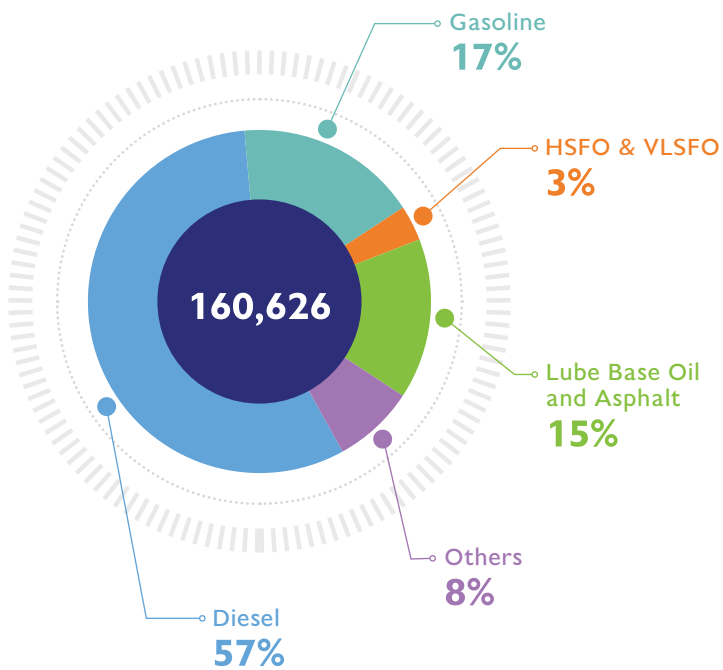
Net Profit

(Unit: Million Baht)

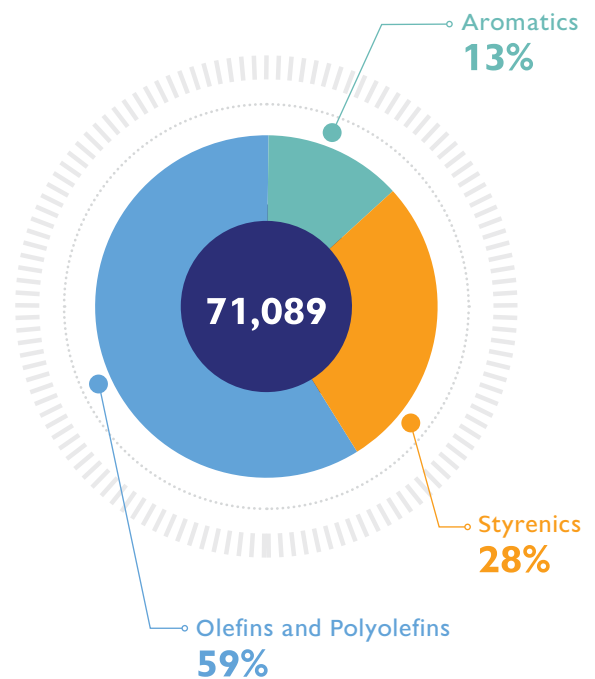




Petroleum Products

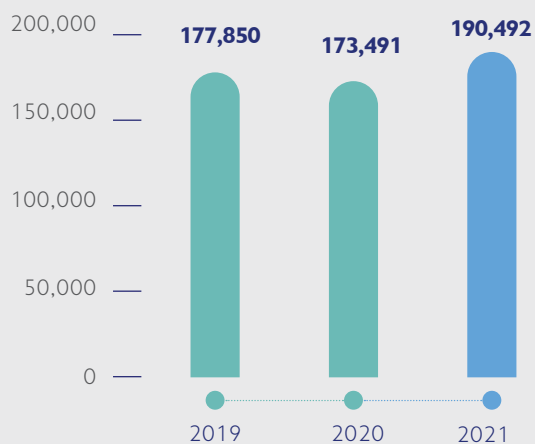


Petrochemical Products



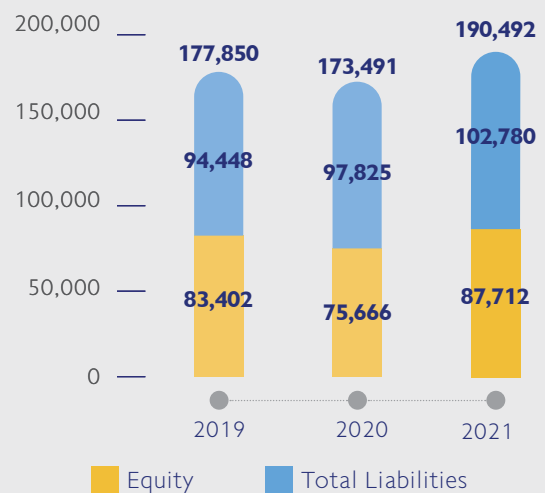
Total Assets

(Unit: Million Baht)



Total Liabilities and Equity

(Unit: Million Baht)



FINANCIAL HIGHLIGHTS

Condensed Consolidated Financial Statements

(Unit: Million Baht)

	2021	2020	2019
Statement of Financial Position			
Current Assets	67,200	43,371	43,647
Total Assets	190,492	173,491	177,850
Current Liabilities	47,543	44,059	45,707
Total Liabilities	102,780	97,825	94,448
Shareholders' Equity	87,712	75,666	83,402
Registered Capital	20,475	20,475	20,475
Issued and Paid-up Capital	20,434	20,434	20,434
Statement of Income			
Sales Revenues ⁽¹⁾	255,115	174,463	239,315
Net Sales Revenues ⁽²⁾	235,174	152,319	216,577
Cost of Sales	228,989	174,491	236,569
Gross Profit (loss)	26,126	(28)	2,745
Selling Expenses	2,105	1,375	1,464
Administrative Expenses	5,673	5,718	5,592
Profit (loss) from Operations	17,914	(6,115)	(356)
Net Profit (loss)	14,505	(6,152)	(1,174)
Net Profit (loss) per Share (baht)	0.71	(0.30)	(0.06)
Statement of Cash Flows			
Net cash flows from (used in) operating activities	11,342	11,149	7,527
Net cash flows from (used in) investing activities	(2,853)	(3,871)	(5,954)
Net cash flows from (used in) financing activities	(6,104)	(1,462)	(874)
Net increase in cash and cash equivalents	2,385	5,815	698
Cash and cash equivalents at the beginning of the period	8,851	3,036	2,338
Cash and cash equivalents at the end of the period	11,236	8,851	3,036

Notes: ⁽¹⁾ Sales revenues include sales of petroleum, petrochemical, power and utilities, storage tank, port service, etc.

⁽²⁾ Net sales revenues include sales of petroleum (excluding excise tax), petrochemical, power and utilities.

Key Financial Ratios

	2021	2020	2019
Liquidity Ratio			
Current Ratio (times)	1.41	0.98	0.95
Quick Ratio (times)	0.53	0.42	0.29
Cash Flow Current Ratio (times)	0.25	0.25	0.16
Account Receivable Turnover Ratio (times)	21.74	17.63	21.41
Collection Period (days)	17	21	17
Inventory Turnover Ratio (times) ⁽¹⁾	8.34	7.40	8.69
Inventory Period (days)	44	49	42
Accounts Payable Turnover Ratio (times)	8.70	7.14	9.26
Payment Period (days)	42	51	39
Cash Cycle (days)	19	19	20
Profitability Ratio			
Gross Profit Margin	10.24%	(0.02%)	1.15%
Net Profit Margin ⁽²⁾	5.69%	(3.53%)	(0.49%)
Return on Equity	17.79%	(7.75%)	(1.38%)
Efficiency Ratio			
Return on Asset	7.97%	(3.50%)	(0.65%)
Total Asset Turnover Ratio (times)	1.41	1.00	1.34
Financial Policy Ratio			
Debt to Equity Ratio (times)	1.17	1.29	1.13
Interest-bearing Debt to EBITDA Ratio (times) ⁽³⁾	2.29	12.90	9.79
Net Interest-bearing Debt to EBITDA Ratio (times) ⁽⁴⁾	1.92	11.64	9.34
Interest-bearing Debt to Equity Ratio (times)	0.70	0.82	0.71
Net Interest-bearing Debt to Equity Ratio (times)	0.57	0.70	0.67
Interest Coverage Ratio (times)	15.52	2.47	3.09
Dividend Payout Ratio	31%	n.a.	n.a.
Book Value per Share (baht/share)	4.29	3.70	4.08

Notes: ⁽¹⁾ Inventory turnover ratio = cost of sales divided by net inventory (average)

⁽²⁾ Net profit margin ratio = net profit divided by sales revenues

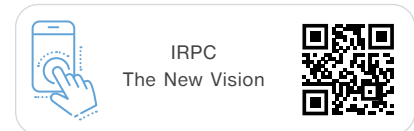
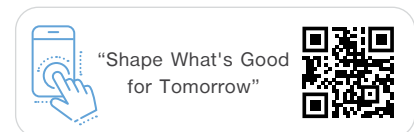
⁽³⁾ Interest - bearing debt to EBITDA ratio = interest-bearing debt (average) divided by earnings before interest, taxes, depreciation and amortization (EBITDA)

⁽⁴⁾ Net Interest-bearing debt to EBITDA ratio = net interest-bearing debt - cash (average) divided by earnings before interest, taxes, depreciation and amortization (EBITDA)

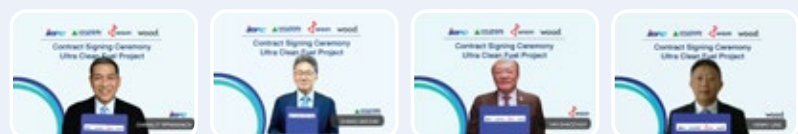
Key Developments in Sustainable Growth



New vision and mission to meet customer's future needs, and drive business for sustainability



The vision **“To Shape Material and Energy Solutions in Harmony with Life”** and the mission **“To Deliver with Innovations the Better Attributes and Solutions of Sustainable Material and Energy for the Future.”** The focus is on creativity and ability to meet the needs of customers and suppliers through material innovations and energy efficiency on the pathway towards sustainable development, guided by corporate governance.



Ultra Clean Fuel (UCF) project for fuel quality improvement to produce EURO 5 standard diesel, and combat air pollution

A 13-billion-baht project to upgrade IRPC refinery to produce EURO 5-compliant diesel. Agreements have been signed to engage contractors and project adviser in September 2021. Project's progress status: on-track, according to work plan. Commercial product is expected in 2024.

UCF is a large investment project that will create added value to the industry and the country's economy in line with the government's policy requiring EURO 5 standard diesel from 1 January 2024 as part of the effort to combat air pollution.



Innovative medical-grade plastic pellets contribute to resilience of Thai public health

IRPC is the first company in the country that has successfully developed and manufactured innovative, medical-grade plastic pellets "PP Melt Blown." This reduces Thailand's dependence on imports, thus contributing to resilience of Thai public health.



Medical face mask facts



New business, harnessing the power of innovation and technology to help improve the livelihood of Thai farmers

IRPC's entry to a new business, based on successful development of Nano Zinc Oxide plant nutrient product and "White Bear Fertilizer" under "REINFOXX" trademark, which help increase yields, lower costs and improve the livelihood of farmers.



Establishment of Innopolymed Co., Ltd. to focus on production of medical devices, and reduce dependence on imports

A joint venture between IRPC and Innobic (Asia) Ltd., which is a subsidiary of PTT Public Company Limited, to manufacture and trade in non-woven fabrics, main raw materials for the production of face masks, N95 masks, PPE suits and air filters, and the production of Nitrile Butadiene Latex (NBL), the raw material for nitrile gloves or medical gloves. Commercial production was scheduled for the first quarter of 2022. This will help reduce dependence on imports of raw materials and improve the competitiveness of Thailand's medical device manufacturing industry.



Innobic & IRPC formed Innopolymed Co., Ltd., a medical supply manufacturer



IRPC in joint venture with Navamindradhiraj University to establish Vajira Lab for Society Co., Ltd.

A laboratory center, the first in Thailand and Southeast Asia, to provide consulting services, conduct quality testing, provide certification services. The aim is to raise standard of medical equipment to provide medical personnel and the general public access to quality products that meet internationally accepted standards. The goal is to become a leading quality testing and certification services provider in Southeast Asia by 2024.



IRPC successfully issues 1.2 billion baht debentures

IRPC has completed fund raising from the issuance of unsubordinated, unsecured debenture, with a debenture holders' representative, in the amount of 12,000 million baht, with tenor of 3-15 years. The debentures, which have a fixed coupon rate of 1.77%-4.10% per annum, have been rated by Fitch Ratings (Thailand) Co., Ltd., with the latest credit rating A- (tha). The debentures received an overwhelming response, reflecting investors' confidence in IRPC's strong fundamentals.



IRPC deploys IBM Robotic Process Automation for its financial processes to improve efficiency, accuracy and speed as well as reduce costs

The IBM Robotic Process Automation (RPA) with Automation Anywhere, deployed by Metro Systems Corporation Plc., enables IRPC to automate the production cost reporting from multiple systems and makes it 86 per cent faster. The IBM technology also allows IRPC to easily and quickly automate its financial processes on a large scale. This is part of IRPC 4.0 strategic plan to enhance operational efficiency and transform itself into a modern company driven by innovation and digital technologies.



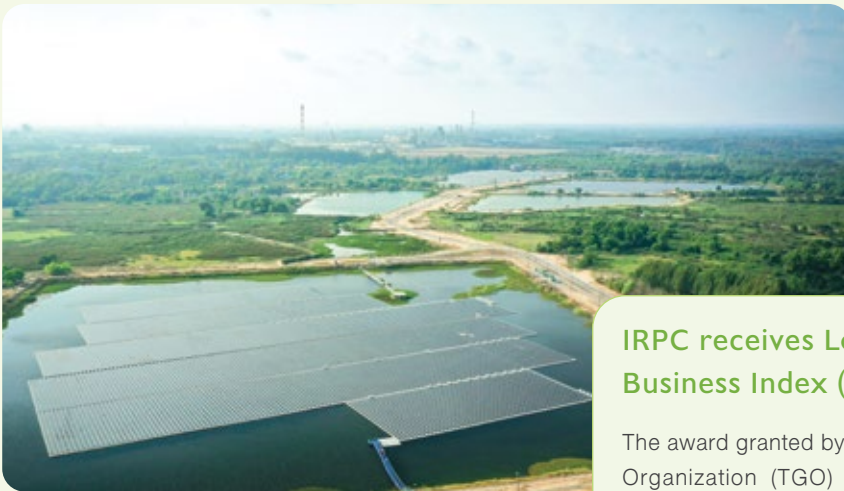
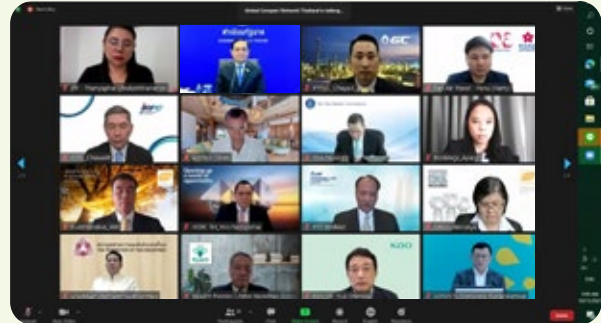
"IRPC promote IRPC 4.0" with RPA | Metro Product





IRPC joins Global Compact Thailand forum, declaration of intention to tackle global warming crisis

At the Global Compact Network Thailand Annual Forum (GCNT Forum) 2021: Thailand's Climate Leadership Summit 2021, IRPC pledged to achieve Net Zero target by 2050.



IRPC receives Low Carbon and Sustainable Business Index (LCSI) Award 2021

The award granted by Thailand Greenhouse Gas Management Organization (TGO) in recognition of the implementation of various projects in line with low-carbon and sustainable business practices, such as the IRPC Floating Solar Project, the largest floating solar power generation project in Southeast Asia. It is expected to reduce greenhouse gas emissions by approximately 9,459 tons of carbon dioxide equivalent per year. Another solar power system was installed for water pumps and systems under the Lam Sai Yong Model project at the Center for the Development of Persons with Disabilities, Udon Thani Diocese, Udon Thani Province, and Nong Yang Village in Buriram Province, etc.



Fire extinguishing tank project to mitigate impact of forest fires

In 2021, IRPC delivered 318 empty 200-liter oil tanks to support the Forest Fire Control Special Operations Team (Fire Hawk) of the Bureau of Forest Protection and Forest Fire Control, the Royal Forestry Department, Ministry of Natural Resources and Environment. The tanks are used as containers of water to fight forest fires, a serious problem that causes damage to forest areas, wildlife, communities and worsens climate change situations.



Fire extinguisher tank project





Social



IRPC Smart Farming



IRPC Smart Farming

IRPC signed a memorandum of understanding on technical cooperation in applying water management knowhow and the use of innovative agricultural technology at IRPC Smart Farming project at the Center for the Development of Persons with Disabilities, Udon Thani Diocese, which will be developed into a learning center and model Smart Farming project to create jobs and generate incomes for persons with disabilities.



IRPC Technological College

IRPC Technological College signed a cooperation agreement with Energy Complex Company Limited (EnCo) to support academic activities to develop personnel's potential to become part of highly capable and technologically literate workforce for the future.



Scholarship programs

- Provide scholarships to create learning opportunities to schools in the areas surrounding the IRPC industrial zones.
- Award scholarships to students at the Faculty of Medicine, Chulalongkorn University, in targeted disciplines that align with IRPC's strategy to pursue innovations in medical equipment, and health and hygiene products to meet the needs of healthcare professionals and consumers in the future as well as to contribute to the strengthening of the country's medical equipment manufacturing industry and resilience of the public health system.



Support for medical education institutions

- Support for King Mongkut Chaokhunthahan Hospital Foundation, Ladkrabang, in medical technology research programs.
- Support for Navamindradhiraj University in academic programs and development of new medical capabilities.



IRPC Cubic Academy Season 7

IRPC and IRPC Oil Company Limited have received certificate of accreditation and membership extension of the Thai Private Sector Collective Action Coalition Against Corruption (CAC).



IRPC Cubic
Academy
Season 7



GO LIVE E-Compliance library of compliance-related information

Using digital systems in managing compliance and assessing conformity, enabling the company to manage risks and get an overview of corporate compliance with greater convenience and efficiency.



IRPC Oil Company Limited received certificate of accreditation and membership of Thai Private Sector Collective Action Coalition Against Corruption (CAC).



The company organized IRPC CG DAY 2021

activities to campaign, promote and create corporate governance awareness and mindset as well as code of business conduct, respect for the human rights by combining the Supplier Conference and CG Conference activities under the concept "Synchronization for the Life Balance."

Awards of Recognition for Success

Outstanding
Award for Human
Rights Role Model
Organization
2021



from the Department of Rights and
Liberties Protection, Ministry of Justice,
for the third consecutive year

- Sustainability Awards of Honor
 - Best Investor Relations Awards
- from the Stock Exchange of Thailand
in collaboration with the Banking and
Finance Journal



“Excellence”
in Low Carbon and
Sustainable Business
Index (LCSi)
Award 2021

2nd runner-up,

“UN Women 2021 Thailand WEPs Awards”

for advancing gender equality through Community
and Industry Engagement & Partnerships
(Community Engagement & Partnerships) (UN Women)





from IRPC Unite in the fight
against COVID-19 Project



Asia
Responsible
Enterprise Awards
2021 in the field
of Health
Promotion

“ARE-QP
Award 2021”



from the Asian Network for Quality (ANQ)

CSR-DIW Awards 2021
for 12 IRPC's factories
from the Department
of Industrial Works,
Ministry of Industry



ไออาร์พีซี ได้รับการประเมิน CG
“ระดับดีเลิศ”
ต่อเนื่องเป็นปีที่ 13



“Excellent” CG Rating
for 13th consecutive year
organized by the Stock Exchange
of Thailand (SET) and the Thai
Institute of Directors

Award for "Good Deeds to Repay the Debt of Gratitude to the Land"

2021

in organization category,
in the field of social innovation
to improve quality of life of
persons with disabilities from
the For Thai Society Foundation



ECO Factory for 6 plants
from the Institute of Industrial
Environment, Federation of
Thai Industries



The Alpha Southeast Asia Awards 2021

organized by Alpha Southeast Asia Magazine.

- Best Strategic Corporate Responsibility
- Best Senior Management Investor Relations Support
- Most Consistent Dividend Policy



Asian
Excellence
Award 2021
organized by
Corporate
Governance Asia
Magazine

Gold Class Award,
the highest level
of recognition in
sustainability

**In the Oil and Gas
Refining and Marketing
Industry from S&P
Global**

Sustainability Award
Gold Class 2021

S&P Global

Listed in
the Dow Jones
Sustainability Index “DJSI”
for the 8th consecutive year,
reaffirming IRPC’s business
operations in accordance
with the sustainable
development policy



**ติดอันดับ DJSI
ต่อเนื่องปีที่ 8**

ตอกย้ำการดำเนินงานที่
ตามนโยบายการพัฒนาอย่างยั่งยืน
IRPC สร้างสังคมเพื่ออนาคต

Member of
Dow Jones
Sustainability Indices
Powered by the S&P Global CSA



**IRPC Oil Company Limited received from
HRH Princess Maha Chakri Sirindhorn
Thailand Corporate Excellence Awards 2021**

in recognition for overall management excellence for medium-sized enterprises, organized by the Thailand Management Association and Sasin Graduate Institute of Business Administration, Chulalongkorn University



**Upstream for Hygiene and Value-Added Products
(UHV) and Lube Base Oil (LBOP) Plants**

have been registered for Carbon Footprint labels of organization
from Thailand Greenhouse Gas Management Organization (GTO)

**The Cogeneration and Steam Power Plant (CHP & PW)
and Deep Catalytic Cracking Plant (DCC)**

have been registered for the Carbon Footprint labels
of organization from Thailand Greenhouse Gas
Management Organization (TGO)



**The Green Industry Award Level 4
(Green Culture Factory)**
from the Ministry of Industry



We Care by IRPC

IRPC and its network of partners collaborate and draw on each other's experience to deliver aid in a number of ways such as supplying fuel, plastic field hospital beds, face masks, PPE gowns, alcohols, food boxes, drinking water, and many other excellent projects as a demonstration of IRPC's heartfelt care and commitment to being a small part of society to assist Thai people in working together to overcome the crisis.

- **IRPC Sport Complex Vaccination Center**, IRPC has been given the opportunity to fulfill the government policy by utilizing IRPC's properties as a COVID-19 vaccination center for the industrial sector to relieve the burden of public health agencies and Rayong province, one of the provinces in the Eastern Economic Corridor (EEC) which is an important force in driving the country's economy

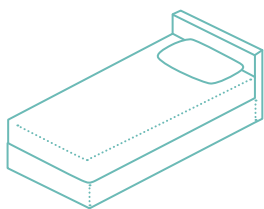


- **Supply 50,000 liters of gasoline to be distributed** to several temples' crematoriums as the last pit stops to serve the victims of COVID-19 so as to help lessen people's grief.



- **Launch a registration system for vaccination in Rayong** by allowing the general public to register for COVID-19 vaccination via the website: www.ระยองสู้โควิด.irpc.co.th





- **IRPC and its network of partners collaboratively develop innovative, strong, and durable field hospital beds** made of specialty polymers to be distributed to field hospitals and community isolation centers in Bangkok and other regions nationwide with high outbreaks.



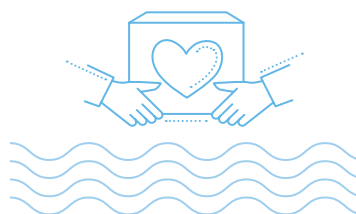
Durable field hospital bed innovations for Covid-19 patients



- **Send volunteer engineers** to repair the Negative Pressure Room control system for hospitals to be ready to serve infected patients.



- **“Satisfaction...One Shop, A Hundred Full Stomachs” Project** helps boost the business of restaurant operators affected during the lock down by ordering food boxes to be delivered to vulnerable people in various communities of Rayong.



- **“Friends Help One Another” Project** - IRPC Ayutthaya Oil Depot and IRPC volunteers visited to give encouragement and assistance to employees and communities affected by the floods in Ayutthaya province by providing survival bags and helping them relocate their belongings to higher ground.



Message from the Board of Directors

“ Guided by the new vision and mission, IRPC Group has set ambitious financial and sustainability goals: EBITDA Baht 35,000 million and GHG emissions 20 per cent below the business-as-usual level by 2030. ”

Mr. Kris Imsang
Chairman,
IRPC Public Company Limited



Dear Shareholders,

Signs of global economic recovery have emerged since 2021, but uncertainty lingered. At the height of COVID-19 pandemic, no country was spared from its devastating impacts. Damaging effects were felt by ordinary people, and all sectors of the economy, including the manufacturing industries, which came to a halt or had to reduce their activities. Mass vaccination and drastic measures taken in the fight against the coronavirus may have worked initially until the more contagious delta and omicron variants began to spread. In addition to Covid-related problems, companies everywhere had to watch out for risks associated with high global inflation and oil prices that have stayed high and stable following a strong rebound from a low base in 2020. The Dubai crude price averaged USD 69 per barrel in 2021.

Be that as it may, Megatrends move inexorably forward, changing the way people live and do business. Such sweeping transformational forces compel businesses to change course, brings about new rules, regulations and standards. To capitalize on Megatrends, IRPC focuses on strategies to maintain competitiveness while adapting to rapid changes by setting a new vision and mission in anticipation of a new future. IRPC has announced our new vision “To Shape Material and Energy Solutions in Harmony with Life” and the mission “To Deliver with Innovations the Better Attributes and Solutions of Sustainable Material and Energy for the Future.” To ensure sustainable business growth going forward, IRPC has aligned its operations with the United Nations Sustainable Development Goals.

In addition, IRPC has set 2030 quantitative financial and sustainability goals as follows: EBITDA Baht 35,000 million, greenhouse gas emission reduction by 20 per cent from its business plan. To achieve the targets, the company needs to create new revenue streams and raise new businesses' share

in its total income while maintaining the strength of its existing main businesses.

IRPC has established a framework for implementing strategies and business direction, which focuses on Core Uplift based on existing internal strength and expertise to expand into Adjacent Businesses in a different value chain, while also on the lookout for Step Out Businesses to drive the company's growth, guided by the new vision and mission to transform IRPC into a sustainable material and energy innovation company. Through various operations and projects in 2021, the company has pushed the proportion of specialty products 20 per cent by weight in its product portfolio and expanded into the market to health and personal hygiene businesses, etc.

IRPC was first in the country to develop innovative PP Meltblown pellets, used as raw material for the manufacture of innovative non-woven fabric, capable of filtering out particles, such as PM 2.5 and germs. The company also made an entry to agricultural innovation market to improve the livelihood of Thai farmers with the introduction of ZnO NANO, and investment in Ultra Clean Fuel (UCF) project to meet the government's new fuel standard: Euro 5-compliant diesel, with commercial production expected in 2024.

Along with the development of human resource management system to improve efficiency, leading to positive corporate culture in line with the company's new vision and business growth plan through New Organization Agile Human project, as well as adopting digital and technology systems in all of the company's operations, including Robotic Process Automation (RPA) with Automation Anywhere in financial processes to lay the groundwork for further transformation along the pathway towards IRPC 4.0 under the company's strategic plan.

“ With prudence, astuteness and dedication amid the COVID-19 pandemic, IRPC managed to post net profits of Baht 14,505 million in 2021. As was the case in previous years, IRPC received numerous awards in recognition of its corporate governance accomplishments in terms of sustainability, transparency and accountability. ”



Mr. Chawalit Tippawanich

President and
Chief Executive Officer



Another important achievement for IRPC is the collaboration with PTT to establish Innopolymed Co., Ltd. to build a non-woven fabric factory through Meltblown process. This project is expected to contribute to the stability and strength of the country's medical device and supplies manufacturing industry and public health system. This is another milestone that signals IRPC's readiness to shift its business operations to take on future opportunities and challenges.

In addition, IRPC also cooperated with Navamindradhiraj University in a social enterprise project by co-founding Vajira Lab for Society, the first laboratory center in Thailand and Southeast Asia to provide medical device testing and certification of products, such as face masks, N95 masks, PPE suits, etc.

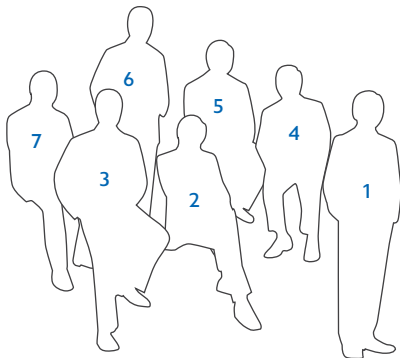
Amid the COVID-19 pandemic, IRPC stays committed to its business growth and strategic plans to make positive contribution to the society along the pathway towards a sustainable and balanced growth. In solidarity with the rest of the society, IRPC has announced the “We Care by IRPC” project in collaboration with the public sector, PTT Group and our networks of suppliers and customers, to extend a helping hand to get people adversely affected by the coronavirus crisis back on their feet. Among the assistance programs we have provided is the development of field hospital beds made from specialty plastic pellets based on our technology and innovations. The hospital beds were manufactured and donated to field hospitals and waiting centers for COVID patients. The company also donated fuels for use at crematoriums throughout the country, as well as supported restaurant operators affected by lockdown measures while helping vulnerable people cope through “To Our Heart's Content: One Shop...100 Meals Served” project, etc.

With dedication and determination IRPC weathered the COVID crisis exceptionally well, and in 2021 delivered Baht 26,961 million in EBITDA and Baht 14,505 million in net profits. Thanks to outstanding performance according to its business strategy under its operational sustainability framework emphasizing transparency and accountability, IRPC has been selected as member of Dow Jones Sustainability Indices (DJSI) for the eighth consecutive year.

In 2021, IRPC was recognized for its accomplishments on multiple fronts, receiving various rewards from renowned organizations, such as the Outstanding Human Rights Model Organization Award for three consecutive years (2019-2021), Best Investor Relations Awards and Thailand Sustainability Investment (THSI) for seventh consecutive year at the SET AWARDS 2021, among others. These awards are testament to IRPC's sustainability business credentials as a good corporate citizen with social responsibility towards all stakeholders, environmental stewardship and corporate governance, instead of merely pursuing maximum profits and delivering good operating results.

IRPC's Board of Directors, executives and employees would like to thank all shareholders and stakeholders for their support to and confidence in IRPC. We would like to take this opportunity to reaffirm our commitment to performing our duties to the best of our ability and with total dedication to ensure sustainable business growth, guided by corporate governance principles, as well as to deliver maximum benefits in the best interests of all shareholders and stakeholders, while creating business and social value on a pathway towards a sustainable future.

Board of Directors



1. Mr. Kris Imsang
Chairman

2. Mr. Woothisarn Tanchai
Independent Director/
Chairman of the Nomination
and Remuneration Committee

3. Air Marshal Boonsuib Prasit
Independent Director/ Chairman of
The Corporate Governance
Committee

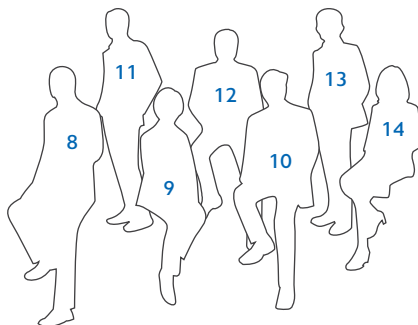
4. Mr. Jumpol Sumpaopol
Independent Director/ Member of
the Audit Committee

**5. Asst. Prof. Dr. Chaiyaporn
Puprasert**

Independent Director/ Member
of the Corporate Governance
Committee

6. Mr. Ekniti Nitithanprapas
Director/ Member of the Risk
Management Committee

7. Mr. Supot Laosuarpha
Director/ Member of the Corporate
Governance Committee



8. Mr. Chawalit Tippawanich

Director/ Member of the Risk Management Committee/ President and Chief Executive Officer/ Secretary of the Board of Directors

9. Miss Siriwan Chierapong

Independent Director/ Member of the Audit Committee

10. Mr. Anusorn Sangnimnuan

Independent Director/ Chairman of the Risk Management Committee

11. Mr. Somnuk Bomrungsalee

Independent Director/ Chairman of the Audit Committee

12. Mr. Chansak Chuenchom

Director/ Member of the Nomination and Remuneration Committee

13. Mr. Sukrit Surabotsopon

Independent Director/ Member of the Risk Management Committee

14. Miss Peangpanor Boonklum

Director/ Member of the Risk Management Committee

Board of Directors, IRPC Public Company Limited

Mr. Kris Imsang

Age: 56 Years

Appointed Positions:

Chairman

[Date of being a Chairman](#)

19 January 2021

[Date of being a Director](#)

2 December 2017

[Years of being a Director](#)

4 Years

[Possession of IRPC shares \(%\)](#)

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

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

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 (LDP 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)
- Diploma, National Defence College, The National Defence Course, Class 62, Thailand National Defence College
- Certificate Course in Good Governance for Medical Executives, Class 9, King Prajadhipok's Institute and the Medical Council of Thailand
- The Role of the Board in IT Governance, Year 2020 Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 139/2010, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

Mar. 2019 - Jan. 2021	Member of the Nomination and Remuneration Committee, IRPC Public Company Limited
Nov. 2019 - May. 2020	Senior Executive Vice President, Down Stream Business Group Alignment, PTT Public Company Limited
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

Current Position

[Board Member/ Management in Listed Company - The Stock Exchange of Thailand](#)

Jan. 2021 - Present	Chairman, IRPC Public Company Limited
Jan. 2021 - Present	Director/ Board of the Nomination and Remuneration Committee, PTT Oil and Retail Business Public Company Limited
Jun. 2020 - Present	Chief Operating Officer, Downstream Petroleum Business Group, PTT Public Company Limited
Dec. 2017 - Present	Director, IRPC Public Company Limited

[Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand](#)

Feb. 2021 - Present	Board of Directors, Sirindhorn International Institute of Technology, Thammasat University (SIIT)
Sep. 2020 - Present	Chairman, PTT Tank Terminal Company Limited
2020 - Present	Vice Chairman - FTI Academy Committee, The Federation of Thai Industries
2020 - Present	Extraordinary Director, EU-Thai Business Council
Jun. 2020 - Present	Executive Director, Thailand Energy Academy
Aug. 2019 - Present	Qualified Member of the Committee for Social Enterprise Promotion

Mr. Somnuk Bomrungsalee

Age: 64 Years

Appointed Positions:

Independent Director/ Chairman of the Audit Committee

[Date of being a Director](#)

9 April 2014

[Date of being an Independent Director](#)

1 October 2017

[Date of being the Chairman of the Audit Committee](#)

2 December 2017

[Years of being a Director](#)

7 Years 8 Months

[Possession of IRPC shares \(%\)](#)

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

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

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
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 233/2017, Thai Institute of Directors Association (IOD)

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

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. Anusorn Sangnimnuan

Age: 67 Years

Appointed Positions:

Independent Director/ Chairman of the Risk Management Committee

[Date of being an Independent Director](#)

27 August 2016

[Date of being the Chairman of the Risk Management Committee](#)

1 April 2021

[Years of being an Independent Director](#)

5 Years 4 Months

[Possession of IRPC shares \(%\)](#)

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

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

Current Position

[Board Member/ Management in Listed Company - The Stock Exchange of Thailand](#)

Apr. 2021 - Present Chairman of the Risk Management 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, Pruksa 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

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
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- 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 22/2005, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

Sep. 2016 - Mar. 2021	Chairman of the Corporate Governance Committee, IRPC Public Company Limited
2014 - 2017	Independent Director, Pruksa 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 Thanakom Company Limited

Mr. Woothisarn Tanchai

Age: 63 Years

Appointed Position:

Independent Director/ Chairman of the Nomination and Remuneration Committee

Date of being an Independent Director

19 June 2015

Date of being the Chairman of the Nomination and Remuneration Committee

19 June 2015

Years of being an Independent Director

6 Years 6 Months

Possession of IRPC shares (%)

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

Family relationship within the Company, major shareholder of subsidiaries

None

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
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

2011 - Aug. 2018 Member, the National Culture Commission
 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

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

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

Oct. 2020 - Present Honorary Board Member of the Development and Promotion of Public Organization Committee
 Oct. 2020 - Present Sub-Committee, the office of the Public Sector Development Commission (OPDC)
 2020 - Present Sub-Committee on Civil Service Organization of Government Agencies and Compensation, Office of the Civil Service Commission of Bangkok
 Feb. 2020 - Present Vice President, Nakhon Pathom Rajabhat University Council
 Mar. 2018 - Present Chariman of the Sub-Committee, the National Anti-Corruption Commission (NACC)
 2016 - Present Honorary Board 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 Honorary Board Member, Nakhon Ratchasima Rajabhat University Council

Air Marshal Boonsuib Prasit

Age: 68 Years

Appointed Positions:

Independent Director/ Chairman of the Corporate Governance Committee

[Date of being an Independent Director](#)

3 April 2019

[Date of being the Chairman of the Corporate Governance Committee](#)

1 April 2021

[Years of being an Independent Director](#)

2 Years 8 Months

[Possession of IRPC shares \(%\)](#)

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

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

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"
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- 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)

Work Experience within the past 5 years

Apr. 2019 - Mar. 2021	Independent Director/ Member of the Nomination and Remuneration Committee, IRPC Public Company Limited
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

Current Position

[Board Member/ Management in Listed Company - The Stock Exchange of Thailand](#)

Apr. 2021 - Present Independent Director/ Chairman of the Corporate Governance Committee, IRPC Public Company Limited

[Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand](#)

2019 - Present Chairman, Spot Services Alliances Company Limited

Miss Siriwan Chierapong

Age: 67 Years

Appointed Positions:

Independent Director/ Member of the Audit Committee

[Date of being an Independent Director](#)

3 April 2019

[Date of being the Member of the Audit Committee](#)

4 April 2019

[Years of being an Independent Director](#)

2 Years 8 Months

[Possession of IRPC shares \(%\)](#)

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

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

Education/ Training

- Bachelor of Accountancy, Chulalongkorn University
- Master of Business Administration (M.B.A.), Thammasat University
- Senior Executive Program (SEP), Class 16, Sasn 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
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certificate Program (DCP) Class 102/2008, Thai Institute of Directors Association (IOD)

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

[Board Member/Management in Non-Listed Company - The Stock Exchange of Thailand](#)

None

Mr. Ekniti Nitithanprapas

Age: 50 Years

Appointed Positions:

Director/ Member of the Risk Management Committee

[Date of being a Director](#)

17 November 2015

[Date of being the Member of the Risk Management Committee](#)

16 March 2016

[Years of being a Director](#)

6 Years 1 Month

[Possession of IRPC shares \(%\)](#)

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

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

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

Current Position

[Board Member/ Management in Listed Company - The Stock Exchange of Thailand](#)

Feb. 2020 - Present Chairman,
TMB Thanachart Bank Public Company Limited
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

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
- Oxford Programme on Negotiation in Bangkok, Leadership Focus Institute
- Advanced Certificate Course in Public Administration and Law for Executives, Class 9/2011, King Prajadhipok's Institute
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Risk Management Program for Corporate Leaders (RCL), Class 25/2021, Thai Institute of Directors Association (IOD)
- 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)

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

Mr. Jumpol Sumpaopol

Age: 68 Years

Appointed Positions:

Independent Director/ Member of the Audit Committee

Date of being an Independent Director

16 October 2019

Date of being the Member of the Audit Committee

16 October 2019

Years of being an Independent Director

2 Years 2 Months

Possession of IRPC shares (%)

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

Family relationship within the Company, major shareholder or subsidiaries

None

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 Independent Director/ Chairman/ 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

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
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 136/2012, Thai Institute of Directors Association (IOD)

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

Mr. Sukrit Surabotsopon

Age: 63 Years

Appointed Positions:

Independent Director/ Member of the Risk Management Committee

[Date of being an Independent director](#)

2 February 2021

[Date of being a Director](#)

20 January 2021

[Date of being a Member of the Risk Management Committee](#)

20 January 2021

[Years of being a Director](#)

11 Months

[Possession of IRPC shares \(%\)](#)

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

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

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

Work Experience within the past 5 years

Nov. 2018 - Jan. 2019	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 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	Senior Executive Vice President, PTT Public Company Limited, Secondment in the position of Director/ President/ Secretary of the Board of Directors, IRPC Public Company Limited

Current Position

[Board Member/ Management in Listed Company - The Stock Exchange of Thailand](#)

Feb. 2021 - Present	Independent Director/ Member of the Risk Management Committee, IRPC Public Company Limited
Jan. 2021 - Present	Director/ Member of the Risk Management Committee, IRPC Public Company Limited

[Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand](#)

Jun. 2019 - Present	Director, The Black Tie Service Company Limited
Jun. 2019 - Present	Director, Chomchob Group Company Limited
Apr. 2019 - Present	Director, Drink Me Food & Beverage Company Limited
Mar. 2019 - Present	Chairman, Vrtwins Company Limited

Miss Peangpanor Boonklum

Age: 55 Years

Appointed Positions:

Director/ Member of the Risk Management Committee

[Date of being a Director](#)

20 January 2021

[Date of being a Member of the Risk Management Committee](#)

1 April 2021

[Years of being a Director](#)

11 Months

[Possession of IRPC shares \(%\)](#)

No. of share IRPC: - Share Possession - %

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

Education/ Training

- Bachelor of Laws (Second Class Honor), Chulalongkorn University
- Master of Laws (Business Law), Chulalongkorn University
- Master of Laws (LL.M.), Columbia University School of Law, New York, USA
- The Executive Program in Energy Literacy for a Sustainable Future, Class 15, Thailand Energy Academy
- Leadership Development Program (LDP 3) Class 4/2019, PTT Leadership and Learning Institute
- TIJ Executive Program the Rule of Law & Development, (TIJ RoLd), Class 3, Thailand Institute of Justice (TIJ)
- TIJ Workshop for Emerging Leaders on the Rule of Law and Policy, Class 3, Thailand Institute of Justice (TIJ)
- Certificate in Anti-Corruption Strategic Management for Senior Executives, Class 9/2018, Office of the National Anti-Corruption Commission
- TLCA Executive Development Program Class 1/2008, Thai Listed Companies Association (TLCA)
- Risk Management Program for Corporation Leaders (RCL), Class 18/2019, Thai Institute of Directors Association (IOD)
- Ethical Leadership Program (ELP), Class 15/2019, Thai Institute of Directors Association (IOD)
- Board Nomination and Compensation Program (BNCP), 7/2019, Thai Institute of Directors Association (IOD)
- Anti-Corruption: The Practical Guide (ACPG), Class 38/2017, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 139/2010, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

Jan. 2021 - Mar. 2021	Director/ Member of the Corporate Governance Committee, IRPC Public Company Limited
Dec. 2019 - Nov. 2019	Chairman, Energy Complex Company Limited
Mar. 2018 - Dec. 2020	Director, PTT Oil and Retail Business Public Company Limited
Apr. 2017 - Dec. 2019	Director, Global Power Synergy Public Company Limited
Oct. 2017 - Sep. 2018	Director, East Mediterranean Gas Company S.A.E.

Feb. 2017 - Jan. 2018	Member-Legal Expert, Finances and Assets Policy Committee, Srinakharinwirot University
Feb. 2017 - Aug. 2017	Independent Director/ Member of the Audit Committee Bangkok Commercial Asset Management Public Co., Ltd.
Mar. 2016 - Jun. 2017	Senior Counsel, Weerawong, Chinnavat & Partners Company Limited (Former Company Name: Weerawong, Chinnavat & Peangpanor Company Limited". Changed to the current name on 3 April 2017)
2013 - Mar. 2018	Advisor/ Lecturer, Investment Banking Club, Association of Thai Securities Companies
2009 - Feb. 2016	Partner and Associate, Weerawong, Chinnavat & Peangpanor Company Limited

Current Position

[Board Member/ Management in Listed Company - The Stock Exchange of Thailand](#)

Apr. 2021 - Present	Director/ Member of the Risk Management Committee, IRPC Public Company Limited
Oct. 2017 - Present	Senior Executive Vice President, Office of General Counsel, PTT Public Company Limited

[Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand](#)

Nov. 2021 - Present	Director, CU Engineering Enterprise Company Limited
Nov. 2021 - Present	Director, Primate Enterprise Company Limited
Oct. 2021 - Present	Chairman, Global Renewable Power Company Limited
Oct. 2021 - Present	Chairman, PTT Saving and Credit Cooperative Limited
Dec. 2019 - Present	Director, Energy Complex Company Limited

Mr. Supot Laosuarpha

Age: 64 Years

Appointed Positions:

Director/ Member of the Corporate Governance Committee

[Date of being a Director](#)

31 March 2021

[Date of being a Member of the Corporate Governance Committee](#)

1 April 2021

[Years of being a Director](#)

9 Months

[Possession of IRPC shares \(%\)](#)

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

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

Education/ Training

- Bachelor on Laws, Ramkhamhaeng University
- Master of Management (Law and Management), College of Management Mahidol University
- Lawyer License, Lawyers Council of Thailand
- Graduate Diploma Program in Business Law, Thammasat University
- Advanced Certificate Course in Public Administration and Law for Executives, Class 5, King Prajadhipok's Institute
- The Executive Program by Sasin Graduate Institute of Business Administration of Chulalongkorn University (SEP 21)
- Training Course on Administrative Justice for Executives, Class 1, Administrative Court Office
- Administrative Justice for Executives Course, Class 6, Public Prosecution Official Training Institute, Office of the Attorney General
- Certificate in Anti-Corruption Strategic Management for Senior Executives, Class 4, Office of the National Anti-Corruption Commission
- Leadership Succession Program (LSP), Class 3, Institute of Research and Development for Public Enterprise
- Rule of Law for Democracy, Class 5, College of the Constitutional Court
- Corporate Governance for Directors and Senior Executives of Regulators, Class 20, King Prajadhipok's Institute
- Top Executive in Energy Program, Class 12, Thailand Energy Academy (TEA)
- Director Certification Program (DCP), Class 139/2010, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

2019 - Feb. 2021	Legal Advisor, IRPC Public Company Limited
2018 - 2019	Advisor to the Working Group of the Minister of Energy
2018 - 2019	Director, State Railway of Thailand
2018 - 2019	Chairman of Subcommittee Corporate Governance and Social Responsibility, State Railway of Thailand
2018 - 2019	Member of the Audit Committee, State Railway of Thailand

2018	Sub-Committee on Agenda Screening to Board of Director, Port Authority of Thailand
2018	Sub-Committee on Legal to Board of Director, Port Authority of Thailand
2018	Sub-Committee on Asset Reformation, Port Authority of Thailand
2017 - 2018	Legal Advisor, Business Professional Solutions Recruitment Company Limited
2016 - 2018	Chairman, Business Services Alliance Company Limited
2016 - 2017	Director, East Mediterranean Gas S.A.E. Company Limited
2016 - 2017	Senior Executive Vice President taking a Position of Executive Vice President, Office of Corporate Legal, PTT Public Company Limited
2016 - 2017	Senior Executive Vice President, under Senior Executive Vice President, Human Resources and Organization Potential Responsible for controlling Office of Corporate Legal, PTT Public Company Limited
2012 - 2015	Director, Energy Complex Company Limited
2011 - 2016	Director, Business Services Alliance Company Limited

Current Position

[Board Member/ Management in Listed Company - The Stock Exchange of Thailand](#)

Apr. 2021 - Present	Member of the Corporate Governance Committee, IRPC Public Company Limited
Mar. 2021 - Present	Director, IRPC Public Company Limited

[Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand](#)

2020 - Present	Adviser to the Minister of Energy
2020 - Present	Sub-Committee on Creation and Development of Curriculum and Learning Materials on Anti-Corruption, 2021, Office of the National Anti-Corruption Commission
2020 - Present	Sub-Committee on Legal and Regulatory, Office of the National Anti-Corruption Commission
2018 - Present	Promotion of National Strategy on Anti-Corruption Phase 3 (2017-2021) Committee, Committee No. 1, Office of the National Anti-Corruption Commission
2016 - Present	Legal committee Federation of Thai Industries
2015 - Present	Chairman, PTT Green Energy (Thailand) Company Limited

Asst. Prof. Dr. Chaipaporn Puprasert

Age: 53 Years

Appointed Positions:

Independent Director/ Member of the Corporate Governance Committee

Date of being an Independent Director

31 March 2021

Date of being a Member of the Corporate Governance Committee

1 April 2021

Years of being a Director

9 Months

Possession of IRPC shares (%)

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

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Engineering in Sanitary Engineering, Chulalongkorn University
- Master of Engineering (Environmental Engineering), Chulalongkorn University
- Ph.D in Environmental Engineering, Institute National de Science Applique'e de Toulouse (INSA-Toulouse), France
- Certification in Top Executives in the Poom Palung Pandin Program, Class 5, Chulalongkorn University
- Director Accreditation Program (DAP), Class 102/2013, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

May 2016 - Apr. 2018	Assistant to the President for Student and Alumni Affairs, Chulalongkorn University
Mar. 2013 - Feb. 2016	Independent Director/ Member of the Audit Committee, Daii Group Public Company Limited
Apr. 2010 - May 2016	Head of Environmental Engineering Department, Faculty of Engineering, Chulalongkorn University

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Apr. 2021 - Present	Member of the Corporate Governance Committee, IRPC Public Company Limited
Mar. 2021 - Present	Independent Director, IRPC Public Company Limited

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

Apr. 2021 - Present	Director, Chulalongkorn University Alumni Association
Oct. 2019 - Present	Expert Member in Water Pollution Control Sub-Committee, Department of Pollution Control, Ministry of Natural Resources and Environment
May 2018 - Present	Vice President for Student Affairs, Chulalongkorn University
Dec. 1995 - Present	Assistant Professor, Department of Environmental Engineering, Faculty of Engineering, Chulalongkorn University

Mr. Chansak Chuenchom

Age: 54 Years

Appointed Positions:

Director/ Member of the Nomination and Remuneration Committee

Date of being a Director

1 October 2021

Date of being a Member of the Nomination and Remuneration Committee

1 October 2021

Years of being a Director

3 Months

Possession of IRPC shares (%)

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

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Engineering Program in Mechanical Engineering, Khon Kaen University
- Master of Business Administration Program, Kasetsart University
- Leadership Development Program, MDP III Business Management, MDP III People Management, Advanced Management Program (AMP) 3 - Business and People Management, PTT Leadership and Learning Institute
- Leadership Development Program II (LDP II), China
- Director Certification Program (DCP), Class 211/2015, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

Apr. 2019 - Nov. 2021	Director, Energy Complex Company Limited
Oct. 2015 - Sep. 2021	Executive Vice President, Engineering and Project Management, PTT Public company Limited
Aug. 2014 - Sep. 2015	Vice President, Project Engineering Department, PTT Public company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Oct. 2021 - Present	Director/ Member of the Nomination and Remuneration Committee, IRPC Public Company Limited
Oct. 2021 - Present	Senior Executive Vice President, Engineering and Infrastructure, PTT Public company Limited

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

Nov. 2021 - Present	Chairman, Energy Complex Company Limited
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Mr. Chawalit Tippawanich

Age: 59 Years

Appointed Positions:

Director/ Member of the Risk Management Committee/
President and Chief Executive Officer/ Secretary of the Board
of Directors

Date of being a Director

1 December 2020

Date of being the Member of the Risk Management Committee

1 December 2020

Years of being a Director

1 Year

Possession of IRPC shares (%)

No. of share IRPC: 450,000 Share Possession: 0.00220%

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Engineering in Electrical Engineering, King Mongkut's Institute of Technology Ladkrabang
- Master of Engineering in Industrial Engineering Management, Asian Institute of Technology
- Advance Management Program (AMP 187) - Harvard Business School, Executive Education, USA
- GE Energy Customer Executive Leadership Program (GE: PTT Executive Leadership) - GE Global Learning Crotonville Leadership Institute, USA
- Advanced Certificate Course in Politics and Governance in Democratic Systems for Executives (Batch 23)
- Top Executives in the Energy Education Program (Batch 12), Thailand Energy Academy
- The Joint State-Private Sector Course (Batch 5), Police College
- Leadership Development Program III (Batch 2), PTT Leadership and Learning Institute
- Director Certification Program (DCP), Class 152/2011, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

Jan. 2021 - Dec. 2021 Chairman, IRPC Polyol Company Limited
Dec. 2020 - Oct. 2021 Vice Chairman, PTT Energy Solutions Co., Ltd
Apr. 2019 - Nov. 2020 Director,
Glow Energy Public Company Limited
Mar. 2019 - Nov. 2020 Director, Glow Company Limited
Mar. 2019 - Nov. 2020 Director, Glow SPP 2 Company Limited
Mar. 2019 - Nov. 2020 Director, Glow SPP 3 Company Limited
Mar. 2019 - Nov. 2020 Director,
Glow IPP 2 Holding Company Limited
Mar. 2019 - Nov. 2020 Director, Glow SPP 11 Company Limited
Mar. 2019 - Nov. 2020 Director, Glow IPP Company Limited
Jan. 2019 - Nov. 2020 Director,
Ratchaburi Power Company Limited

Nov. 2018 - Nov. 2020 Director, Xayaburi Power Company Limited
Oct. 2018 - Nov. 2020 Director/ Member of the Risk
Management Committee/ President and
Chief Executive Officer/ Secretary of
the Board of Directors, Global Power
Synergy Public Company Limited
2017 - 2018 Executive Vice President, Downstream
Business Group Alignment, PTT Public
Company Limited secondment in the
position of Executive Vice President-
Organization Effectiveness of Thai Oil
Public Company Limited
2015 - 2016 Executive Vice President, Downstream
Business Group Alignment, PTT Public
Company Limited secondment in the
position of President of HMC Polymers
Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Dec. 2020 - Present Director/ Member of the Risk Management
Committee/ President and Chief Executive
Officer/ Secretary of the Board of Directors,
IRPC Public Company Limited
2018 - 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

Jan. 2022 - Present Director, IRPC Polyol Company Limited
Dec. 2021 - Present Chairman,
PTT Energy Solutions Company Limited
Apr. 2021 - Present Member of the Council of Honorable
Institutions, Vidyasirimedhi Institute of
Science and Technology (VISTEC)
Mar. 2021 - Present Advisor to the Thai Volunteer Power Club
Mar. 2021 - Present Chairman, IRPC Oil Company Limited
Jan. 2021 - Present Council of Trustees,
Petroleum Institute of Thailand
Dec. 2020 - Present Chairman, IRPC A&L Company Limited
Dec. 2020 - Present Chairman,
IRPC Technology Company Limited
Dec. 2020 - Present Chairman, iPolymer Company Limited
Dec. 2020 - Present Director, UBE Chemicals (Asia) Public
Company Limited
Dec. 2020 - Present Council Member/ Executive Committee,
Thailand Business Council for Sustainable
(TBCSD)
Dec. 2020 - Present Advisory Committee of the Petroleum and
Petrochemical College,
Chulalongkorn University
Jul. 2020 - Present Director, The Federation of Thai Industries

Mr. Nuttachat Charuchinda

Age: 66 Years

(Complete the agenda of the Annual General Meeting of Shareholders for the year 2021)

Possession of IRPC shares (%)

No. of share IRPC: - Share Possession - %

Family relationship within the Company, major shareholder of subsidiaries

None

Education/ Training

- Bachelor of Engineering, Chiang Mai 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
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 129/2010, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

Feb. 2020 - Mar. 2021	Independent Director, IRPC Public Company Limited
Jan. 2019 - Jan. 2020	Director, PTT Public Company Limited
Jul. 2017 - Jun. 2019	President, Bangkok Mass Transit Authority
Apr. 2016 - Mar. 2021	Director/ Chairman of the Risk Management Committee, IRPC Public Company Limited
May 2014 - Apr. 2016	Chairman, PTT Energy Resources Company Limited
2013 - Apr. 2016	Director, Thai Oil Public Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

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

Mr. Charcrie Buranakanonda

Age: 66 Years

(Complete the agenda of the Annual General Meeting of Shareholders for the year 2021)

Possession of IRPC shares (%)

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

Family relationship within the Company, major shareholder or subsidiaries

None

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
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certificate Program (DCP) Class 103/2010, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

May 2019 - Mar. 2021	Independent Director/ Member of the Corporate Governance Committee, IRPC Public Company Limited
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

None

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

None

Mr. Noppadol Pinsupa

Age: 57 Years

(Resigned 1 October 2021)

Possession of IRPC shares (%)

No. of share IRPC: - Share Possession - %

Family relationship within the Company, major shareholder or subsidiaries

None

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
- 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
- Briefing on International Anti-Corruption, International Cases and Practices, 2015
- Diploma, National Defence College, The National Defence Course, Class 60, Thailand National Defence College
- Program for Senior Executive on Justice Administration Batch, Class 19/2014, Judicial Training Institute
- PTT Leadership Development Program III, 2013, PTT Leadership and Learning Institute
- Breakthrough Program for Senior Executives International Leading Business School (IMD) Lausanne, Switzerland
- Assessor Training Program, Thailand Quality Award (TQA)
- 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)

Work Experience within the past 5 years

Jan. 2021 - Sep. 2021	Member of the Nomination and Remuneration, IRPC Public Company Limited
Dec. 2020 - Sep. 2021	Director, IRPC Public Company Limited
Dec. 2020 - Sep. 2021	Senior Executive Vice President, Innovation and Digital, PTT Public Company Limited
Dec. 2020 - Jan. 2021	Director/ Member of the Corporate Governance Committee, IRPC Public Company Limited
May 2019 - Nov. 2020	Chairman, IRPC Oil Company Limited
Apr. 2019 - Jan. 2021	Chairman, IRPC Polyol Company Limited
Mar. 2019 - Nov. 2020	Director, IRPC Oil Company Limited
Mar. 2019 - Dec. 2020	Chairman, IRPC A&L Company Limited
Mar. 2019 - Nov. 2020	Chairman, IRPC Technology Company Limited
Mar. 2019 - Dec. 2020	Chairman, iPolymer Company Limited

Feb. 2019 - Nov. 2020	Director/ Member of the Risk Management Committee/ President and Chief Executive Officer/ Secretary of the Board of Directors, IRPC Public Company Limited
Feb. 2019 - Aug. 2019	Chairman, PTT Energy Solutions Company Limited
Oct. 2017 - Jan. 2019	Chairman, PTT Global LNG Company Limited
2017	Chairman, PTT LNG Company Limited
Apr. 2016 - Jan. 2019	Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited
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, Thaiol Public Company Limited
2014 - 2018	Chairman, PTT Natural Gas Distribution Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Nov. 2021 - Present	Director/ Member of the Nomination and Remuneration Committee/ Chairman of the Risk Management Committee, Global Power Synergy Public Company Limited
Oct. 2021 - Present	Director/ Director to the Corporate Governance Committee, PTT Global Chemical Public Company Limited
Oct. 2021 - Present	Chief New Business and Infrastructure Officer, PTT Public Company Limited

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

Present	Director, Arun Plus Company Limited
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Mr. Wattanapong Kurovat

Age: 47 Years

(Resigned 1 May 2021)

Possession of IRPC shares (%)

No. of share IRPC: - Share Possession - %

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Political Science, Thammasat University
- Master of Business Administration (MBA), Western Michigan University, USA
- Chief of Staff Program Class 53, Joint Staff College, National Defense Studies Institute
- The Civil Service Executive Development Program: Visionary and Moral Leadership Class 86, Civil Service Training Institute, Office of the Civil Service Commission
- The Executive Program in Energy Literacy for Sustainable Future TEA Class 13, Thailand Energy Academy
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 288/2020, Thai Institute of Directors Association (IOD)
- Director Accreditation Program (DAP), Class 168/2020, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

Aug. 2019 - Apr. 2021 Director/ Member of the Risk Management Committee, IRPC Public Company Limited

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

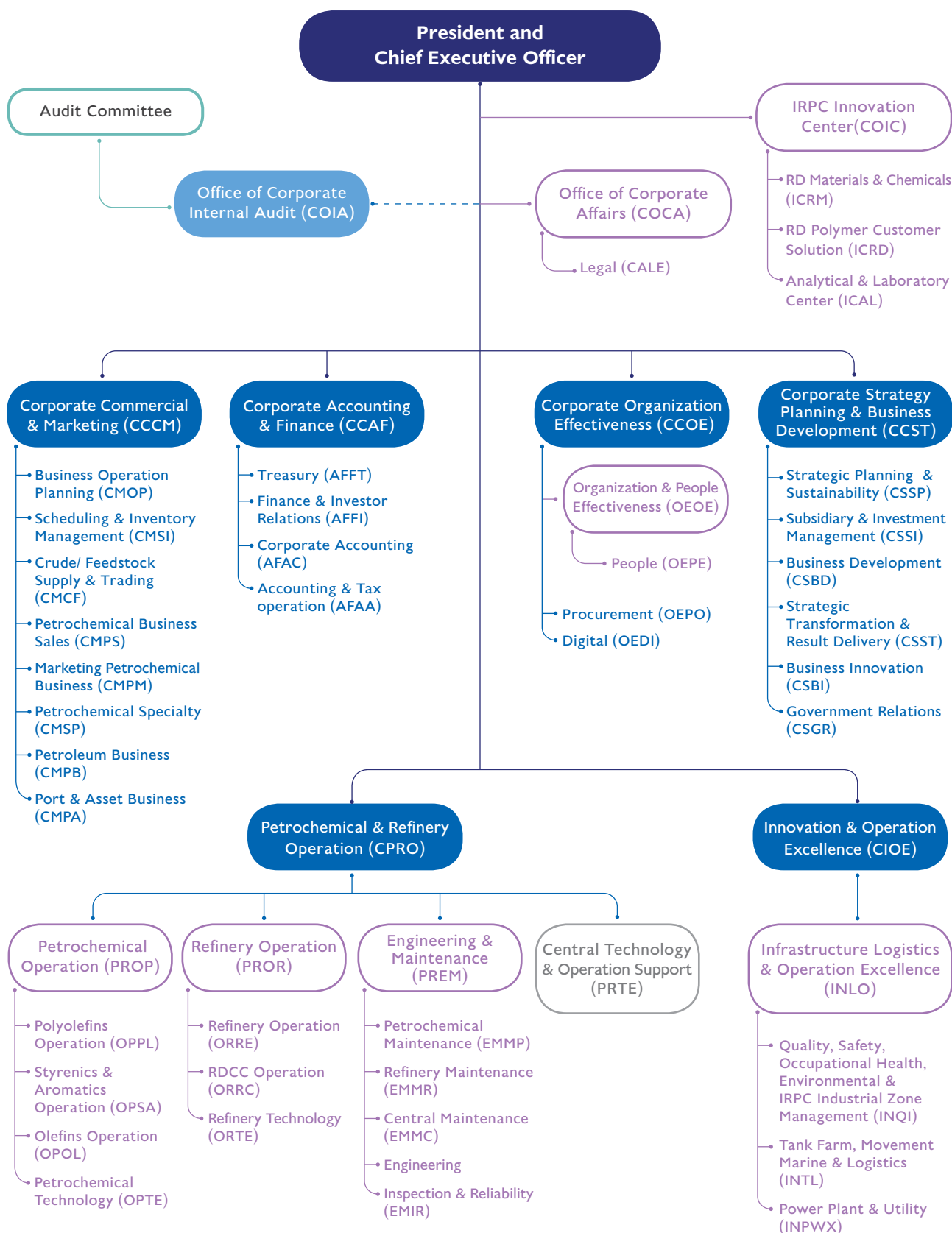
None

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

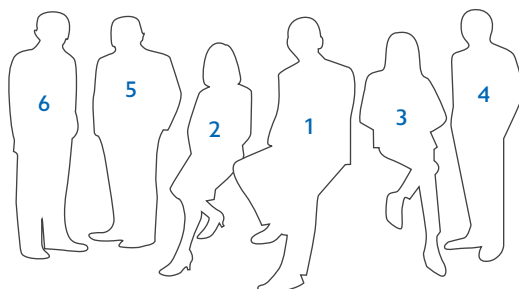
Apr. 2019 - Present Director General, Energy Policy and Planning

Organizational Structure

As of Jan. 1, 2022



Management Team



1. Mr. Chawalit Tippawanich

President and Chief Executive Officer/
Secretary of the Board of Directors

2. Mrs. Nidcha Jirametthanakij

Senior Executive Vice President,
Corporate Accounting & Finance

3. Miss Wanida Utaisomnapa

Senior Executive Vice President,
Corporate Commercial and Marketing

4. Mr. Somkiat Lertritpuwadol

Senior Executive Vice President,
Corporate Strategy Planning and
Business Development

5. Mr. Woravuth Sivapetranart

Acting Senior Executive Vice President,
Innovation and Operation Excellence/
Senior Executive Vice President,
Petrochemical and Refinery Operation

6. Mr. Poramet Junwicht

Senior Executive Vice President,
Corporate Organization Effectiveness

Management Team, IRPC Public Company Limited

Mr. Chawalit Tippawanich

Age: 59 Years

Appointed Positions:

President and Chief Executive Officer

[Date of being a President and Chief Executive Officer](#)

1 December 2020

[Date of being the Member of the Risk Management Committee](#)

1 December 2020

[Years of being a President and Chief Executive Officer](#)

1 Year

[Possession of IRPC shares \(%\)](#)

No. of share IRPC: 450,000 Share Possession: 0.00220%

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

Education/ Training

- Bachelor of Engineering in Electrical Engineering, King Mongkut's Institute of Technology Ladkrabang
- Master of Engineering in Industrial Engineering Management, Asian Institute of Technology
- Advance Management Program (AMP 187) - Harvard Business School, Executive Education, USA
- GE Energy Customer Executive Leadership Program (GE:PTT Executive Leadership) - GE Global Learning Crotonville Leadership Institute, USA
- Advanced Certificate Course in Politics and Governance in Democratic Systems for Executives (Batch 23) Year 2019 - 2020
- Top Executives in the Energy Education Program (Batch 12), Thailand Energy Academy
- The Joint State-Private Sector Course (Batch 5), Police College
- Leadership Development Program III (Batch 2), PTT Leadership and Learning Institute
- Director Certification Program (DCP), Class 152/2011, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

Jan. 2021 - Dec. 2021	Chairman, IRPC Polyol Company Limited
Dec. 2020 - Oct. 2021	Vice Chairman, PTT Energy Solutions Company Limited
Apr. 2019 - Nov. 2020	Director, Glow Energy Public Company Limited
Mar. 2019 - Nov. 2020	Director, Glow Company Limited
Mar. 2019 - Nov. 2020	Director, Glow SPP 2 Company Limited
Mar. 2019 - Nov. 2020	Director, Glow SPP 3 Company Limited
Mar. 2019 - Nov. 2020	Director, Glow IPP 2 Holding Company Limited
Mar. 2019 - Nov. 2020	Director, Glow SPP 11 Company Limited
Mar. 2019 - Nov. 2020	Director, Glow IPP Company Limited
Jan. 2019 - Nov. 2020	Director, Ratchaburi Power Company Limited

Nov. 2018 - Nov. 2020	Director, Xayaburi Power Company Limited
Oct. 2018 - Nov. 2020	Director/ Member of the Risk Management Committee/ President and Chief Executive Officer/ Secretary of the Board of Directors, Global Power Synergy Public Company Limited
2017 - 2018	Executive Vice President, Downstream Business Group Alignment, PTT Public Company Limited secondment in the position of Executive Vice President-Organization Effectiveness of Thai Oil Public Company Limited
2015 - 2016	Executive Vice President, Downstream Business Group Alignment, PTT Public Company Limited secondment in the position of President of HMC Polymers Company Limited

Current Position

[Board Member/ Management in Listed Company - The Stock Exchange of Thailand](#)

Dec. 2020 - Present	Director/ Member of the Risk Management Committee/ President and Chief Executive Officer/ Secretary of the Board of Directors, IRPC Public Company Limited
2018 - 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](#)

Jan. 2022 - Present	Director, IRPC Polyol Company Limited
Oct. 2021 - Present	Chairman, PTT Energy Solutions Company Limited
Apr. 2021 - Present	Member of the Council of Honorable Institutions, Vidyasirimedhi Institute of Science and Technology (VISTEC)
Mar. 2021 - Present	Advisor to the Thai Volunteer Power Club
Mar. 2021 - Present	Chairman, IRPC Oil Company Limited
Jan. 2021 - Present	Council of Trustees, Petroleum Institute of Thailand
Dec. 2020 - Present	Chairman, IRPC A&L Company Limited
Dec. 2020 - Present	Chairman, IRPC Technology Company Limited
Dec. 2020 - Present	Chairman, iPolymer Company Limited
Dec. 2020 - Present	Director, UBE Chemicals (Asia) Public Company Limited
Dec. 2020 - Present	Council Member/ Executive Committee, Thailand Business Council for Sustainable (TBCSD)
Dec. 2020 - Present	Advisory Committee of the Petroleum and Petrochemical College, Chulalongkorn University
Jul. 2020 - Present	Director, The Federation of Thai Industries

Mr. Woravuth Sivapetranart

Age: 58 Years

Appointed Positions:

Acting Senior Executive Vice President, Innovation and Operation Excellence/ Senior Executive Vice President, Petrochemical and Refinery Operation

[Date of being an Acting Senior Executive Vice President, Innovation and Operation Excellence](#)

1 May 2021

[Years of being an Acting Senior Executive Vice President, Innovation and Operation Excellence](#)

7 Months

[Date of being a Senior Executive Vice President, Petrochemical and Refinery Operation](#)

1 March 2019

[Years of being a Senior Executive Vice President, Petrochemical and Refinery Operation](#)

2 Years 9 Months

[Possession of IRPC shares \(%\)](#)

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

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

Current Position

[Board Member/ Management in Listed Company - The Stock Exchange of Thailand](#)

May 2021 - Present Acting Senior Executive Vice President, Innovation and Operation Excellence, IRPC Public Company Limited

Mar. 2019 - Present Senior Executive Vice President, Petrochemical and Refinery Operation, IRPC Public Company Limited

[Board Member/ Management in Non-Listed Company - The Stock Exchange of Thailand](#)

May 2021 - Present Director, IRPC Oil Company Limited

Mar. 2021 - Present Director, Rayong Acetylene Company Limited

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

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
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 281/2019, Thai Institute of Directors Association (IOD)

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

Mr. Somkiat Lertritpuwadol

Age: 59 Years

Appointed Positions:

Senior Executive Vice President,

Corporate Strategy Planning and Business Development

[Date of being a Senior Executive Vice President, Corporate Strategy Planning and Business Development](#)

1 January 2019

[Years of being a Senior Executive Vice President, Corporate Strategy Planning and Business Development](#)

2 Years 11 Months

[Possession of IRPC shares \(%\)](#)

No. of share IRPC: 411,480

(Self: 395,580 Share Possession: 0.00194%)

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

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

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 28, Capital Market Academy, The Stock Exchange of Thailand
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Risk Management Program for Corporate Leaders (RCL), Class 19/2020, Thai Institute of Directors Association (IOD)
- 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)

Work Experience within the past 5 years

Jun. 2021 - Dec. 2021	Director, IRPC Technology Company Limited
May 2021 - Dec. 2021	Acting Executive Vice President, Corporate Organization Effectiveness IRPC Public Company Limited
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

Current Position

[Board Member/ Management in Listed Company - The Stock Exchange of Thailand](#)

Jan. 2019 - Present Senior Executive Vice President, Corporate Strategy Planning and Business Development,
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](#)

Jul. 2020 - Present Chairman,
Mytex Polymers (Thailand) Company

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

Age: 59 Years

Appointed Positions:

Senior Executive Vice President, Corporate Accounting & Finance

[Date of being a Senior Executive Vice President, Corporate Accounting & Finance](#)

1 October 2018

[Years of being a Senior Executive Vice President, Corporate Accounting & Finance](#)

3 Years 2 Months

[Possession of IRPC shares \(%\)](#)

No. of share IRPC: 250,000 Share Possession: 0.00122%

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

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

Mar. 2021 - Present VISTEC Finance and Budget Sub-Committee, Vidyasirimedhi Institute of Science and Technology (VISTEC)

Jul. 2020 - Present Director, Mytex Polymers (Thailand) Company

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

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)
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Class 206/2015, Thai Institute of Directors Association (IOD)

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.

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

Miss Wanida Utaisomnapa

Age: 55 Years

Appointed Positions:

Senior Executive Vice President, Corporate Commercial and Marketing

Date of being a Senior Executive Vice President, Corporate Commercial and Marketing

1 January 2019

Years of being a Senior Executive Vice President, Corporate Commercial and Marketing

1 Year 11 Months

Possession of IRPC shares (%)

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

Family relationship within the Company, major shareholder or subsidiaries

None

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
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

Apr. 2019 - Dec. 2021 Director, IRPC Polyol Company Limited

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. 2016 - Dec. 2018 Secretary of the Risk Management Committee, IRPC Public Company Limited

Jan. 2016 - Dec. 2018 Executive Vice President, Corporate Business Planning, 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. 2020 - Present Director, Mytex Polymers (Thailand) Company

Jul. 2019 - Present Director, Guangzhou Saiju Performance Polymer Company Limited

Mar. 2019 - Present Director, IRPC A&L Company Limited

Jan. 2019 - Present Director, UBE Chemicals (Asia) Public Company Limited

Nov. 2018 - Present Director, IRPC Oil Company Limited

Mr. Poramet Junwichit

Age: 57 Years

Appointed Positions:

Senior Executive Vice President, Corporate Organization Effectiveness

Date of being a Senior Executive Vice President, Corporate Organization Effectiveness

1 January 2022

Possession of IRPC shares (%)

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

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- MINI MBA, Thammasat University
- M.Ed. (Public Administration), National Institute of Development Administration
- B.Eng. (Engineering), Kasetsart University
- Leadership Development Program II
- Inspiration and Capability Drive
- IRPC Culture Transformation Leading

Work Experience within the past 5 years

Aug. 2020 - Dec. 2021 Executive Vice President, Engineering & Maintenance, IRPC Public Company Limited

Feb. 2020 Acting Executive Vice President, Engineering & Maintenance, IRPC Public Company Limited

Jan. 2018 Vice President, Maintenance Service 2 Department, IRPC Public Company Limited

Oct. 2014 Vice President, Inspection and Reliability Department, IRPC Public Company Limited

Jun. 2010 Vice President, Engineering Department, IRPC Public Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Jan. 2022 - Present Senior Executive Vice President, Corporate Organization Effectiveness, IRPC Public Company Limited

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

Jan. 2022 - Present Director, IRPC Technology Company Limited

Miss Arisara Suthasut

Age: 46 Years

Appointed Positions:

Executive Vice President, Corporate Affairs and Company Secretary

[Date of being an Executive Vice President, Corporate Affairs and Company Secretary](#)

1 October 2019

[Years of being an Executive Vice President, Corporate Affairs and Company Secretary](#)

2 Years 2 Months

[Possession of IRPC shares \(%\)](#)

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

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

Education/ Training

- Bachelor of Engineering (Chemical Engineering), Kasetsart University
- Master of Science, Petrochemical Technology, The Petroleum and Petrochemical College, Chulalongkorn University
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)
- Company Secretary Program (CSP), Class 106/2020, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

Jan. 2020 - Dec. 2020	Acting Executive Vice President, Corporate Sustainability Management, IRPC Public Company Limited
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

Current Position

[Board Member/ Management in Listed Company - The Stock Exchange of Thailand](#)

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

Mr. Veerawat Srinoradithlert

Age: 59 Years

(Retired 30 April 2021)

[Possession of IRPC shares \(%\)](#)

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

[Family relationship within the Company, major shareholder or subsidiaries](#)

None

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
- The Role of the Board in IT Governance, Year 2020, Thai Institute of Directors Association (IOD)

Work Experience within the past 5 years

May 2020 - Apr 2021	Director, Rayong Acetylene Company Limited
Apr. 2020 - Apr. 2021	Director, IRPC Oil Company Limited
Jan. 2020 - Apr. 2021	Acting Senior Executive Vice President, Innovation and Operation Excellence, IRPC Public Company Limited
Mar. 2019 - Apr. 2021	Senior Executive Vice President, Corporate Organization Effectiveness
Oct. 2019 - Apr. 2021	Director, IRPC Technology Company Limited
2012 - Feb. 2019	Executive Vice President, Engineering & Maintenance, 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](#)

None

Mr. Prasitsak Swasduang

Age: 59 Years

Appointed Positions:

Vice President, Office Of Corporate Internal Audit and Secretary of Audit Committee

Date of being a Vice President, Office Of Corporate Internal Audit
1 January 2021

Date of being a Secretary of Audit Committee
1 January 2021

Possession of IRPC shares (%)

No. of share IRPC: 70,000 Share Possession: 0.00034%

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Science in Chemistry, Chiang Mai University
- MINI MBA - Thammasat University
- Finance for Non-financial Executive - Thammasat University
- IT audit for Non-IT Auditor Masterclass by NSTDA

Work Experience within the past 5 years

Jan. 2017 - Dec. 2020 Division Manager of Strategy Information System Internal Audit Division, IRPC Public Company Limited

Jan. 2007 - Dec. 2019 Division Manager of Operation, QSHE & Subsidiary Companies Internal Audit Division, IRPC Public Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

Jan. 2021 - Present Vice President, Office of Corporate Internal Audit and Secretary of Audit Committee, IRPC Public Company Limited

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

None

Mr. Surachai Toaphicharttrakul

Age: 55 Years

Appointed Positions:

Vice President, Corporate Accounting

Possession of IRPC shares (%)

No. of share IRPC: 14,719 Share Possession: 0.00007%

Family relationship within the Company, major shareholder or subsidiaries

None

Education/ Training

- Bachelor of Business Administration (Accounting), Ramkhamhaeng University
- Master of Business Administration (Accounting for Planning and Control), Kasetsart University
- Mini MBA - Faculty of Commerce and Accountancy, Thammasat University
- Advanced Management Program (AMP) 2 - People Management
- Lead Management Program - McKinsey Academy
- Digital Leadership Acceleration Program - BCG

Work Experience within the past 5 years

2013 - 2021 Vice President - Accounting, IRPC Public Company Limited

1997 - 2013 Department Manager - Financial Statement and Accounting Policy, IRPC Public Company Limited

Current Position

Board Member/ Management in Listed Company - The Stock Exchange of Thailand

2022 - Present Vice President - Corporate Accounting, IRPC Public Company Limited

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

2017 - Present Director, IRPC Technology Company Limited

2017 - Present Director, Rakpasak Company Limited

Report of the Audit Committee

Dear Shareholders,

IRPC's Audit Committee consists of three independent directors who are professionally qualified, knowledgeable, and highly experienced in the energy business, engineering, financial accounting, and management.

Undertaking tasks assigned by IRPC's Board of Directors, in strict observance of the Audit Committee's own charter, this committee also acts in compliance with notifications of the SET and SEC. The Audit Committee's policy focuses on compliance with good corporate governance, laws, and regulations relating to business operations, and ensuring the suitability, efficiency and effectiveness of the company's internal control and internal audit systems.

In 2021, the Audit Committee held a total of 11 meetings with the management, internal auditors, and external independent auditors as per the relevance of agenda items. Its performance is highlighted below:

1. Review of financial reports

The committee reviewed 2021 consolidated quarterly and annual financial statements together with connected transactions and transactions that may cause conflicts of interest. The auditors and accounting and finance executives were invited to attend meetings on agenda items relating to financial statements where they were expected to clarify and address the committee's queries as to their accuracy and completeness, adjustments of material account entries, adequacy of information disclosure and auditor's opinion. The Audit Committee determined that IRPC's financial statements were accurate, complete, and credible in accordance with the financial reporting standards.

In addition, the Audit Committee held an exclusive meeting with the external auditor in the absence of the management to consult with auditor about the audit planning, auditor's recommendations following an audit, as well as impact from the new accounting standards that came into force, such as Thai Financial Reporting Standards 16 for lease accounting (revised 2021), Thai Financial Reporting Standards 9 for financial instruments, as well as independence of auditors, material risks and Key Audit Matters (KAMs).

2. Review of risk management

The Audit Committee reviewed risk management based on the internal auditors and external auditor's reports on the Company's risk management and acknowledged the report on corporate risk management performance for which the Risk Management Committee provides oversight. The Risk Management Committee's oversight also covers approval of risk management policy and framework, monitoring of risk assessment, approval of risk management measures, and reporting on the corporate risk management performance to the Board for acknowledgement on a regular basis. This is to ascertain that the company's risk management system is suitable and adequate for its businesses to manage and keep risks within its risk appetite.

3. Review of internal control system

The Audit Committee reviewed the adequacy and suitability of IRPC's internal control system to reasonably ensure the efficiency and effectiveness of the company's business operations to achieve objectives and goals. The review was based on the internal and external auditors' reports on internal control, the follow-up reports on implementation of auditor's recommendations as well as results of the assessment questionnaires completed by the management on the adequacy of the company's internal control system in accordance with the internal control operational framework prescribed by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Having assessed the internal control system, risk management and credibility of financial reports, the committee was reasonably assured that the Company had sound internal control system adequate for its business. The results of the assessment can reasonably give assurance that the Company had sound and adequate internal control system for its business operations.

4. Review and oversight of internal audit

The Audit Committee has provided oversight for the internal audit unit to ensure its independence. The internal audit unit reports directly to the Audit Committee as prescribed by the internal audit charter, which is subject to annual review. The internal audit unit is tasked with implementing internal audit in accordance with the internal audit policy and the

approved internal audit plan as well as to scrutinize issues arising from auditing and give recommendations with a view to improve internal audit efficiency and to monitor auditing results on a regular basis.

The Audit Committee attaches significant importance to the continuing professional development of internal auditors. Internal auditors are encouraged to engage with their peers in the PTT Group for knowledge sharing, and to seek advanced professional certification available to internal auditors to improve professional competency and performance to meet internationally accepted standards. The Audit Committee also gave priority and promoted the application of IT technology in internal auditing. In 2021, the Internal Audit Office adapted Business Intelligence Analyst's knowhow to apply CCMS system (P2P, O2C) and in its auditing work to improve auditing efficiency and effectiveness.

5. Review of corporate governance

The Audit Committee has stressed the importance of ethical business practices by reviewing and giving opinions on material connected transactions involving related parties or companies as precaution against conflicts of interest. The committee bases its reviews on customary business practices, reasonableness, pricing referenced to reasonable market prices and arm's length transactions. The reviewing process also cover tips provided by whistleblowers, complaints and monitoring of the handling and resolution of complaints in accordance with good corporate governance as well as to ascertain the full information disclosure in accordance with the rules prescribed by the SET. The Audit Committee also encourages the company and its subsidiaries to maintain and renew their memberships to the Collective Action Against Corruption (CAC) of the Anti-Corruption Organization of Thailand.

6. Review of compliance

The Audit Committee has reviewed and provided oversight for the Company's operations to be in full compliance with laws governing securities and the stock exchange, rules prescribed by the SET, laws relating to industry and the environment along with other laws relevant to the Company's business operations. The Audit Committee is of

the opinion that the company has effective internal control process to ensure full legal and regulatory compliance.

7. Selection and appointment of the Certified Public Accountant for 2021

The Audit Committee is responsible for considering, selecting, nominating, and proposing remuneration, as well as recommending the removal of external independent auditor. This is to ensure the independence of the certified public accountant who has qualifications, expertise and professional skills is never in doubt. Having reviewed the nominated external auditors, the committee approved the nomination of Deloitte Touche Tohmatsu Jaiyos Ltd. for the Board's endorsement and shareholders' approval. In addition, the committee examined the other services provided by the external auditor to make sure they do not compromise the auditing independence.

In conclusion, in 2021, the Audit Committee performed its duties independently with utmost caution and prudence. The committee gave opinions and recommendations beneficial to the Company. To ensure that IRPC's financial reports are accurate, complete, and credible, and that the Company has observed good corporate governance, conducted its businesses lawfully and that its risk management and internal control systems proved adequate, efficient, and effective, enabling IRPC to achieve optimal benefits and sustainable growth.



(Mr. Somnuk Bormungsalee)

Chairman of the Audit Committee

Message from the Chairman of the Corporate Governance Committee

Dear Shareholders,

The Corporate Governance Committee performs its duties in accordance with the responsibilities stipulated in its own charter, and as assigned by the Board of Directors. The committee provides corporate governance oversight by applying the Corporate Governance Code 2017 (CG Code 2017) of the Securities and Exchange Commission (SEC) and best practices of leading international corporations as appropriate in the context of IRPC's operations to ensure maximum effectiveness. It also monitors the corporate governance performance, gives recommendations for improvement and reports the results to the Board of Directors on a quarterly basis. This is in order to develop and strengthen the company's corporate governance on par with internationally accepted standards.

In 2021, the Corporate Governance Committee, consisting of three directors, namely (1) Air Marshal Boonsuib Prasit, Independent Director, acting as Chairman, (2) Mr. Chaiyaporn Puprasert, Independent Director, and (3) Mr. Supot Laosuapha, Director, held a total of six meetings. Key developments in corporate governance matters during the year are summarized as follows:

1. Development and promotion of corporate governance policies and practices

The Corporate Governance Committee formulated and approved the company's corporate governance policies and guidelines as well as supervised and monitored

its performance in corporate governance matters. The committee gave recommendations on anti-corruption policy, governance oversight policy, human rights policy, diversity and inclusion policy, and Governance, Risk and Compliance (GRC) to ascertain that effective oversight mechanisms are in place to ascertain these key functions are systematically in alignment to enable the company to reliably achieve its objectives, success and sustainability in line with national and international standards.

2. Promotion of corporate governance and sustainable growth

The Corporate Governance Committee has considered and approved the sustainability management plan and society, community and environmental responsibility plans to ensure they are consistently implemented to achieve concrete results that are suitable and in alignment with IRPC's vision and business strategies and international sustainability goals. The committee also closely monitored implementation of the plans and submitted reports at the meetings of the Corporate Governance Committee and the Board of Directors on a quarterly basis.

It also promoted awareness and understanding of corporate governance principles through dissemination of information relating to key governance concepts and practices to lay the groundwork for sustainable development to executives and employees as well as internal and


external stakeholders. The committee also organized activities to promote corporate code of conduct, such as PTT Group CG Day 2021 in collaboration with flagship companies in the PTT Group, and the IRPC Cubic Academy Season 7 to provide corporate governance training to executives, employees and suppliers. IRPC also participated events held by its partners, such as Supplier Conference 2021, anti-corruption activities, GCNT Forum 2021: Declaration of Intent on Preventing and Mitigating Impacts of Climate Change organized by the Global Compact Network Thailand (GCNT), etc. IRPC's corporate governance efforts have been widely recognized and the company received numerous corporate governance awards, including: Human Rights Model Organization Award 2021 (for third consecutive year), Sustainability Awards of Honor, the Best Investor Relations Awards, and the 2nd Runner-up of "UN Women 2021 Thailand WEPs Awards" for Gender Equality through Community Engagement & Partnerships, which is Thailand's first international award for empowering women and promoting gender equality in the business sector, and from women empowerment activities and equal access to education at IRPC Technological College, a company in IRPC group.

3. Stakeholder engagement throughout the value chain

In 2021, even as millions of people suffered untold devastation from the COVID-19 pandemic as well as some adverse effects

on IRPC's operations, the company's dedication to its duty to uphold shareholders' legal rights remained unchanged. The Annual General Meeting of Shareholders 2021 was held under strict public health and safety standards. Equal treatment of all shareholders was assured, with minority shareholders being encouraged to nominate people for election as directors as well as to propose in advance agenda issues at AGM 2021. Procedures for minority shareholders to exercise these rights were disclosed fully, transparently and in a timely manner prior to the shareholders' meeting, through the company's communication channels: www.irpc.co.th and the SET-Link news portal of the Stock Exchange of Thailand for the benefit of all shareholders.

In 2022, the Corporate Governance Committee intends to redouble its effort to continually develop and raise the corporate governance standards. The committee has already approved the IRPC's 2022 Corporate Governance Plan encompassing the five CG pillars: (1) Accountability, (2) Fairness, (3) Transparency, (4) Board Responsibility, and (5) Networking/Partnership. The plan seeks to develop talented personnel with professional integrity, a sense of responsibility towards the communities, society and environment. The CG Plan aims to transform IRPC into a more resilient and highly-competitive organization that serves as a corporate role model for its business conduct guided by corporate governance principles and the UN SDGs, that inspires the confidence of shareholders, investors and stakeholders in accordance with internationally accepted standards. Thank you.



(Air Marshal Boonsuib Prasit)

Chairman of the Corporate
Governance Committee

Message from the Chairman of the Nomination and Remuneration Committee

Dear Shareholders,

The year 2021 has been one of the most challenging for IRPC where a lot of changes have also taken place. There were the usual socio-economic and technological, environmental and regulatory factors that every company had to grapple with and adapt to. And then there were COVID-19 pandemic, which posed significant threat, not to mention the outcome of COP26 summit of the UN Climate Change Conference, and changes in government policies, etc. With this in mind, the Nomination and Remuneration Committee carried out its duties with prudence in conformation with corporate governance principles and internationally accepted standards. In particular, the committee strictly observes the Corporate Governance Code for Listed Companies 2017 (CG Code 2017) of the Securities and Exchange Commission, which puts companies in a position to consistently deliver satisfactory operating results, inspire investors' confidence, create value for the Company along the path towards sustainable growth, as well as to make positive contribution to the capital market, the public sector and the society at large, and to the best interests of all shareholders and stakeholders.

The Nomination and Remuneration Committee held a total of eight meetings in 2021. Its main tasks were the nomination of directors and members of Sub-Committees, determination of directors' compensation and establishing linkage of CEO's performance and compensation package to the Company's goals and objectives as well as senior executives' succession planning.

On nomination of directors, the committee considered the nomination of directors in accordance with the procedures and criteria stipulated in the company's Articles of Association, Corporate Governance Handbook, and relevant laws. It also took into consideration the Board structure in terms of composition, size, adequacy and suitability for business complexity along with appropriate proportion of independent directors. The committee also reviewed qualifications, social skills, expertise and diversity of those nominated, and took into consideration the Directors' Pool of the Thai Institute of Directors Association in the nomination process.

As for the determination of directors' compensation, the committee reviewed compensation offered to their peers by other companies of equivalent size in the same industrial sector. The compensation amounts proposed for 2021 were the same as those approved by the shareholders in the previous year, which in the committee's view, remained appropriate and comparable to what other leading corporations paid their directors. The committee considered director bonuses carefully and appropriately against the Company's operating results, dividend yield, Board of Directors' performance assessment results and the company's financial capability. In the year that the company is profitable, the Nomination and Remuneration Committee will propose director bonuses equivalent to approximately 0.30% of the net profit. In the year that the company reports a loss, no director bonuses will be awarded.

In 2022, the Nomination and Remuneration Committee will prioritize supporting the human resource management strategy,

or People Readiness, in line with IRPC's new vision. That is to streamline its operations to achieve a workforce of appropriate size with suitable capabilities through recruitment, selection and retention. The new vision also seeks to develop high-potential individuals into capable leaders through human resource management mechanisms suitable for the modern workforce. People Readiness will be instrumental in improving IRPC's competitiveness through a transformational process based on cutting-edge technologies and innovations. That will put IRPC in a position to engage its partners more effectively in collaborations to grow new businesses for sustainable growth guided by corporate governance. The Nomination and Remuneration Committee would like to take this opportunity to reaffirm its commitment to perform its duties with fairness, transparency and maximum efficiency to the best interests of the Company and shareholders, and, above all else, for the continuing success and sustainability of IRPC Public Company Limited in the years to come.



(Mr. Woothisarn Tanchai)

Chairman of the Nomination
and Remuneration Committee

Message from the Chairman of the Risk Management Committee

Dear Shareholders,

The Risk Management Committee has been assigned by the Board of Directors to define policy, provide recommendations and set guidelines for IRPC's corporate risk management to ensure its operational efficiency and sustainable growth. The committee screens, scrutinizes and gives advice on the management of strategic investment projects as well as promotes and supports enterprise-wide risk management and identifies new business opportunities arising from Megatrends. The committee consists of five highly qualified directors with deep knowledge and extensive experience in risk management as follows:

- | | |
|------------------------------|----------|
| 1. Mr. Anusorn Sangnimnuan* | Chairman |
| 2. Mr. Ekniti Nitithanprapas | Director |
| 3. Mr. Sukrit Surabotsopon | Director |
| 4. Ms. Peangpanor Boonklum** | Director |
| 5. Mr. Chawalit Tippawanich | Director |

* Mr. Anusorn Sangnimnuan has served as Chairman of Risk Management Committee as of 31 March 2021, replacing Mr. Nuttachat Charuchinda who retired by rotation.

** Ms. Peangpanor Boonklum was appointed member of the Risk Management Committee on 31 March 2021, replacing Mr. Wattanapong Kurovat, who was appointed as a member of the Nomination and Remuneration Committee on 31 March 2021.

In 2021, IRPC faced significant challenges from COVID-19 pandemic and the volatility of crude oil prices that impacted on costs and operating results. The Risk Management Committee's performance in the past year is summarized as follows:

1. The committee supervised and considered corporate risk management in line with international standard, comprising context definition, risk identification, risk analysis and assessment, determination of risk management measures, including monitoring and reviewing risk management results to keep corporate risks at an acceptable level and achieve specified targets.
2. The committee reviewed and recommended management measures for strategic risks, such as risks associated with salability of specialty product sales, like Hygiene Spunbond, business risk, oil price and commodity product price risks, financial risks, personal data privacy risk, operational risk, like safety and environmental risks, and community-related risks.
3. The Risk Management Committee proposed corporate risk management guidelines to the Company's work groups,

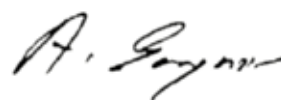
consisting of: The Risk Management and Internal Control Committee, which managed corporate risks according to stated policy and guidelines. The Supply Chain Financial Risk Management Committee monitored and analyzed market situations, managed prices and supply of crude oil, feedstocks, petroleum and petrochemical products, along with preparation of financial transactions. This, so as to ensure that such risk management activities were efficient and that risks were mitigated effectively. The Supply Chain and Financial Risk Management Committee also reviewed the report on results of price and financial risk management as well as provided opinion and recommendations.

4. The Risk management Committee considered and approved the establishment of Innopolymed Co., Ltd., a joint venture between IRPC and Innobic (Asia) Co., Ltd., to manufacture and distribute non-woven fabrics and materials and medical consumables.
5. The committee reviewed the implementation guidelines for the Ultra Clean Fuel (UCF) project to improve refinery efficiency and upgrade diesel quality to comply with the Euro 5 emission standard. It also reviewed investment

in the combined heat and power project (CHP-III) and the project to procure N₂ and O₂ for IRPC Plc's industrial park.

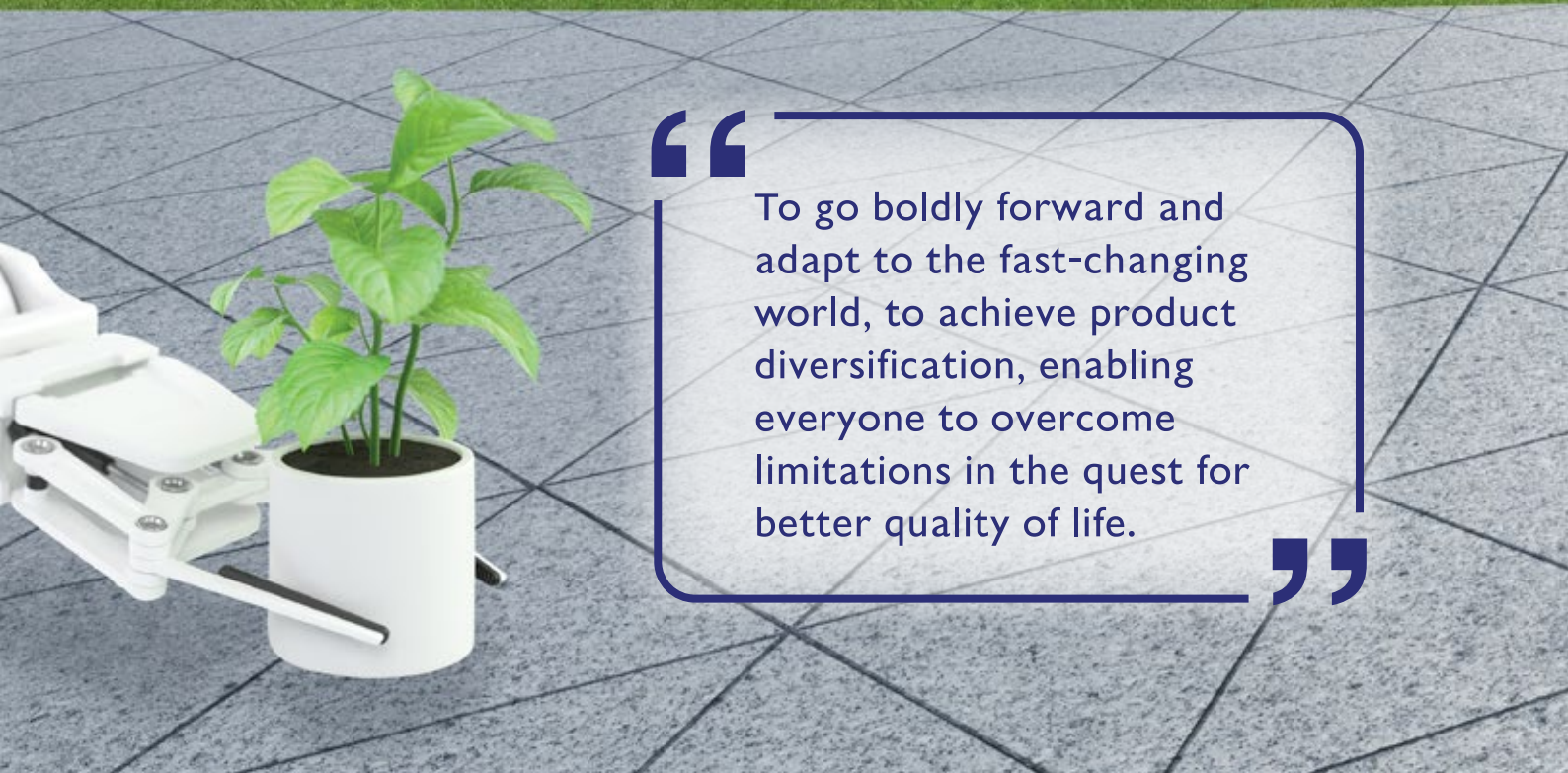
6. The committee followed up on operating results of IRPC's subsidiaries, such as iPolymer Co., Ltd., and gave recommendations on risk management.
7. The committee submitted quarterly risk management report to the Board of Directors.
8. The committee considered and commented on 2022 enterprise risk management before submitting for the approval of the Board of Directors by reviewing risk lists to align with business direction, corporate goals and management of environmental issues.

The Risk Management Committee has prudently performed the tasks assigned to us to the best of our ability, with independence in line with corporate governance for the benefits of IRPC and all stakeholders.



(Mr. Anusorn Sangnimnuan)

Chairman of the Risk Management Committee



“

To go boldly forward and adapt to the fast-changing world, to achieve product diversification, enabling everyone to overcome limitations in the quest for better quality of life.

”



Section

BUSINESS OPERATIONS AND PERFORMANCE

-
- Structure and Business Operations of IRPC
- Risk Management
- Driving Business for Sustainability
- Management's Discussion and Analysis (MD&A)
- General Information and Other Important Information

IRPC's ultimate goal is not just to drive business success in the conventional sense but also to develop capabilities in all dimensions to create value for and satisfy the needs of others in the society.

In a broader perspective, IRPC must also contribute to the sustainability of the country through innovation based on the strength of its current business as well as diversifying into new businesses and getting ready for the energy business of the future.

In everything that IRPC does, environmental stewardship will remain a priority. We have set an ambitious goal to limit IRPC's GHG emissions to 20 per cent of the business-as-usual level by 2030.

IRPC's 299 storage tanks with a combined capacity of up to **2.9 million tons** in support of the company's own petroleum product distribution and to serve external customers.



IRPC's refineries have a combined production capacity of 215,000 barrels per day, **ranked, 3rd among the country's refinery operators.**



With a strategy that focuses on building strength from within, IRPC is able to take advantage of technology and innovation to develop high value-added specialty products and extending to downstream businesses to be closer to consumers. The company is now in a position to offer Materials Solutions Energy Solutions, widen investment portfolio, and build partnership to enter adjacent and new businesses.



Structure and Business Operations of IRPC



IRPC is a producer of petrochemical products **focusing on developing a variety of new specialty products** that meet the demand of customers throughout the industry's value chain.



The floating solar power project in an area of 200 rai, to **enhance the energy stability** of IRPC industrial zone and surrounding areas in Rayong Province.

Modern cargo handling equipment at IRPC's deep-water port, with berths that can accommodate cargo vessels of



any size from 1,000-250,000 DWT.



Revenue Structure

IRPC and its subsidiaries generated revenues from distribution and sales of products as follows: Revenue from petroleum products accounted for 68 per cent of total net sales revenue from diesel, gasoline, fuel oil, lube base oil and asphalt. Revenue from petrochemical products accounted for 30 per cent from olefins, aromatics, and various polymers or plastic pellets. In addition, the company earned income from other businesses, accounting for two per cent mainly from electricity and utilities charges collected. In 2021, IRPC's net sales revenue totaled Baht 235,174 million as shown below:

Revenue Structure

Type of Business	Operations/ % of shares held by IRPC	2019		2020		2021	
		Million Baht	%	Million Baht	%	Million Baht	%
1. Petroleum	IRPC Plc IRPC Oil Co., Ltd. (99.99%)	153,451	71%	101,429	67%	160,626	68%
2. Petrochemical	IRPC Plc Innoplymed Co., Ltd. (60.00%) IRPC A & L Co., Ltd. (57.48%) iPolymer Co., Ltd. (55.00%)	59,656	28%	47,457	31%	71,089	30%
3. Other businesses ⁽¹⁾	IRPC Plc	3,470	1%	3,433	2%	3,459	2%
Total net sales revenue ⁽²⁾		216,577	100%	152,319	100%	235,174	100%
Profit (loss) sharing from investment in associated company and shareholding in joint venture companies		363		333		713	

Notes: ⁽¹⁾ Other businesses were power and public utilities.

⁽²⁾ Net sales revenue was from petroleum (excluding excise tax), petrochemical and power, and public utilities.

Domestic and Overseas Sales Revenue Structure

Type of Business	2019		2020		2021	
	Million Baht	%	Million Baht	%	Million Baht	%
Domestic Sales Revenue	122,008	56%	89,678	59%	137,817	59%
Overseas Sales Revenue	94,569	44%	62,641	41%	97,357	41%
- CLMV countries	18,563	9%	13,876	9%	23,010	10%
- Others	76,006	35%	48,765	32%	74,347	31%
Total net sales revenue	216,577	100%	152,319	100%	235,174	100%

Nature of Business

IRPC Public Company Limited is the first fully integrated petrochemical operator in Southeast Asia. The company owns a refinery and petrochemical complexes located within its own industrial zone in Rayong, complete with infrastructure and basic utilities supporting the operations, 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 320,000 tons per year, and the associated asphalt plant has a total capacity of 600,000 tons per year, the highest domestic capacities. It is Thailand's first asphalt plant to sell TIS-certified 40/50 asphalt in the domestic market. IRPC is also a producer of rubber process oil, whose quality satisfy internationally recognized standards.

Diesel Quality Improvement Project

The government has set the deadline for the enforcement of Euro 5-compliant diesel from January 1, 2024 to reduce air pollution and dust problems, including PM 2.5. In response, IRPC has started adjusting in its production processes by implementing the Ultra Clean Fuel Project (UCF). The objective is to increase refinery plant's efficiency and upgrade diesel quality. The UCF project enhances the company's competitiveness as its refinery, which has until recently produced large quantities of high-sulfur diesel for export to some Asian markets, will switch completely to Euro 5 diesel. The market for high-sulfur diesel is expected to shrink and be confined to operators of oceangoing vessels and fishing trawlers, which have limited demand. Furthermore, these customers may opt for cheaper low-sulfur fuel oil instead. As a result, the company may have to compete on price that hurts profitability.

The project will enable IRPC to meet the increase in demand for new standard diesel in the domestic market, and to export

to countries that will be switching to Euro 5-compliant diesel from Euro 4 in the foreseeable future. This will enable the company to add product value and increase revenue.

Petrochemical Business

IRPC is a producer of upstream petrochemical products, namely olefins and aromatics. These upstream products are feedstocks for IRPC's downstream petrochemical plants producing plastic pellets in polyolefins (HDPE and PP), and Styrenics (ABS/SAN, PS, and EPS). These downstream products are sold to manufacturers of finished plastic products in Thailand and overseas under the brand POLIMAXX.

In addition, the petrochemical business also focuses on moving forward, adapting to the fast-changing world in terms of the environmental standards and evolving production technologies. IRPC's research and development efforts have yielded a crop of new and innovative products to increase its competitiveness. Among these new products are: Recycled Compound Resin, Acetylene Black for Li-ion batteries (Pim-L, Pim-AL), PP Spunbond and PP Meltblown, etc. IRPC also introduced Eco Solution management approach in a closed-loop plastic production chain, incorporating recycling in the production process.

Supporting Businesses

Power and Public Utilities

IRPC provides electricity, steam, infrastructure, public utilities as well as wastewater treatment and related services to industrial clients in support of their operations. Details of these services are as follows:

Electrical and Steam

IRPC operates a Combined Heat and Power system, which uses natural gas as fuel, and a 307 MW coal-fired power plant. The company's Power Dispatching Center regulates the distribution of electricity and steam for maximum stability, complete with Loop Line system to ensure uninterrupted power in the event of contingency, such as maintenance.

IRPC also installed a 12.5 MW floating solar farm in a 200-rai reservoir. The solar farm contributes to the power stability



in IRPC Industrial Zone and is considered an eco-friendly innovation that not only increases business opportunities but is also mitigate the impacts of global warming.

IRPC also supports and cooperates with customers in IRPC industrial zone in implementing various eco-friendly projects to produce clean energy, among other things.

Water Systems: Filtered Water, Demineralized Water, Cooling Water, Raw Water, Fire-fighting Water

The Company receives raw water under industrial quota from the Royal Irrigation Department and operates two water filtration plants located in Ban Khai District, and in IRPC Industrial Zone, contributing to stability and operational continuity.

Pneumatics: Nitrogen, Instrument Air, Plant Air

IRPC operates its own industrial pneumatic system as well as works in direct partnership with leading manufacturers of industrial pneumatic systems

Wastewater Treatment

IRPC uses Membrane Bioreactor Plus Activated Carbon Adsorption (MBR Plus AC) to treat wastewater. This bioprocess is highly efficient and operationally stable. The treated water consistently passes inspection, inspiring the trust and confidence of the surrounding communities.

Port and Storage Tank Services

IRPC Port Services

IRPC provides port services: to domestic and international clients for vessels to berth at its terminals for loading and unloading, with port services available to outsiders in different regions as follows:

IRPC Deep Sea Port, Eastern Thailand, in Muang District, Rayong, consisting of:

- **Bulk & Container Terminal (BCT)** The terminal is 900 meters long and 44 meters wide. It comprises six berths, which accommodate vessels of various sizes, ranging from 800 to 150,000 DWT, with a maximum draft of 13.5 meters.



- **Liquid & Chemical Terminal (LCT)** This terminal is equipped with state-of-the-art equipment to handle liquids and gases efficiently and safely. The terminal is 1,623 meters long, comprising six berths that can accommodate vessels of different sizes, ranging from 1,000 to 250,000 DWT.

Storage Tank Services

IRPC provides storage tanks for petroleum products and liquid petrochemical products. IRPC's teams of experienced specialists operate 299 tanks with a combined 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 serve external clients as well. Tank services are available at IRPC oil depots in different regions: Rayong (Eastern Thailand), Phra Pradaeng (Bangkok), Ayutthaya (Central Thailand), and Chumphon (Southern Thailand). Each depot has a port or wharf to accommodate sea freights, which makes transportation and distribution efficient as well as helps clients save costs and time.

Asset Management Business

IRPC manages approximately 12,000 rai of high-potential land in Rayong and other provinces. The company has developed these plots of land into industrial estates and those that have potential for future development and expansion, especially in connection with the government's Eastern Economic Corridor (EEC) initiative and other investment promotion policy. These asset management businesses cover development plan and other projects under the government's investment promotion policies. IRPC's asset management business is divided into three units:

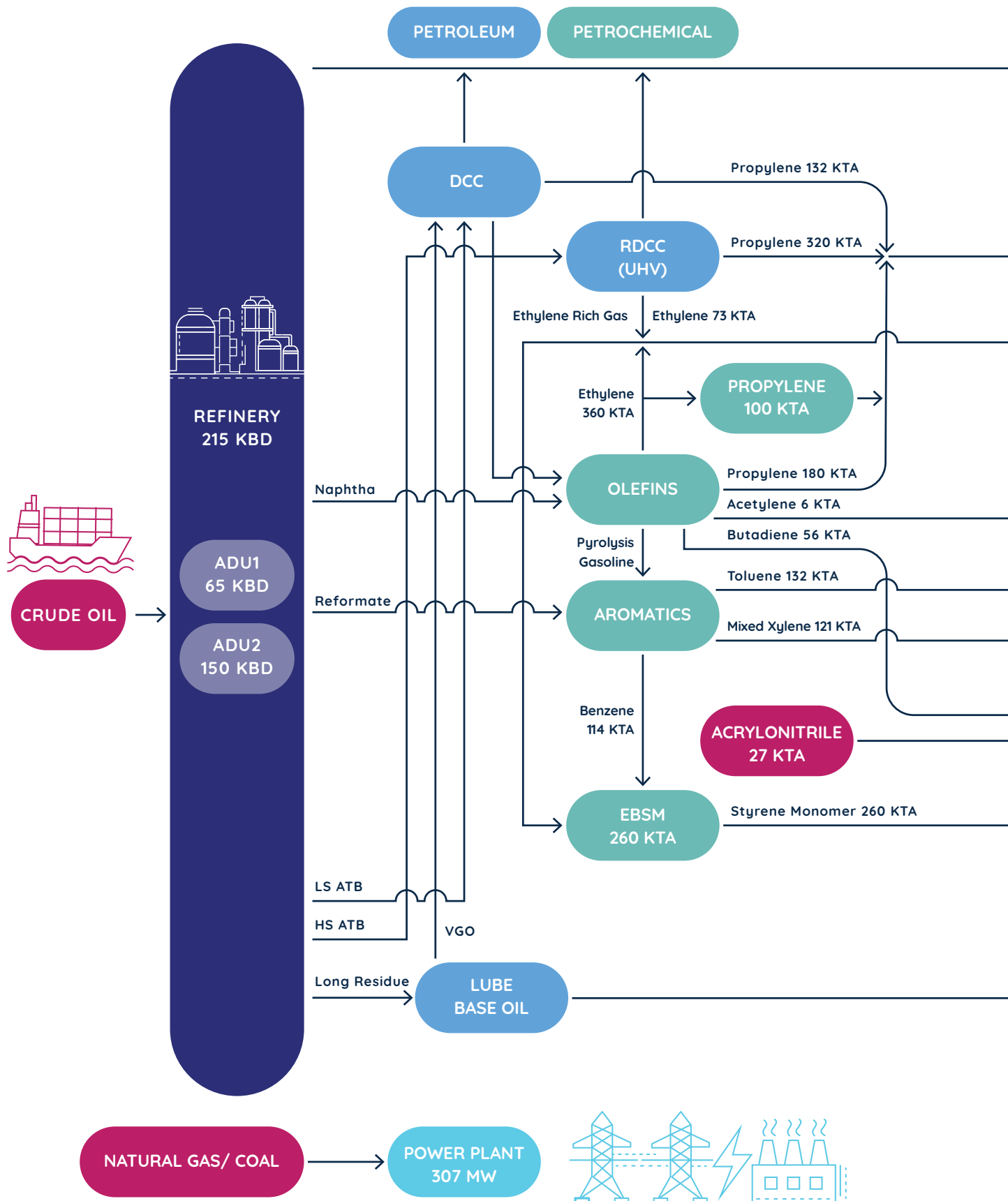
- **IRPC Industrial Park, Mueang District, Rayong:**

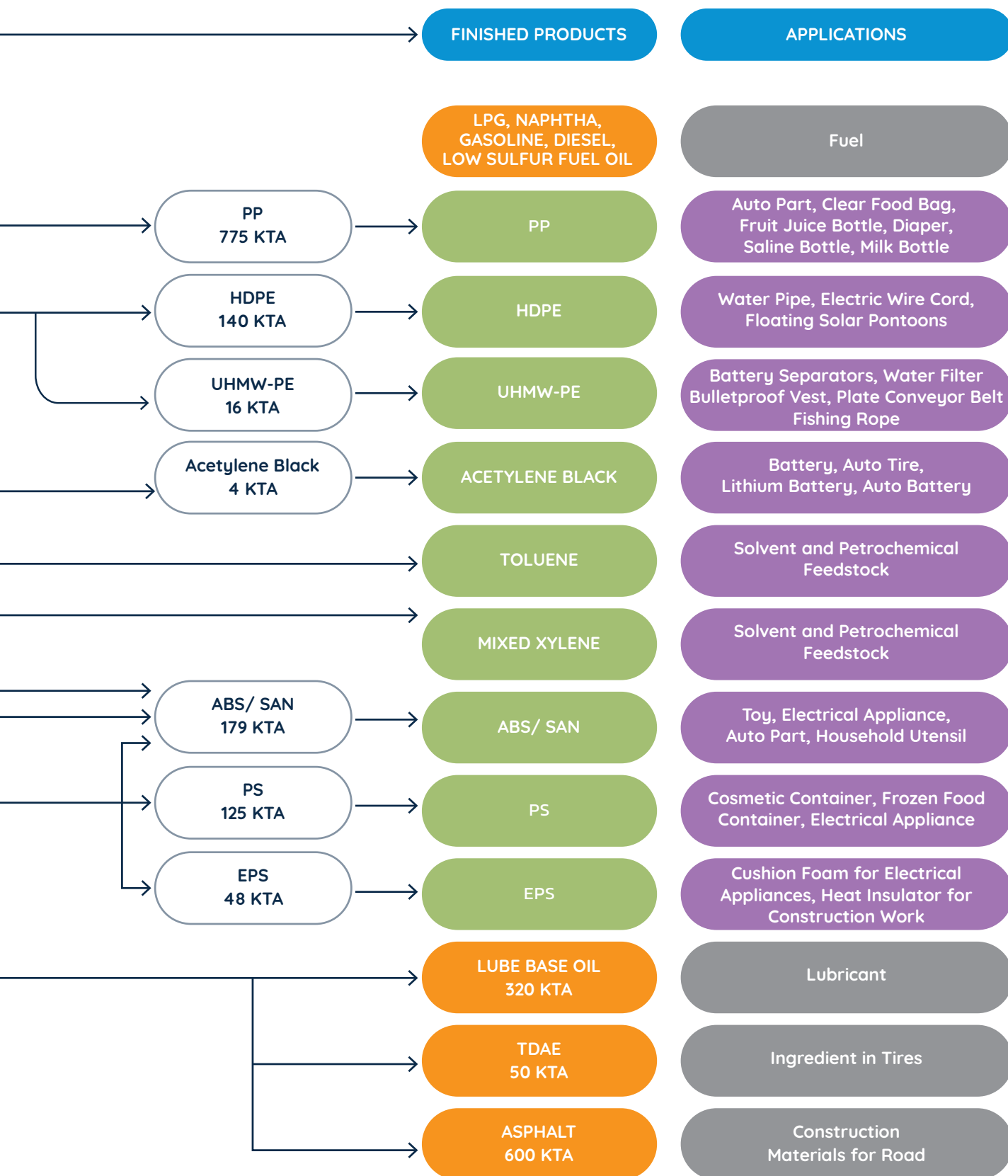
The IRPC Industrial Park offers a complete range of infrastructure and public utilities. This industrial park serves as a hub of industrial ecosystems and production chain connecting petroleum refinery and its upstream petroleum materials or products to the integrated petrochemical complexes and its direct downstream industries and products. The management approach encapsulates the very essence of new petroleum-petrochemical business model, but also pave the way for further expansion into new territories under the Eastern Economic Corridor (EEC), such as the integrated medical industry, modern automotive industry groups, as well as agricultural and biotechnology industries, to tap into high-tech industries.

- **Industrial Estate: 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. The joint venture aims to accommodate industrial clients that seek to take advantage of investment opportunities under the EEC development plan.

- **Other Assets:** IRPC owns a large plot of land of about 2,300 rai in Chana District, Songkhla, which can be developed into an industrial support base and commercial development project alongside a deep seaport project and a power plant project of the government. IRPC also owns other smaller plots of land in Rayong, Chiang Mai, and Lamphun.





Production Capacity and Volume

(Unit: KTA)

Products ⁽¹⁾	Production Capacity			Volume ⁽²⁾			Utilization Rate		
	2019	2020	2021	2019	2020	2021	2019	2020	2021
Petroleum									
Oil Refinery (KBD)	215	215	215	197	192	192	92%	89%	89%
Lube Base Plant	1,282	1,282	1,282	1,055	1,094	1,151	82%	85%	90%
Lube Base Oil	320	320	320	324	336	333	101%	105%	104%
Asphalt	600	600	600	553	606	655	92%	101%	109%
Petrochemicals									
Polyolefins	915	915	915	838	811	863	92%	89%	94%
- HDPE	140	140	140	124	117	119	89%	83%	85%
- PP	775	775	775	700	683	729	90%	88%	94%
Polystyrenics	433	433	433	361	395	408	83%	91%	94%
- ABS	119	119	119	67	86	89	57%	72%	75%
- SAN	105	105	105	89	93	102	85%	88%	97%
- PS	125	125	125	149	155	148	119%	124%	118%
- EPS	48	48	48	33	35	42	68%	73%	88%
Olefins ⁽³⁾	696	696	696	685	682	664	98%	98%	95%
- Ethylene	433	433	433	364	354	347	84%	82%	80%
- Propylene	732	732	732	666	662	701	91%	90%	96%
- Butadiene	56	56	56	53	56	52	96%	100%	93%
Aromatics	501	501	501	507	493	514	101%	98%	103%
- Benzene	114	114	114	112	105	113	98%	92%	99%
- Toluene	132	132	132	147	144	141	111%	109%	107%
- Mixed Xylene	121	121	121	146	141	146	120%	116%	120%
Styrene Monomer	260	260	260	244	283	263	94%	109%	101%

Notes: ⁽¹⁾ Total production capacity and volume of products consist of major products and other products.

⁽²⁾ Volume includes products used as raw materials in the plants.

⁽³⁾ Olefins production capacity at 696 KTA does not include olefins from DDC and RDCC plants.



Products

IRPC and its subsidiaries produce and distribute petroleum and petrochemical products, with details as follows:

Petroleum Products

Fuels

- Gasoline: is the fuel for gasoline 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 lead-free ULG 91, GSH 95 and GSH91 gasohol, and gasohol base, the last of which is used to manufacture gasohol and E20.
- Diesel: is the 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 6-20% biodiesel as per government policy to promote the use of alternative energy and to support and promote the increasing use of palm oil. In addition, the government has set a policy defining B10 diesel as standard diesel, while B7 and B20 as alternatives. IRPC began selling B20 since mid-2018, and B10 since the end of 2019.
- Fuel oil: is a fraction of crude oil with a high boiling point. Fuel oil is widely used in the industrial sector, transportation, and power generation.
- Liquefied petroleum gas (LPG): is 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 engine.
- Low sulfur fuel oil (LSFO): is used primarily by cargo ships, to comply with the International Maritime Organization’s requirement, which stipulates that the sulfur content in bunker fuel must be reduced from 3.5 per cent to 0.5 per cent.

Lube Base Oils

- Lube base oil: refer to heavy distillates used for producing different grades of lubricants. IRPC produces the following grades of base oil for various purposes and applications:

150 SN is the feedstock for the manufacture of lubricants for automotive and transport industries, etc.

500 SN is the feedstock for the manufacture of lubricants used in most types of vehicles.

150 BS is used in industries and engines involving high friction, such as those in trucks, locomotives, and seagoing vessels, etc.

In addition, 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 the manufacture of automotive tires and contain reduced Polycyclic Aromatic Hydrocarbons (PAHs), which is a carcinogen, thus contributing to consumer health and safety.

- Asphalt: is a compound of hydrocarbons and other organic substances, collectively known as bitumen. Thick and viscous, asphalt is the heaviest part from the crude oil distillation process. It is used for road construction and sealant.

Other petroleum products

- Naphtha refers to light distillates obtained from the oil refining process. It is a major petrochemical feedstock.

Petrochemical Products

1. Olefins

IRPC's olefin products consist of ethylene, propylene, and butadiene are feedstocks for the production of various plastic pellets, mainly polyethylene (PE) and polypropylene (PP).

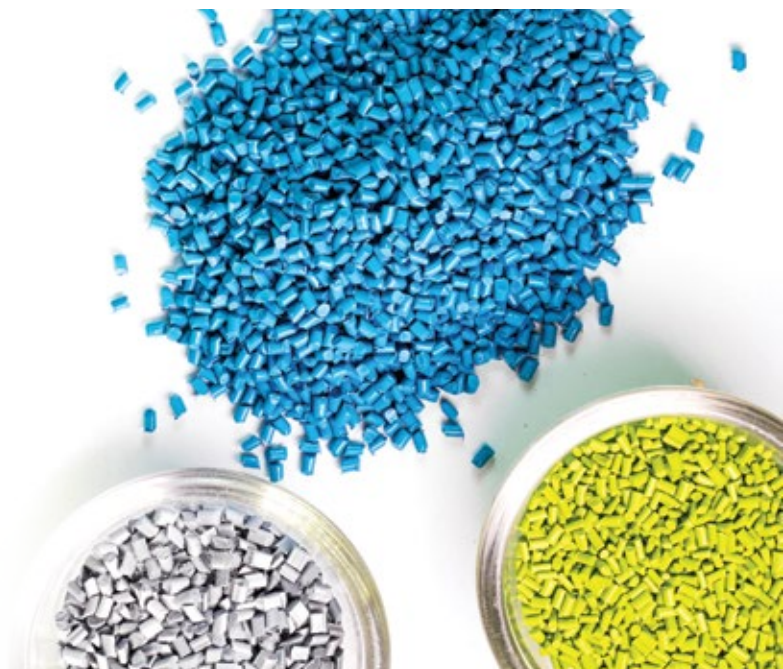
Furthermore, the olefins plant yields acetylene black as a by-product. This powder-like pure black substance has high electrical conductivity and is thus commonly used in the production of standard batteries and even lithium-ion batteries for electronics and electric vehicles. It is also an electrically conductive additive for polymers and rubber products.

2. Aromatics

IRPC's aromatic products consist of benzene, toluene, and xylene. They are used as feedstocks for manufacturing plants in IRPC's subsidiaries and some of them are sold to other related industries.

3. Polymer

IRPC produces and markets polymer products under the brand POLIMAXX. As downstream petrochemical products, polymers are the feedstock for the manufacture of a wide range of plastic products through extrusion process, such as packaging, houseware, electrical appliances, auto and motorcycle parts, medical equipment, and personal hygiene products, etc.



High Density Polyethylene (HDPE)

IRPC's HDPE resin 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, which require exceptional weather resistance.

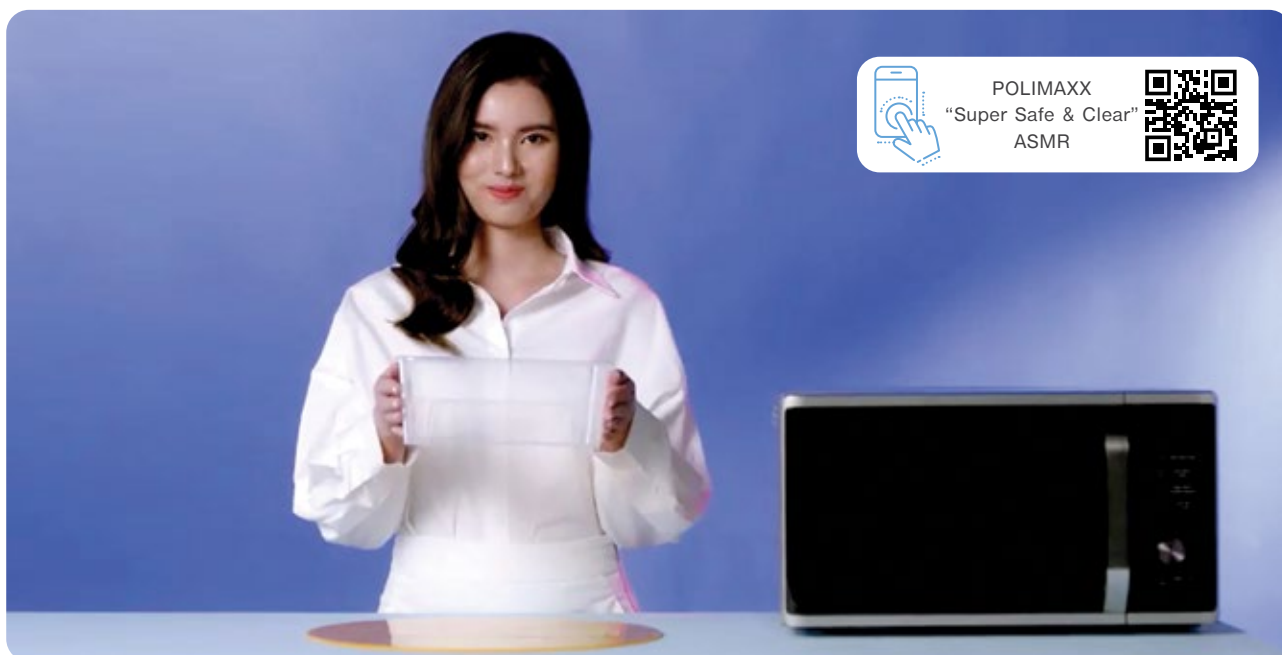
Polypropylene (PP) pellets

PP is widely used in industries, including packaging, electrical appliances, automotive parts, and medical equipment and apparatuses. IRPC produces PP Homopolymer, impact-resistant PP Block Copolymer, and extra transparent PP Random Copolymer. It also manufactures PP Composite which allows additives and color customization according to the customer's requirements.

Acrylonitrile-Butadiene-Styrene (ABS) pellets

IRPC produces several grades of ABS, each with its unique properties, such as high impact and super high impact resistance, high gloss, and high heat resistance, etc. Compatible with injection molding and sheet extrusion processes, ABS is commonly made into products that require durability, surface quality, and luster, such as parts for electrical appliances, automotive interior and exterior parts, houseware, sanitaryware, and children's toys. This is because ABS is strong, durable, and resistant to heat and high impact, exhibits colorfastness, and corrosion





resistant against chemicals and solvents, like thinner. It also produces high gloss and can be made into vibrant colors.

Acrylonitrile Styrene (SAN) pellets

Transparent, hard, strong, and tough, 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, as well as electrical appliances, such as fan blades and



blenders. In addition to the properties previously mentioned, SAN also produces glossy surfaces, has high rigidity, and is particularly resistant to shear force.

Polystyrene (PS) pellets

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 and is thus commonly used to make products that require transparency and structural integrity, such as refrigerator shelves and other houseware, etc. High Impact Polystyrene, on the other hand, 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 processes.

Expandable Polystyrene (EPS) pellets

IRPC mainly uses styrene monomer as feedstock for its EPS, with pentane gas as the blowing agent. The company uses no ozone-depleting CFCs. EPS has the following uses:

- Packaging, such as shock absorbing material in electrical appliance packaging, etc.
- Blocks, such as insulation blocks in the fishing industry's cold storage and modern constructions to save energy consumption in cooling and reduce construction expenses. EPS Blocks can also be used in decorative works, etc.

4. Specialty and Innovative Products

IRPC highly values continuous research and development through self-development to cater to customers' diverse requirements in the fast-changing world of business. The company aims to meet customers' every need and expectation with eco-friendly touch.

- **Green ABS:** is an innovative plastic pellet product conceived from IRPC's social responsibility and environmental stewardship. The company is the world's first producer of green ABS, derived from natural rubber. Currently, the company substitutes natural rubber for 10-40 per cent of synthetic rubber. This also contributes to an increase in domestic rubber prices.
- **Paralene:** is a bio-based polystyrene plastic consisting of 20% natural materials to reduce the use of petroleum-based materials in the production process. It is FDA tested and can be recycled like regular polystyrene plastics.
- **Chlorine Resistance Pipe:** is made from plastic pellets that can withstand the corrosiveness of chlorine. The pipe is ideal as high-pressure drinking water conduits and has a longer lifespan than regular pipes. This helps lower maintenance costs and ensures that drinking water is free of contaminants.
- **Medical-grade Polypropylene Random Co-polymer:** is transparent PP developed specially for medical equipment and related applications. It has been certified to various international standards, such as FDA US21 CFR 177.1520 of the United States as well as EU No. 10/2011 and European Pharmacopeia 3.1.6 and USP Class VI of the European Union.
- **Ultra-High Molecular Weight Polyethylene (UHMW-PE):** is an opaque white powder with as much as 10 times the 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 is suitable for a range of applications that require toughness, strength, and resistance to abrasion and chemical erosion.
- **Anti-dripping Additive** prevents polymer products from dripping when caught on fire. Made with nanotechnology, IRPC's anti-dripping additive disperses well in polymers and 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.
- **Pim-L and Pim-AL:** are special-grade acetylene black products that IRPC has developed in collaboration with NSTDA specifically for use as a carbon conductive additive in lithium-ion batteries.
- **Post-consumer Recycled compound:** is made with used plastics that have been modified and thus have properties comparable to virgin plastic pellets. Available in PP and PS, this type of compound can help solve plastic waste problems and reduce environmental impact.



POLIMAXX Medical
Grade Polymer



Domestic Polymer Producers and Capacities in 2021

Product	Company	Capacity	%
HDPE	IRPC Plc	140	7
	Thai Polyethylene Co., Ltd.	920	50
	PTT Global Chemical Plc	800	43
	Total	1,860	100
PP	IRPC Plc	775	34
	HMC Polymers Co., Ltd.	810	35
	Thai Polypropylene Co., Ltd.	720	31
	Total	2,305	100
ABS	IRPC Plc	179	65
	Ineos ABS (Thailand) Co., Ltd.	95	35
	Total	274	100
EPS	IRPC Plc	48	61
	Ming Dih Chemical Co., Ltd.	30	39
	Total	78	100
PS	IRPC Plc	125	34
	Siam Polystyrene Co., Ltd.	150	41
	Thai Styrenics Co., Ltd.	90	25
	Total	365	100

Feedstock Procurement

The main feedstock for IRPC's production process is crude oil. The company procures most of the crude oil from the Middle East through PTT and purchases some crude on the open market. In addition, the company also procure crude from domestic sources, which offer lower prices and transport costs. Crude oil from abroad is transported by large crude oil tankers to the deep sea port located in the same area as IRPC's refineries and production complex and fed into the company's production process, making feedstock management more efficient.

In 2021, IRPC's purchase of crude oil as feedstock accounted for 83% of its total raw materials. Sources of its crude oil are as follows: Middle East (Saudi Arabia, UAE, etc.), 67%, the Far East 15%, Domestic source 4% and from other regions 14%

Feedstock Purchased in 2021

Feedstock	Volume		Value		⁽¹⁾ %	
	Metric Ton	%	Million Baht	%	Domestic	Overseas
Crude oil	9,218,430	82.74%	160,353	79.01%	3.71%	96.29%
Natural gas	475,669	4.27%	5,854	2.89%	100.00%	0.00%
Diesel	437,784	3.93%	11,665	5.75%	100.00%	0.00%
Benzene	108,243	0.97%	3,104	1.53%	100.00%	0.00%
Biodiesel B100	104,745	0.94%	4,498	2.22%	100.00%	0.00%
Light naphtha	103,710	0.93%	2,157	1.06%	92.66%	7.34%
Jet	51,688	0.46%	1,169	0.58%	100.00%	0.00%
Ethanol	39,011	0.35%	1,260	0.62%	100.00%	0.00%
Acrylonitrile	32,024	0.29%	2,275	1.12%	100.00%	0.00%
Propylene	21,963	0.20%	799	0.39%	17.02%	82.98%
Others	547,603	4.92%	9,811	4.83%	57.38%	42.62%
Total	11,140,870	100.00%	202,945	100.00%	21.45%	78.55%

Note: ⁽¹⁾ The value ratio of crude oil is by source, while that of the other feedstocks are by supplier country.

Privileges under Investment Promotion Certificates

IRPC has been granted promotional privileges from the Board of Investment under the Investment Promotion Act B.E. 2520 for the following activities: Production of Compounded Plastic, Combined Heat and Power (“CHP”) Project, the Propylene (“PRP”) Project, EBSM Upgrading for ABS Specialties (“EBSM”) Project, Multi Product Pipeline (“MPPL”) Project, Polypropylene Resin (“PPE”) Project, Polypropylene Compound (“PPC”) Project, High Pressure HDPE Compound Project, Investment Project in Industrial Park and the production efficiency improvement project for energy efficiency of the refinery (“UHV”), the Floating Solar Project, and the PP Meltblown Project, which can be summarized as follows:

(a) Exemption from import duties and taxes for raw materials and essential materials, including machinery approved by the Board of Investment

(b) Exemption from corporate income tax on net profits derived from the promoted business operation for a period of 5–8 years, from the date of earning income.

(c) 50% reduction in the corporate income tax on net profits derived from the promoted business operation for a period of five years from the date of expiration of the benefits under (b), and

(d) Double deduction from taxable income of the cost of transportation, electricity, and water supply for ten years from the date of earning income from the promoted business operation.

In 2021, IRPC recorded revenue from sales (according to the separate financial statements) from business operations under investment promotion privileges, totaling Baht 129,717 million, an increase of 41% from the previous year. Of this, domestic sales accounted for Baht 83,493 million, and overseas sales Baht 46,224 million.



Market Overview and Industry Outlook

Crude Oil and Petroleum Products in 2021

In 2021, crude oil prices teetered under demand pressure from COVID-19, but rebounded and trending higher overall, averaging USD 69.2 per barrel. A USD 27 upswing compared to 2020 can be attributed to a marked improvement in situation as COVID-19 vaccines reached the general population in much of the world. Global oil demand rose by four to five million barrels per day but remained lower than pre-COVID-19 levels.

Oil prices began to climb at the beginning of the year after Saudi Arabia announced production cuts by 1 million barrels per day in February and March to curb market surpluses. Crude prices jumped by USD 10 a barrel by February. In the second quarter, US crude oil stocks began to decline, reflecting a market deficit. As a result, OPEC Plus decided at its July meeting to raise crude outputs by 0.4 million barrels per month from August through December. This was aimed to

achieve a relative supply-demand balance and price stabilization as excessively high prices could trigger shale oil production. Meanwhile, OPEC Plus monthly meeting to determine the group's production volumes, kept the markets guessing. The US crude production increased slightly by about 0.7 million barrels per day, compared to the beginning of the year. In late 2021, the US rig count rose to 470 from 400.

Due to tight market, crude inventories continued to decline to the pre-COVID-19 levels by early fourth quarter as oil prices exceeded USD 85 per barrel in October. This prompted the US and allies to announce they would release oil from their strategic reserves to put a damper on oil prices.

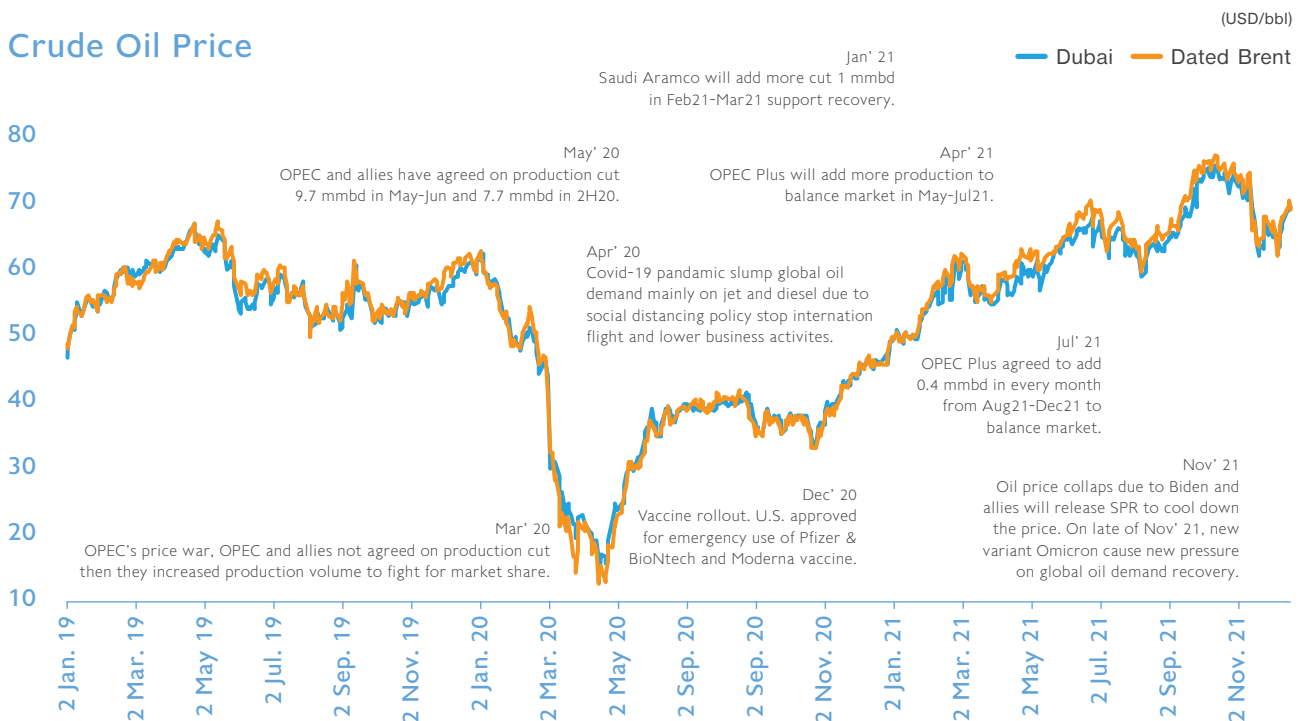
Towards the end of the year, the highly contagious Omicron coronavirus variant started spreading, causing crude prices to drop by USD 10 per barrel due to fears that the new COVID-19 strain would put pressure on oil demand again.

Crude Oil Price Forecast for 2022

Dubai crude oil spot price will likely move in the USD 67-75 per barrel range even though the oil market remains tight at the beginning of the year. OPEC Plus is expected

Factors Affecting the Price of Crude Oil in 2021

Crude Oil Price



to gradually ramp up production to pre-COVID-19 levels. In addition, the prospect of a US return to revive Iran nuclear deal will result in an additional of 1.4 million barrels of crude oil per day on the international markets. In the second half of the year, US production is expected to increase by at least 1 million barrels per day as producers anticipate high and stable prices. Oil demand will rise by four to five million barrels per day to the pre-COVID-19 levels this year. However, the pace of demand recovery remains uncertain depending on how the coronavirus pandemic might play out.

One issue that must be closely monitored is OPEC Plus currently low surplus capacity may not keep pace in a fast demand recovery scenario, pushing oil prices even higher.

Petroleum Business

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's fuels corresponds to the market situation. The company works closely with its subsidiaries to devise the most beneficial marketing and sales strategies.

IRPC's Customers and Distribution Channels are as follows:

- **Direct sale to industrial operators**, such as overland and maritime transportation operators, public transport operators, construction companies, among others, as well as sale to IRPC affiliates.
- **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 through their own networks and distribution channels to the end users.
- **Export** Exports are categorized into maritime exports to key markets in Asia, such as Singapore, Cambodia, and Vietnam, as well as overland exports to countries in Indochina, like Cambodia and Laos, and Myanmar and southern China, which accounted for 30 per cent of total sales.
- **Bunker** which refers to the sales of Automotive Diesel Oil (ADO) to ships docked at IRPC terminals.
- **Fishery** which refers to the sales of green diesel to the association of fishing fleet operators in territorial waters.

Table shows breakdown of IRPC's fuel product sales by distribution channels

Channel	%
1. Wholesales	18%
2. Exports	30%
3. Article 7 Retailers	50%
4. Industry	2%

Source: Petroleum Business Department, IRPC Plc

Competition Strategy

IRPC's primary sales strategy is to emphasize that its quality, clean petroleum products are manufactured through processes that meet high standards. The company was the first in this region to introduce the most advanced, real-time order processing system, called PDA on Mobile, which operates on the IRON platform. In addition, another strategy is to increase market share while maintaining suitable marketing margins. Services provided by IRPC are as follows:

- **Oil Depots** IRPC operates five oil depots around Thailand to cater to customers in all parts of the country, with round-the-clock services at Rayong and Phra Pradaeng depots. A retail center was established at Mae Klong Oil Depot in Samut Songkhram to serve customers in western and upper southern regions.
- **Transportation** IRPC operates fuel delivery trucks throughout the country, along with tanker vessels and berthing terminals for maritime customers.
- **Service Personnel** Customers have access to dedicated teams of sale agents, ticketing services for sales order from customers through SAP software, which allows information to be updated in real-time. SAP solutions improve accuracy and standardize processes, leading to enhanced efficiency and eliminating redundancies. Executives and operating staff can use the data obtained for further analysis and decision-making. IRPC has also introduced the IRPC Oil on Net (IRON) platform, developed to manage the sales of petroleum products electronically. IRON combines IRPC's sophisticated supply chain management with its total business solution approach to respond to customers' requirements for transaction convenience and augment IRPC's business efficiency. With continuing development, the system will be expanded to the company's 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, to ensure quality that customers can trust.

Petrochemical Market Overview in 2021

In 2021, the Thailand's petrochemical industry expanded marginally compared to the previous year, which can be attributed to the following factors: (1) Recovery of domestic demand and the manufacturing sector after COVID-19 crisis was brought under better control (2) Rebound in exports, and (3) Robust recovery in the world's major economies, like the United States and in Europe, buoyed by stimulus packages that boosted consumer spending. Manufacturers of food packaging, electric appliances and hygienic products and medical equipment staged a strong comeback in export destinations. This can be attributed to changing consumer behavior, particularly the trends towards home nesting, health consciousness. Meanwhile, the global supply chain disruption, including semiconductor crunch and shortages of shipping containers and cargo ships, and port congestion, significantly dampened demands in automotive, electrical appliance, electronics manufacturing sector and some export-oriented industries, etc.

Highly contagious COVID-19 Delta variant, which spread quickly in Southeast Asia, including Thailand, in the second and third quarters. In response, the authorities imposed strict quarantine and travel restrictions that also resulted in labor shortages in certain manufacturing sectors, forcing many factories to suspend production or cut output, which caused a sharp decline in the demand for plastic pellets.

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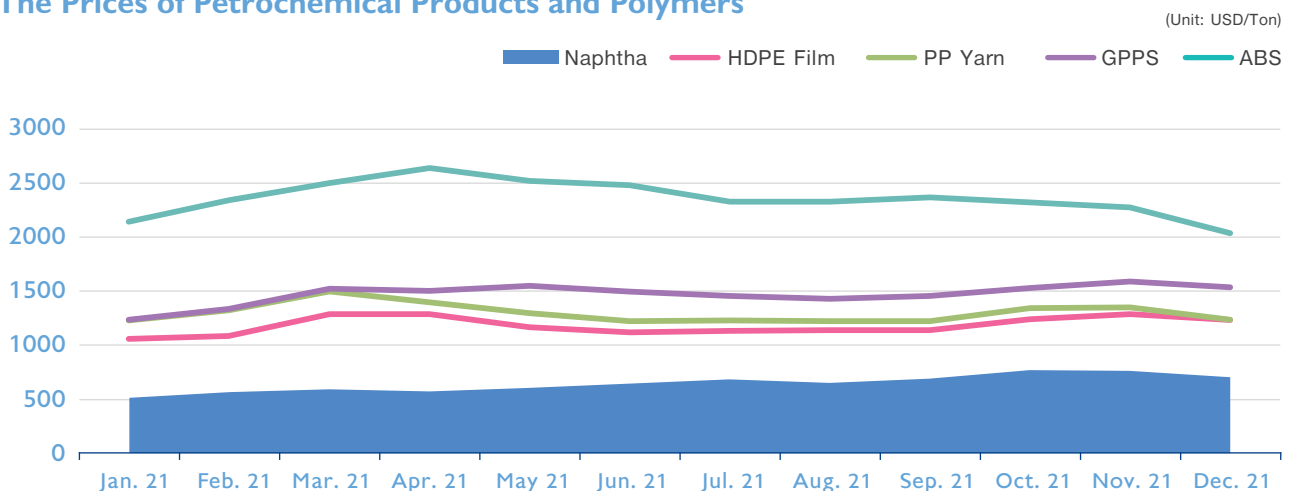
Competition intensified with a steady increase in production outputs in Asia Pacific, particularly in China, Vietnam, Indonesia, and Malaysia.

The prices of petrochemical and plastic pellets in 2021 were higher, closely tracking the rising prices of crude and naphtha, the main feedstocks. The price increase can also be attributed to recovering demand in line with the global economy as skyrocketing shipping costs since late 2020. Overall, the prices of petrochemical products and plastic pellets in the first half of the year were more stable than the rest of the year second half. This was due to two main factors:

First, there was a temporary supply shortfall in North America and Europe at a time when demand in those and nearby markets stayed in positive territory. Supply from other parts of the world was diverted there, pushing up prices in Asian markets.

Second, new production capacity in Asia scheduled for late 2020 to the beginning 2021 lagged behind. The increased output was not realized until the second half of 2021. The sharp rise in supply from China, South Korea, India, and Vietnam put enormous pressure on prices. The average price of polypropylene (PP) in 2021 was USD 1,303 per metric ton, an increase of about 35 per cent compared to 2020. High-density polyethylene (HDPE) prices were up 34 per cent to USD 1,177 per metric ton, regular-grade polystyrene was up about 40 per cent to USD 1,463 per metric ton, and ABS averaged USD 2,386 per metric ton, or about 57 per cent up from the previous year, while Naphtha prices more than doubled (about 70 per cent increase).

The Prices of Petrochemical Products and Polymers



Source: ICIS

Petrochemical industry outlook for the year 2022

According to forecasts by Office of the National Economic and Social Development Board, the global economy will continue to expand in 2022. Leading economies, led by the US, the Eurozone, the UK, Australia, and the Newly Industrialized Economies (NIEs), have gradually relaxed epidemic control measures as coronavirus vaccination reached the general population. Continuing development of new antiviral vaccines will also bolster public confidence. As a result, demand and economic activity will pick up approaching pre-COVID-19 levels. The Thai economy is also trending towards a strong recovery from a low base of 2021, supported by an upswing in domestic demand following the easing of the epidemic situation and mass vaccination. The country is opening to foreign tourists while exports of manufactured goods continued to grow apace as global recovery takes hold. However, Thailand must stay vigilant in dealing with COVID-19 pandemic, including latest antivirus vaccine development and distribution. A faster-than-expected rise in inflationary pressures could lead to a revision and tightening of monetary policy. A long-drawn-out supply chain disruption could threaten recovery.

The petrochemical and plastic industry is a huge and globally connected industry whose products are most widely used as feedstocks, or raw materials, in related and supporting industries. Its market size and growth rate tend to closely track global economic expansion and recovery. More specifically, the petrochemical and plastic market is determined by the recovering demand for plastic pellets of related industries, such as consumer goods, durables, electrical appliances, automotive as well as electric vehicles, and construction, etc.

In this regard, the global economic recovery forecasts for 2022 points to a sustained growth in demand for petrochemical products, averaging three to four per cent per year. Food packaging, personal hygiene and medical equipment, electrical appliances, and electronics and automotive have been identified as industrial segments with the potential for growth in the foreseeable future. However, in 2022, the supply of some petrochemical products in the Asia-Pacific region will continue to increase, especially in China, Indonesia, Malaysia, and India. Costs will fluctuate along with the global crude oil and naphtha, the main feedstock. The current anti-plastic use and related environmental issues affect future demand for petrochemical products and plastic pellets.

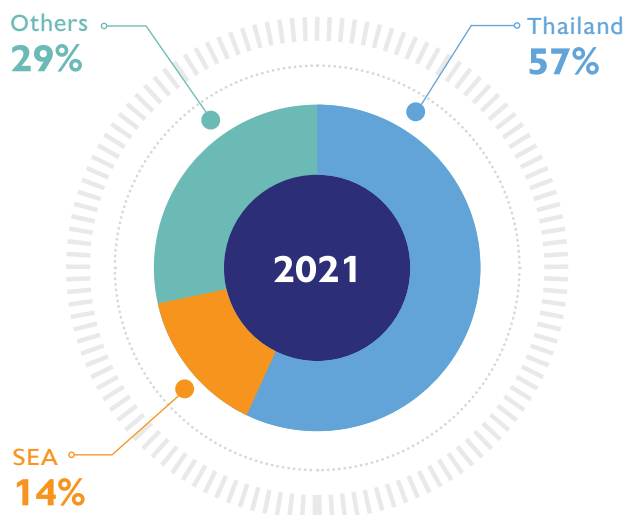
Petrochemical Business

Distribution Channels

In 2021, IRPC focus on the domestic market, which accounted for 57 per cent of the total sales. This figure was achieved through 17 capable and experienced authorized distributors under official appointment contracts, capable of providing customer services, and through direct sale to a select group of reliable customers with good credit history. This helped the company respond to customer requirements more quickly.

In terms of exports, IRPC primarily targeted Southeast Asian, or ASEAN, which had potential for sustained growth. In 2021, the company exported 14 per cent of its total plastic pellet sales to this market.

2021 Petrochemical product sold



Source: Petroleum Business Department, IRPC Plc

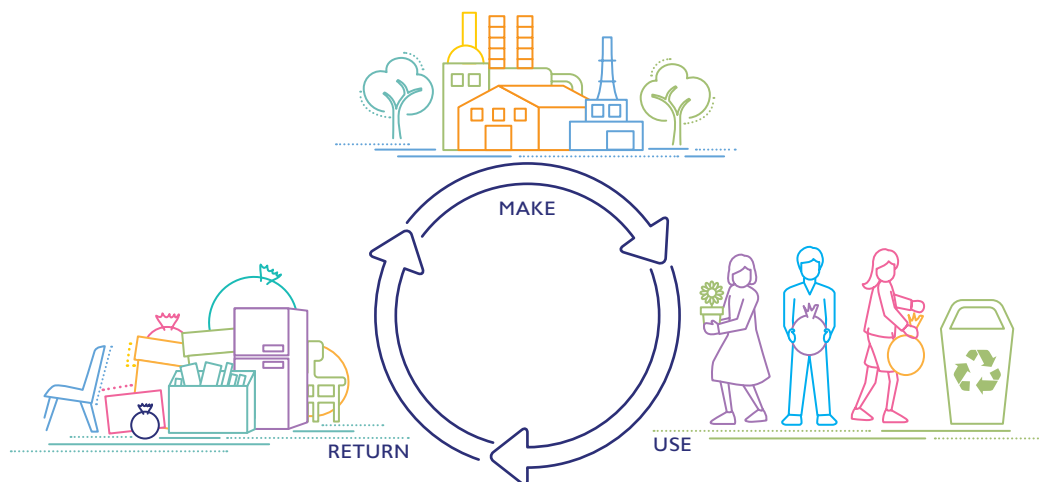
Competition Strategy

IRPC has achieved a delicate balance to address the needs of all stakeholders throughout the supply chain to the consumers. With its customer-centric approach, the company seeks to understand and take into consideration the entire customer journey. IRPC sees itself as a Solution Provider that walks the customer through sales presentation, customer services, consultation on raw material selection, production, use case testing, product development,

problem-solving and a range of after-sale services to increase efficiency and quality to the finished goods as well as to ensure customer satisfaction.

IRPC focuses on developing new market in industrial segments with high growth potential, such as those relating medical and healthcare, alternative energy, electronics, and appliances, etc. The company has introduced “Eco Solution” project in accordance with the Circular Economy or closed loop economy, concept, in which no waste is generated as everything is reused or turn into re-material, or raw material, to create new product under the Make-Use-Return concept. This economic model helps conserve

dwindling resources and make waste disposal redundant. In 2021, IRPC implemented the Eco Solution Model, for plastic waste management from the production processes to plastic waste after use to ensure efficient recycling throughout the value chain. Post-industrial recycled (PIR) from the production processes, and post-consumer recycled are recycled and reused. Through this initiative, IRPC in collaboration with KFC recycled and reused single-use plastic. Together with Baan Krong Nam, used water filters were recycled as raw material to produce environmentally friendly plastic products. Used polypropylene was recycled for the manufacture of battery cases in cooperation with Best Polymer Co., Ltd. etc.



Price Strategies

Prices of plastic pellets are linked to a range of external factors, ranging from the costs of feedstocks, like crude oil, naphtha, and monomers, to market conditions, demand and supply, domestic, regional, and global competition, product properties and government policies, etc.

IRPC prices its products based on these factors to ensure that the price is competitive, aligned with its market positioning of each product, and suitable for the geographical distribution area at any given time.

Product Diversity

IRPC produces over 1.2 million tons of plastic pellets annually. The plastic pellet products are categorized into HDPE, PP, PS, EPS, ABS, and SAN. The company also operates plant to manufacture color compounds and to

inject composites within an industrial complex where plants manufacturing diverse types of pellets are located. As all manufacturing plants are under the management of IRPC Group, customers are provided with the added convenience and flexibility to ensure their exacting specifications, such as those for the manufacture of electrical appliances or automotive parts, are met.

Product and Service Quality

IRPC's plastic pellet products are designed and developed to ensure suitability for use in the manufacture of parts and components in accordance with the required characteristics, functions, and details of the products, and in compliance with any given standards. Quality checks and quality controls extend across the entire production process, from the moment the feedstocks arrive and during production process to product inspection and testing before delivery to the customer.

IRPC has continually developed and improved its internal processes in order to comply with the requirements of various standards that are widely accepted and required by customers, such as Quality Management Standards (ISO 9001), Environmental Management Standards (ISO 14001), Occupational Health and Safety Management System (ISO/OHSAS 18001), Quality Management System for the Automotive Industry (ISO/TS 16949).

In addition, IRPC also provides after-sales service to provide technical advice, logistics options, solutions to problems, recommendations on plastic pellets suitable for use cases, production techniques, etc. The company also received the Standard for Corporate Social Responsibility (CSR-DIW) from the Department of Industrial Works for its plants manufacturing ethylene, polyethylene pellets, polypropylene pellets, and polystyrene pellets.

Communication and Marketing

IRPC has devised a marketing communication plan to promote its plastic pellet products under the brand

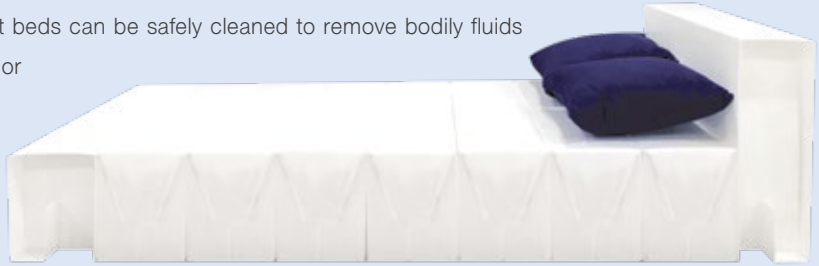
“POLIMAXX” for sustainable growth. The aim is to create top of mind awareness among select groups of customers and consumers. Such marketing communication is conducted through offline and online channels, including social media platforms, POLIMAXX FB Fan page, Instagram and TikTok, to promote products, build customer relations and positive brand and corporate image.

In 2021, IRPC organized marketing activities to strengthen relationships and good corporate image with customers, society, and communities, such as:

- Smile Mask Challenge campaign IRPC encouraged its employees to post selfies wearing melt-blown 3D Face Mask made with high-quality PP pellets from POLIMAXX via the brand's FB Fan page, Instagram or TikTok. The number of Likes they generated were converted into cash provided by the company and donated for the purchase of medical equipment for hospital facing shortage of medical supplies at the height of the COVID-19 pandemic.



- IRPC provided field beds made from POLIMAXX polypropylene (PP) plastic pellets. These beds have properties, such as strength, durability, waterproof, maximum load capacity of 200 kilograms, that can be regularly cleaned and disinfected and repeatedly used for patients for up to two years. These lightweight beds can be safely cleaned to remove bodily fluids and then disinfected by disinfectant or heat treatment, do not take up much space, is easily moved, assembled, and can be safely recycled.



- "IRPC Lucky Party 2022 - Magical Night of the Year": an online fun-filled activity to welcome the year 2022, joined by domestic customers, IRPC executives and employees in a virtual Live Party, including party games and celebrity appearances.



- The "IRPC-KFC single-use plastic waste management project," implemented for the second year running, was joined by the Mirror Foundation in collecting, sorting, cleaning, and delivery of plastic waste to our partner, Best Polymer International Co., Ltd. to produce PS Recycled Compound for use in the manufacture of watch presentation cases and jewelry boxes, etc.



Power and Public Utilities Businesses

Power and public utilities businesses were adversely affected by the COVIDS-19 pandemic. However, the global economy continued to expand in 2021. As coronavirus vaccines reached the general population, the authorities gradually phased out lockdown and travel restrictions. This resulted in a resumption of economic activity and growth in domestic spending. Together with the government's economic stimulus measures, the economy returned to growth territory albeit at a lower rate than in previous quarters. With this positive turn of event, IRPC's customers resumed full operations, its power and public utilities revenues returned to pre-COVID levels.

However, the positive outlook for a robust global economic recovery suffered a setback with the outbreak of Omicron variant, for which little was known about its contagiousness and whether the current available vaccines would be effective against it. Some countries re-imposed lockdown and travel restrictions. This could dampen Thailand's economic recovery in the first quarter of 2022.

Port and Storage Tank Businesses

In 2021 the COVID-19 pandemic had negative impact leading to economic slowdown in Thailand and in other countries around the world. IRPC believes that the situation will ease up and start to turn around in the second quarter of 2022. A strong economic recovery will lead to the establishment of large-scale production base for industries in this region. IRPC's port and storage tank businesses stand to benefit from an increase in cargo traffic as imports and exports begin to pick up in earnest.

Port Business

Positive factors relating to the government's investment infrastructure projects, such as the construction of electric train system, as part of an economic stimulus package to ensure a strong recovery. COVID-19 has been brought under better control as mass vaccination gathered momentum. The country's tourism and the services sector are expected to stage a solid comeback, encouraging more investments.

Storage Tank Business

IRPC is in the process of upgrading storage facilities to accommodate additional types of products. The company's investment plan calls for an upgrade in pipelines and storage tanks to better utilize existing assets. Once completed, the storage facilities will be able to provide external customers with storage tanks for crude oil, special-grade diesel as well as basic chemical products.

Property Management Business

A 90 per cent cut in land and building taxes was announced as a relief package due to the COVID-19 pandemic, according to the 2021 decree to reduce taxes for certain types of land and buildings (No. 2), dated January 31, 2021. In August 2021, the IRPC paid Baht 9 million in land tax. If no tax relief policy is announced, in 2022, the company will be subject to land and building taxes at a reduced rate of 75 per cent of tax payable.

In 2022, the government announced the use of the same tax rate, according to the royal decree determining land and building tax rates for 2022 and 2023 tax years, dated December 13, 2021.

As for the development of the WHA Industrial Estate Rayong in collaboration with WHA Industrial Development Public Company Limited (WHAID), the project development experienced a setback in 2020 due to COVID-19 pandemic. This caused a delay in the implementation of the public hearing process. As a result, the project development plan is delayed for a period of one year.



Operating Assets

Major Fixed Assets

The major fixed assets used in IRPC and its subsidiaries' operations consist of refineries, petrochemical plants, equipment, machinery, and land. As of the end of 2021, the net property, plant, and equipment was worth Baht 109,067 million, as detailed below:

(Unit: Million Baht)

	Property, plant, equipment (cost)	Net value	Obligation
1	Machinery and piping systems	152,185	None
2	Buildings and building improvements	41,458	None
3	Land and land improvements	11,795	None
4	Tools and factory equipment	3,509	None
5	Furniture, fixtures, and office equipment	1,243	None
6	Vehicles	671	None
	Total	210,861	
Add	Assets under construction and assets under installation	4,063	
Less	Accumulated depreciation	(105,246)	
	Allowance for impairment	(611)	
	Total property, plant, and equipment	109,067	

Investment Property

At the end of 2021, IRPC's net investment property, consisting of property and buildings that were not major operating assets, after depreciation and allowance for impairment, totaled Baht 922 million.

Intangible Assets

At the end of 2021, IRPC's net intangible assets totaled Baht 761 million, consisting of:

- 1) Net computer software fees of Baht 610 million with amortization periods of 5-10 years.
- 2) Net dredging expenses of Baht 151 million. This is a sea channel dredging to get the deep sea port ready for cargo ships. Amortization periods were spread over 10-20 years.

Strategic Projects

Global recovery may have gained momentum in recent months but it can still be delayed by pandemic uncertainty. In the mean time, Megatrends move relentlessly forward, changing the way we live and do business.

1. Rapid technological development and innovations in electric vehicles, proliferation of digital technologies and rise of AI robotics are some of the most obvious manifestation of these trends.
2. Demographic change accelerates as a result of mass migration, rapid urbanization, increase in middleclass income and graying population, etc.
3. Shifting power and the emerging new world order lead to growth, formation of economic blocs and cooperation among developing countries, growing importance of rules-based international trade and investment, etc.
4. Environment pressure gives rise to environmental rules, regulations, enforcement of standards, depletion of resources, quest for renewable energies and low-carbon society, etc.

Taking into consideration the abovementioned factors, coupled with the conclusion of IRPC's vision: "Leading Integrated Petrochemical Complex in Asia by 2020," the Board of Directors approved the guidelines for the President and Chief Executive Officer to establish new corporate

vision and mission for 2030 that aligns with PTT's new vision to steer IRPC towards a business direction that will put the company in a position to maximize benefits from Megatrends as well as to build confidence among its stakeholders as follows:

Vision

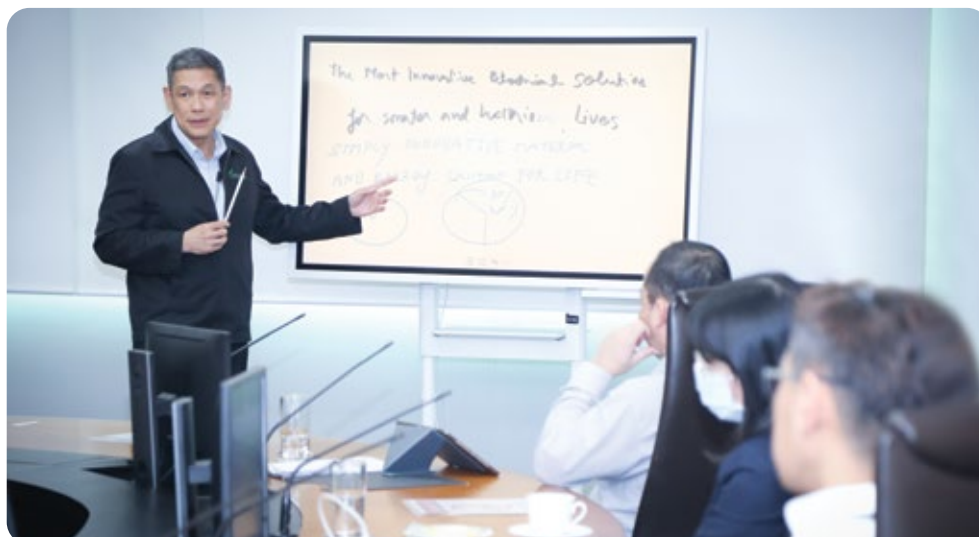
"To Shape Material and Energy Solutions in Harmony with Life"

Mission

"To Deliver with Innovations the Better Attributes and Solutions of Sustainable Material and Energy for the Future"

For IRPC to live up to the new vision and mission, strategic framework and business direction have been created with an emphasis on Core Uplift based on expertise in its existing businesses and diversify into Adjacent Businesses and to be on the lookout for Step Out Businesses. All this with the aim to drive growth under the new vision and mission to transform IRPC into a company that provides innovative material and energy solutions in a creative and sustainable manner while meeting the requirements of the customers and suppliers.

Mr. Chawalit Tippawanich, President and CEO, and other executives established the organization's vision and long-term strategy through 2030.



IRPC' New Vision



- On Material Solution front, Advanced Materials, especially those relating to Health & Life Sciences and Circular Economy, will be the focus of IRPC's new business strategy.
- On Energy Solution, the company's main thrust will be towards creating innovations and development of Future Energy and Energy Storage systems.

The new vision and mission will also guide IRPC in its investment to put the company on track towards future growth., in collaboration with domestic as well as foreign partners through JV, M&A, New S-curve, Startup, etc. At the same time, IRPC will stay committed to environmental stewardship, corporate responsibility towards communities and the society at large that our stakeholders have come to expect from us.

The quantitative financial and sustainability goals that IRPC aims to achieve by 2030 are as follows: EBITDA Baht 35,000 million, greenhouse gas emission reduction by 20 per cent from its business plan. To achieve the targets, the company needs to create new revenue streams and raise new businesses' share in its total income while maintaining

the strength of its existing main businesses. Metaphorically speaking, the key is to keep both new and old revenue streams flowing while IRPC embarks on a Transition to the New Horizons.

To ensure targets will be met, IRPC has set key success factors, or enablers, to to drive the strategy as follows:

- Revamp Human resource management, create core value for change.
- Set budget plan and allocate funds for investment in new businesses.
- Deploy digital technologies to optimize management and operational efficiency.
- Engage capable advisers and experts for new business investment projects.

IRPC Public Company Limited announces its commitment to deliver creative products for a fulfilling life with a focus on innovative materials and sustainable energy management.

“Shape what’s good for tomorrow”

Key Strategic Projects

IRPC Strategic Transformation Roadmap



IRPC's Strategic Framework



IRPC envisions three strategic approaches: Core Uplift based on existing internal strength and expertise to expand into Adjacent Businesses in a different value chain, while also on the lookout for Step Out Businesses to drive the company's growth guided by the new vision and mission to transform the company into a sustainable material and energy innovation company. Key strategic projects are as follows:

1. Strengthen IRPC Project by using the Recovery Transformation Service (RTS) investment project management system to improve work processes, focusing on cross functional systems and project tracking tools. including effective personnel management structure leading to an increase in investment project results (ROIC) in 2021, which can generate an additional income approximately Baht 1,500 million from the goal of Baht 1,040 million.

2. Increase Proportion of High Value-added Products

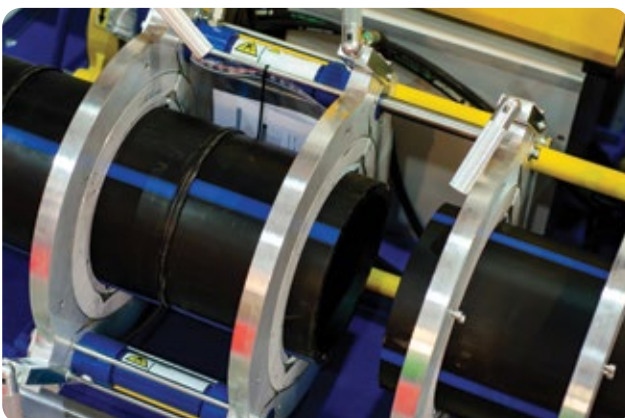
or specialty products to IRPC's product portfolio with emphasis on high-growth products by introducing Cross Function, or Agile New Way of Working (ANT), to improve speed to market and respond to customers' requirements. **In 2021, the company's product portfolio was weighted with 20% speciality products.** The company has considered reorganizing product portfolio based on applicaiton so as to meet customers' needs and to enter the markets to satisfy future demands for high value products as follows:

- **Medical and Hygiene** where the main products, PP and PS, create the highest market value through the development of products, such as Meltblown, Spunbond, PP Medical Packaging, etc.
- **Automotive** where PP, PP Compound, ABS and CCM, have the lion's share in terms of high market value. At present, IRPC is enterping this market through partners with connection to the automotive industry, such as Mytex and IRPC A&L.
- **Electronic and Appliance** This product group includes PP, ABS, CCM, SAN and GPPS. & HIPS, which belong to highly-competitive market. IRPC has worked hard to develop products that closely meet customers' needs.

- **Construction HDPE Pipe and EPS products** are required to meet international standards and customer services are a major factor in keeping existing customers and winning over new ones.
- **Others Products** in this group include UHMWPE and ZnO, which have been developed into high value-added, premium products. Focus is on the strategy of entering the market as a new player backed by brand awareness campaign and high quality standards.

3. Ultra Clean Fuel (UCF) Project To produce Euro 5-compliant diesel meet the government-imposed emission standards as well as to improve IRPC's competitiveness in domestic and foreign markets that require higher quality diesel. The Board of Directors has approved the Final Investment Decision (FID) in July 2021. The project is currently under construction and expected to be completed in the first quarter of 2024.

4. Non-woven fabric production project (Nonwovens) IRPC has established Innopolymed, a joint venture between the company holding 60% stake and Innobic (Asia) with 40%, to build a non-woven fabrics factory, to enter the Medical Consumables market. The factory is expected to be operational in the second quarter of 2022.



5. New Organization Agile Human (NOAH) Program is to develop the human resource management system to ensure efficient and flexible management, cultivating corporate values, empowering employees, recruiting new talents, creating motivation, fostering leadership, leading to positive corporate culture and enhancing IRPC's growth through the following operations:

- 1) The most cost efficient operating model at speed is incorporated into the company's operations. Review job designs to correspond with targeted workforce. Emphasize use of technology and digitalization as well as analytics. Improve compensation system and welfare benefits to achieve changes in cost structure.
- 2) Adopt Learn & Unlearn, Upskill and Reskill approaches which provide IRPC's employees at all levels who wish to continue working with the company access to basic skills adjustment courses for better adaptation to new and modern working environment.

- 3) Adopt new performance management and rewarding approach to promote and create positive corporate culture to ensure IRPC will be led by talented personnel under the concept "Top Quartile People for Top Quartile Performance Organization."
- 4) Talent Acquisition to expand IRPC's talent pool at all levels to support IRPC's business missions.
- 5) "Choices of Life through Package" is offered to all employees as an opportunity to design their own early-retirement packages and alternatives when leaving the company the mandatory retirement age. IRPC makes sure that its employees are well taken care of with suitable support from the company.

Details of the implementation of the New Organization Agile Human (NOAH) Program are available under "Human Resources Management" Page 246



Financial Strategies

IRPC aims for the efficiency in financial management, namely reasonable and suitable financial structure, funding and financial costs that is able to support the company's operations and investment projects. This also includes complete, correct, and up-to-date information disclosure to shareholders, analysts, investors, financial institutions and the general public on a regular basis. The major financial strategies in 2021 are listed below:

Short-term Loans:

- Renewal of loan agreement between IRPC and PTT Public Company Limited for efficient management of financial liquidity between companies in PTT Group, with a borrowing loan limit of Baht 10,000 million and Baht 1,500 million in lending amount.
- Renewal of Baht 19,640 million Domestic Letter of Credit (DLC) with local financial institutions for crude oil payment period extension with PTT Public Company Limited to 90 days.

Financial derivatives procurement

Procurement of financial derivatives is one way of structuring foreign-currency finances with loans/ debentures/ derivatives in order to balance the foreign-currency profit (Natural Hedge).



Group Shareholding Structure

Business Structure and Shareholding

IRPC Public Company Limited



Petroleum
Business

Subsidiary

99.99%

IRPC Oil Company Limited
Refined product distribution

Indirect Subsidiary

99.99%

Rakpasak Company Limited
Marine logistics



Petrochemical
Business

Subsidiary

60.00%

Innopolymed Co., Ltd.
Production and distribution
of non-woven fabric products
and medical consumables

Other co-investors:
Innobic (Asia) Co., Ltd. 40%

Joint Venture

50.00%

**IRPC Polyol Company
Limited**

Production and
distribution of polyols

**Other joint venture
partners:**
PCC Rokita SA 50%

Associated Company

25.00%

**UBE Chemicals (Asia)
Public Company
Limited**

Production and
distribution of
petrochemical products

Other partners:
UBE Industries Co., Ltd. 74%,
others 1%

57.48%

IRPC A&L Company Limited
Polymer distribution

Other co-investors:
Nippon A&L Co., Ltd. 39.99%,
others 2.53%

50.00%

**Mytex Polymers
(Thailand) Co., Ltd.**

Production and
distribution of
chemicals

**Other joint venture
partners:**
Japan Polychem
Corporation 50%



Other
Businesses

55.00%

iPolymer Co., Ltd.
Distribution of polymers
and chemicals via E-commerce

Other joint venture partner:
Guangzhou Saiju Performance
Polymer Ltd. 45%

Subsidiary

99.99%

**IRPC Technology
Company
Limited**
Vocational school

Joint Venture

50.00%

Vajira Lab for Society Co., Ltd.
Testing services for medical
equipment

Other partners:
Navamindradhiraj University 50%

Associated Company

48.99%

**IRPC Clean Power
Company Limited**

Production and distribution of
electricity and steam

Other co-investors:
Global Power Synergy Plc. 51%

Other investment

15.00%

**Guangzhou Saiju
Performance Polymer Ltd.**
Distributor of polymers
and chemicals through
E-commerce in China

40.00%

**WHA Industrial Estate
Rayong Company Limited**
Industrial Estate Development

Other co-investors:
WHA Industrial Development
Public Company Limited 60%

20.00%

**PTT Energy Solutions
Company Limited**
Engineering consultant

Other joint venture partners:
PTT Plc. 40%,
PTT Global Chemical Plc. 20%
and Thai Oil PCL. 20%

15.00%

**Sarn Palung Social Enterprise
Company Limited**
Supporting execution of social
enterprises

13.04%

**Rayong Acetylene Company
Limited**
Production and distribution of
acetylene gas

Major Subsidiaries, Joint Ventures and Associated Companies

Subsidiaries

- **IRPC Oil Co., Ltd.**, a subsidiary of IRPC, with 99.99% shareholding and Baht 2,000 million registered and paid-up capital, is a distributor of oil products from IRPC's refinery with five depots in different regions to support product distribution.
- **IRPC Technology Company Limited** or "IRPC Technological College", a subsidiary of IRPC, with 99.99% shareholding and Baht 750 million registered and paid-up capital, is an educational institution in industry and technology at Vocational Certificate and High Vocational Certificate levels in Commercial and Factory Mechanics.
- **Innoplymed Co., Ltd.**, a subsidiary of IRPC, with 60% shareholding while Innobic (Asia) Company Limited holds 40% shares, with registered and paid-up capital of Baht 182 million, was established to produce and distribute non-woven fabric and medical consumables.
- **IRPC A&L Company Limited**, a Styrenics polymer supplier, with Baht 10 million registered and paid-up capital, is a subsidiary of IRPC with 57.48% shareholding, while Nippon A&L Co., Ltd. holds 39.99%, and others hold 2.53%.
- **iPolymer Company Limited (iPolymer)**, a subsidiary of IRPC with 55% shareholding, along with 45% shares being held by Guangzhou Saiju Performance Polymer Ltd., has registered and paid-up capital of Baht 120 million, was established to trade in plastic pellets and chemicals via E-commerce in Thailand.

Joint Ventures

- **IRPC Polyol Ltd.**, with IRPC and PCC Rokita SA each holding 50% shares, has a registered and paid-up capital of Baht 370 million. IRPC Polyol, produces and distributes polyol products, consisting of polyester and polyether polyol used as feedstocks for the production of polyurethane for the manufacture of products such as foam used to make furniture, shoe liners and thermal insulation.

- **Mytex Polymers (Thailand) Co., Ltd.**, with IRPC and Japan Polychem Corporation each holding 50% shares, with registered and paid-up capital of Baht 120 million, was established to engage in the manufacture and distribution of specialty polypropylene plastic pellets.
- **Vajira Lab for Society Co., Ltd.**, with IRPC and Navamindradhiraj University each holding 50% shares, and registered and paid-up capital of Baht 22 million, engages in testing services and certification of medical equipment.
- **WHA Industrial Estate Rayong Co., Ltd.**, with IRPC holds 40% shares and WHA Industrial Development Public Company Limited holds 60%, and Baht 680 million of registered and paid-up capital, operates industrial estate development business.

Associated Companies

- **IRPC Clean Power Company Limited (IRPC-CP)**, with 48.99% shareholding of IRPC and 51% shareholding of Global Power Synergy Plc, is a small power producer (SPP) with a capacity of 240 megawatts.
- **UBE Chemicals (Asia) Public Company Limited (UCHA)**, with 25% shareholding of IRPC, 74% shareholding of UBE Industries Limited and 1% shareholding of others, is an international market leader in caprolactum and Nylon 6, with a capacity of 130,000 tons and 75,000 tons per year, respectively.
- **PTT Energy Solutions Company Limited (PTTES)**, with 20% shareholding of IRPC, 40% shareholding of PTT Public Company Limited, 20% shareholding of PTT Global Chemical Public Company Limited, and 20% shareholding of Thai Oil Public Company Limited, is an engineering consulting firm.

Relationship with Businesses of the Major Shareholder

The Company's major shareholder is PTT Public Company Limited (PTT), a fully-integrated petroleum and petrochemical business operator with upstream to downstream supply chain through PTT's own and others' business through its subsidiaries, namely, petroleum exploration and production, oil refining, and petrochemical businesses. Currently, PTT is the major shareholder of Thailand's three refineries, comprising PTT Global Chemical Public Company Limited (45.18%), Thai Oil Public Company Limited (45.03%), and IRPC Public Company Limited (45.05%). In petroleum and petrochemical business operations, IRPC has transactions and cooperates with PTT and its subsidiaries. For example, IRPC purchases most crude oil through PTT for efficiency enhancement and cost reduction, manages oil and/or product price hedging through PTT, and receives and provides financial assistance for mutual liquidity management. In addition, IRPC has transactions associated with the trade in feedstocks, petroleum products and petrochemical products, with PTT Group of companies.

Shareholder

Top 10 Shareholders

List of the top 10 shareholders of the Company as of the book closing date September 8, 2021, are as follows:

Number	Shareholder	Number of shares	Shareholding (per cent)
1	PTT Public Company Limited ⁽¹⁾	9,206,674,600	45.05
2	Thai NVDR Company Limited ⁽²⁾	1,574,372,943	7.70
3	Siam Management Holding Company Limited	613,020,000	3.00
4	Social Security Office	492,786,300	2.41
5	SOUTH EAST ASIA UK (TYPE C) NOMINEES LIMITED	367,120,574	1.80
6	STATE STREET EUROPE LIMITED	184,066,020	0.90
7	Mr. Suphot Saphaweechaikul	137,000,000	0.67
8	N.C.B.TRUST LIMITED-POLUNIN DEVELOPING COUNTRIES FUND, LLC	133,610,493	0.65
9	Mr. Surachai Leelathanamongkol	123,297,700	0.60
10	Mr. Worapong Asawanives	88,889,200	0.44

Notes: ⁽¹⁾ PTT Public Company Limited as a major shareholder of the Company took part in formulating the Company's management and operating policies, which have been approved by the Board of Directors. As of December 31, 2021, there are 4 directors or executives of PTT Public Company Limited out of the total 14 directors of the Company.

⁽²⁾ Thai NVDR Company Limited is a subsidiary of the Stock Exchange of Thailand, which operates business by issuing Non-Voting Depository Receipt (NVDR) securities listed on the Stock Exchange of Thailand. Such securities are for sale to investors and the proceeds from the sale of NVDR are then invested in Thai underlying securities that are listed on the Stock Exchange. Investors who are NVDR holders are entitled to benefits, such as dividends, rights to subscribe to new shares just like shareholders of a listed company, but do not have voting rights at the shareholders' meeting. To learn more about investors in Thai NVDR Co., Ltd., go to: www.set.or.th



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IRPC's intensive risk management operations reflect its robust internal control, risk review and monitoring processes as well as constant assessment of current and future risks that may arise. Such risk management activities also cover environmental and social risks. IRPC's risk management is guided by corporate governance that keep corporate risks at an acceptable level. It is also one of the key mechanisms that make it possible for IRPC to consistently achieve its business goals.

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Risk Management



Risk Management Policy and Plans

IRPC gives priority to coordinated enterprise risk management as an efficient and effective tool to address uncertainties arising from internal and external factors. This is to reduce the likelihood of and mitigate adverse effects of threats as the company strikes out in search of opportunities and sustainable growth. The company has updated its risk management structure with the appointment of Risk Management and Internal Control Committee, consisting of senior executives and chaired by the Chief Executive Officer and President. The Hedging Committee was also created to monitor and analyze market movements, hedge against price volatility and uncertainty of oil supply, raw materials, petroleum and petrochemical products, shipping rates as well as risks associated with financial transactions. In addition, the Board of Directors appointed the five-member Risk Management Committee to formulate policies, provide oversight for enterprise risk management to make sure the company's principal risks remain within risk appetite. To inspire the confidence of stakeholders, the Risk Management Committee ascertains that IRPC risk management is in compliance with ISO 31000: Risk Management - principles and guidelines and COSO - Enterprise Risk Management, in conjunction with the Principles of Good Corporate Governance, Internal

Control System, Business Continuity Management System, Anti-Corruption Guidelines, Sustainability Management, and Operational Excellence Management System.

The company promotes risk management as an integral part of the corporate culture as well as instilling in its workforce a risk management mindset. Executives and personnel are expected to have good working knowledge and understanding of risk management systems relevant to their lines of work to achieve the set objectives. They start with identifying, analyzing, assessing and recommending appropriate risk management measures for approval by relevant committees. Such risk management activities must be closely monitored, updated, adjusted, and reviewed as needed. Risk management knowledge must be disseminated through all available channels within the company. The company currently promotes Governance, Risk Management & Internal Control, Compliance (GRC) to enhance risk management efficiency and reduce redundancy while ensuring risk management information is shared to maximize effectiveness.

Risk Factors Facing IRPC's Businesses

Summary of risk management

Price Volatility Risk

As signs of Thailand and the world's economic recovery from the worst of the COVID-19 pandemic began to take hold, against the backdrop of the burgeoning US-China trade war, Organization of Petroleum Exporting Countries (OPEC) and OPEC Plus, the world's crude oil suppliers, these emerged as major factors driving fluctuating crude oil prices that have a direct implication on IRPC's cost of production and therefore its revenue and profits.

In the second half of 2021, the world's economic growth began to pick up as major cities around the world reopened for business. The commodity-petroleum product spread

widened significantly compared to the previous year, pointing to a positive outlook. IRPC has undertaken the following risk management approach to cushion impacts:

- 1) Procured new crude oil types for use as feedstock for production, thereby improving the flexibility to choose from a range of crude oil to lessen impact from price volatility in any circumstance
- 2) Closely monitored and analyzed crude oil price movements triggered by events around the world, conducted price projections, reported to the management to keep them informed on a bi-weekly basis, or called an urgent meeting as needed to ensure effective response in a timely manner
- 3) Managed inventory of crude oil, petroleum, and petrochemical products at optimal levels to prevent impact from Stock Loss
- 4) Entered into derivative contracts with set targets on price, volume, and timeframe for risk management



that were appropriate for and consistent with IRPC's business plan under the supervision of the Hedging Committee and the Risk Management Committee.

Operational Risk

IRPC has implemented operational risk management, covering the production and auxiliary processes, which are of vital importance to the company, but at the same time may have an impact on all stakeholders, such as loss of production. Operational risk may affect the life and safety of workers on the company's premises and pose threats to the environment, the communities, among other things. The company's approach to operational risk management is as follows:

- 1) Prevented worker's safety risk from accidents, impact of which may result in loss of life and property as well as affect the corporate image and operating results. IRPC has consistently campaigned for a culture of safety and strict enforcement of safety regulations. Raising safety awareness through One Day Safety at Work campaign, the company also introduced Process Safety Management and implement Incident Management System (idMS) to develop safety databases and analyze the root causes of adverse events, etc.
- 2) Enforced plant reliability to ensure high efficiency, smooth production processes, and prevent unplanned disruptions that may affect the delivery of products to customers as well as lessen impacts to surrounding communities. To minimize such risks, IRPC has continuously developed contractor management control, launched Zero Unplanned campaign, established an audit system on traceability of materials used in projects as well as safeguard mechanisms for the production processes to minimize potential damage from wear and tear and imposed rigorous Plant Health Check on machinery and equipment as well as vulnerable spots.
- 3) Controlled environmental risks arising from the emission of volatile hydrocarbons, such as carbon dioxide, benzene, etc., which may affect the health of workers and communities around the production complex, potentially leading to litigation or disputes. IRPC has established guidelines to reduce environmental risks by



imposing enterprise-wide environmental management under ISO 14001 Environmental Management System, ISO 5001 Energy Management System along with strict compliance with current laws and regulations as well as future amendments and new legislations or relevant standards.

- 4) Risk of communities and society having different opinions the company's operations, leading to complaints, litigation or disputes on even public protest. IRPC has taken measures, such as communicating and sharing information to promote understanding and build good relationships with surrounding communities. In addition, the company has made positive contribution to a society by operating its businesses with a high level of corporate social responsibility.
- 5) On business continuity risk arising from threats, such as natural disasters, cyberattacks or COVID-19 pandemic, that may disrupt operational processes, IRPC has developed the Business Continuity Management System (BCMS) in accordance with the international standard ISO 22301 Business Continuity Management System as a guideline for the creation of a Business Continuity Plan (BCP) for effective prevention of and recovery from disruptive events or emergencies, including annual business continuity drill.

Financial Risk

1. Foreign Currency Exchange Risk

Changes in the value of the Baht against the US dollar directly and indirectly affect IRPC's revenue and expenditure as the company's petroleum and petrochemical products are paid for in US dollar whereas the cost of procuring feedstocks, mainly crude oil, is settled in Baht while still being tied to USD linked world market prices as is the case of project loans.

IRPC has adopted a risk management approach using natural hedge techniques to mitigate risks associated with such exchange rate fluctuations by structuring its foreign currency-denominated loans and debentures proportional to income in foreign currencies. This risk management activity comes under the oversight, approval and monitoring of the Risk Management Committee to ensure it conforms to risk management policy and remains within the company's risk appetite. The company also engaged in FX swap to reduce its exchange rate risk exposure associated with USD export revenue and USD-denominated expenditure on feedstocks.

2. Funding and Liquidity Risk

IRPC has devised a capital spending plan for ongoing business expansion and thus incurred a repayment burden for loans and maturing debentures. The company needs to secure adequate capital to meet the obligations at a suitable cost of funds. The ability to obtain external funding depends on factors, such as operating results, financial status, credit rating of the company, petroleum and petrochemical industry outlook as well as economic climate and money market conditions, domestic and international, etc. The company may be exposed to liquidity risk unless it continues to find external funding for adequate working capital.

IRPC's risk management approach is to raise sufficient capital to fund its business plan. Capital is structured to keep key financial ratios at an appropriate level, put in place good corporate governance as well as monitor factors affecting or related to financing options to secure funding at reasonable costs. At present, the company's credit line

from financial institutions consists of a short-term loan of THB 21.635 billion for use as working capital, and a credit line of THB 10 billion under a loan agreement with PTT with a loan ceiling of THB 1.5 billion to efficiently manage the liquidity within the PTT Group.

Capital Projects Risk

The company has invested in a landmark project, Ultra Clean Fuel (UCF), to improve refinery efficiency and upgrade diesel quality from Euro IV to Euro V standard compliance as required by the government in 2024, which adds value to the company's diesel fuel products. As the company got ready for project management, guidelines have been developed to address project risks as follows:

- 1) Selected contractors with good track records in large construction projects as well as well-qualified project management advisers to ensure successful completion of the project
- 2) Developed marketing and sales plan to accommodate the increase in quantity of the products with suitable sales channels, marketability, and sufficient market demand
- 3) Provided needed resources, such as personnel, financing, construction site and utility systems, to support and drive the project to successful completion with a high level of efficiency
- 4) Designed progress a tracking system and processes so that problems that arise can be solved promptly, with reporting function to keep relevant committees informed, ensuring successful project completion.

Organizational Capability Risk

IRPC has implemented the New Organization with Agile Human project: The NOAH initiative aims to enhance organizational capabilities by creating and developing new ways of working at the highest level of cost-efficiency and competitiveness. The initiative calls for new, improved organizational setup along with streamlined workforce

well suited to the tasks at hand, complete with human resource development to produce talented personnel with professional integrity that reflect the company's core values. NOAH seeks to establish the following management approach:

- 1) Cultivated corporate work culture through the IRPC DNA observed by all employees to strengthen their capabilities for efficiency and effectiveness
- 2) Improved work processes for enhanced efficiency, introduced digital systems to improve efficiency, speed and overall business competitiveness
- 3) Developed knowledge management system and added appropriate skills and expertise required to keep pace with changing situations, especially new skill set and professional knowledge necessary to drive businesses according to corporate strategy
- 4) Established a succession plan for important positions, especially in senior management, and specified systematic performance assessment process to accommodate employees who are retiring or resigning



Policy and Regulatory Risk

IRPC has promoted awareness among employees of the need to strictly comply with policies, laws, and regulations, including monitoring and ensuring preparedness for emerging policies, laws and regulations introduced by the public sector, including international laws, such as the Personal Data Privacy Act (PDPA), Oil Fuel Fund Act, oil reserve requirements, tax laws, labor laws, etc. Non-compliance or negligence may affect the company's business operations, liability to punitive fines, litigation or even revocation of licenses. The company has therefore established risk management guidelines as follows:

- 1) Followed the news from the public sector that may affect business operations, assess any change in policies, laws and regulations and made preparation, including drawing up an action plan or guidelines for managing risks that may arise to mitigate impacts on the business operations
- 2) Established a database of laws, regulations, and acts relating to the business operations of the company and affiliates, by conducting analyses of critical changes and making them accessible to users who need them for planning and implementation
- 3) Joined Thailand's Private Sector Collective Action Coalition Against Corruption (CAC), established anti-corruption risk management in all forms, and formulated risk mitigation guidelines. In prioritizing management transparency, the company has adopted the 8 anti-bribery principles prescribed by the National Anti-Corruption Commission for the private sector and businesses to observe. All executives and employees are expected to observe them as part of good practices across the entire company

Digital Security Risk

The proliferation of cyber attacks and cybercrimes is presenting a major challenge in today's world of business. Large corporations that rely heavily on IT technology in their business operations are being targeted. They have high stakes to fight off cyberattacks that could cause huge damage. Mindful of such security risk, IRPC has adopted proactive measures to prevent and reduce the likelihood of being attacked as well as mitigate the impact of an attack when it happens and to ensure the capability to quickly recover from a cyberattack causing damage to the digital systems. The digital security risk management guidelines are as follows:

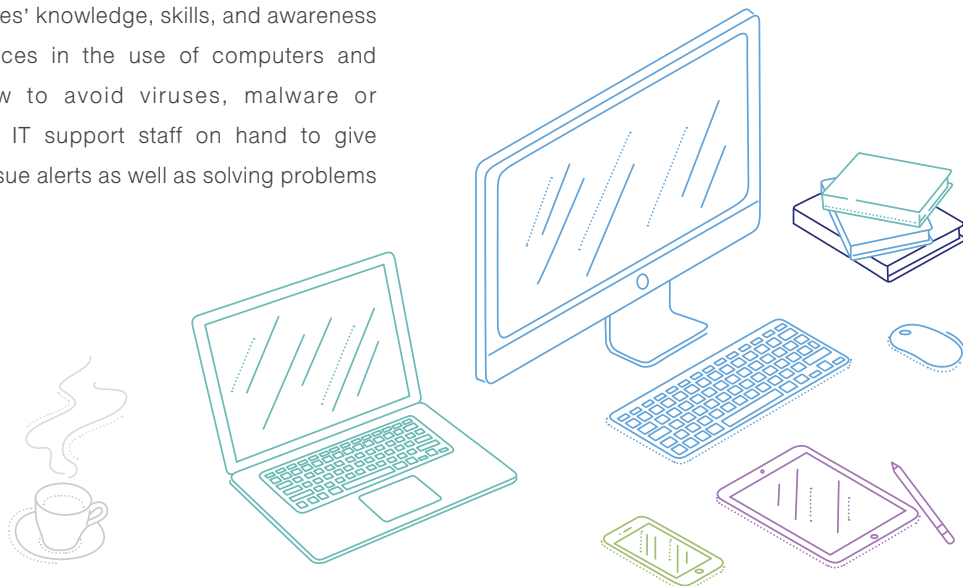
- 1) Acquired ISO 27001: Information Security Management System standard, in full compliance with relevant laws, regulations and requirements
- 2) Organized annual drills on the implementation of disaster recovery plan in the event of an external cyberattack, mechanical failure or other disasters
- 3) Ensured that the Security Operation Center (SOC) functions efficiently and undergoes continual improvements in terms of software, hardware, and personnel, monitored access to the company's various systems and checked for unusual activities or breaches of access from external sources. The SOC must also establish a process to quickly respond to intrusion and improve knowledge sharing among the personnel on effective prevention
- 4) Enhanced employees' knowledge, skills, and awareness of IT safety practices in the use of computers and software, on how to avoid viruses, malware or cyberattacks, with IT support staff on hand to give advice, educate, issue alerts as well as solving problems for all employees

Risks associated with COVID-19 pandemic

The ongoing mass vaccination drive in Thailand led to relaxing COVID-19 restrictions in an effort to jump-start the economy and to eventually reopen the country for business. But the coronavirus, having mutated into new variants, continued to spread, prolonging adverse effects on businesses everywhere, forcing many to suspend operations due to a government order in case any of their employees were infected by the virus. As a result, construction projects or machinery maintenance were also severely impacted by delays, not to mention late deliveries to customers. In managing risks associated with COVID-19, IRPC gave priority to keeping our employees and related persons safe from infection to keep the businesses going during these difficult times. The COVID-19-related risk management guidelines are as follows:

Risk Management Guidelines

- 1) Set up COVID-19 War Room to effectively enforce preventive measures and resolved issues brought on by the COVID-19 pandemic to achieve the target of zero infection or death
- 2) Implemented Work from Home program by providing equipment and work systems to enable employees to work from home efficiently, limit congestion in the workplace, maintain a safe distance to reduce the employees' risk of contracting COVID-19



- 3) Tightened access control at entry and exit points at the offices or production plants by setting up temperature screening on employees and visitors and requiring everyone to wear a face mask, in addition to other measures required by the authorities
- 4) Established guidelines on how to process any employee suspected or confirmed to have COVID-19, systematically implemented isolation and quarantine, developed workforce contingency plan to prevent disruption to the company's main operations
- 5) Provided the vaccines for the employees, and used the company's establishment as a vaccination center for citizens living nearby the area of IRPC industrial manufacture
- 6) Developed a business continuity plan (BCP) for severe infectious disease threats, which will be continuously updated and improved. Conducted regular drills to ensure the BCP works as intended

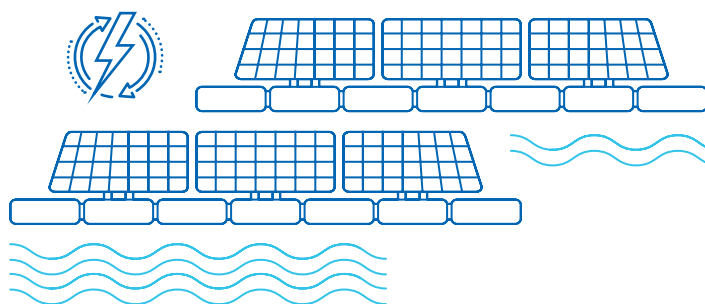
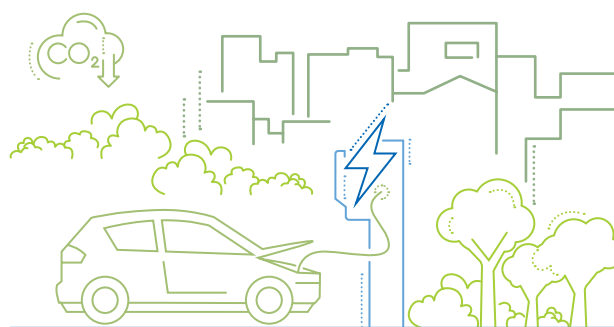
Emerging Risk

IRPC has analyzed changing external factors and risk trends in various contexts that may pose threats to the company during the next 5-10 years. These risks may take the forms of political, economic, social, environmental, legal, or technological threats, etc. IRPC is well prepared to take on challenges while pursuing new opportunities as they present themselves.

Risk Management Guidelines

- 1) Risk from a shift in consumer behavior in favor of electric vehicles, with improved technologies at lower price points, over petrol ones. Incentives offered by the government to drive electric vehicle demand will result in the company's declining sales of oil and lubricants. The company has therefore formulated a long-term risk management plan with the strategy to gradually move away from petroleum products towards higher value-added petrochemical products. The company has conducted studies on ways to convert naphtha and aromatics, components of gasoline, into Paraxylene or other substances for higher added value.

- 2) Climate Change Risk: The increase in frequency and magnitude of natural disasters in recent years is linked to climate change, attributed mainly to human activities, particularly greenhouse gas emissions. At the latest summit of the United Nations Convention on Climate Change (COP26), participating countries pledged to reduce emissions, phase out coal, shift to electric vehicles to protect nature. Thailand is committed to reducing its GHG emissions by 40% compared to the business-as-usual trajectory by 2030, paving the way to achieve Carbon Neutrality by 2050 and Net Zero Greenhouse Gas Emissions within 2065 or earlier. To comply with the government policy, IRPC has set up guidelines to prevent and mitigate the impact of such risks. The company has conducted studies on the application of Carbon Pricing in assessing the cost-effectiveness of future projects, putting in place measures to reduce GHG emission intensity, such as improving energy efficiency in its production processes, thereby reducing fuel combustion. The company piloted a voluntary assessment per the Carbon Footprint Organization (CFO) assessment guidelines in collaboration with the Department of Industrial Works and Thailand Greenhouse Gas Management Organization. (TGO), and projects using solar panels to generate electricity, etc.





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With strong commitment to develop under the sustainability management approach that aligns with the company's business strategy, IRPC has made its abundantly clear about its priority on environmental stewardship, social responsibility and corporate governance that correspond with the UN Sustainable Development Goals (SDGs).

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Business-Driven Sustainability



Sustainability Management Policy and Goals

Sustainability Management Policy

IRPC strives to attain leadership status in driving business growth along the sustainable development pathway. Adhering to a balanced approach to grow business in parallel with good stewardship of natural resources and the environment, we seek to reduce industrial emissions and greenhouse gases and thus contributing to the creation of a low carbon society. IRPC stands ready to foster meaningful relationships with stakeholders, including enhancing the quality of life of the community in line with the local economic and social development and environmental conditions to ensure harmonious business-community coexistence and mutual trust among all stakeholders.

IRPC Sustainability Management Policy was established as a practical guideline for the Company in line with internationally accepted standards. The policy also sets out a strategy for the development of Environmental Social and Governance (ESG) Enhancement that is in alignment with the United Nations Sustainable Development Goals (UN SDGs). The policy was first announced in 2015 and then revised and expanded in scope in 2019 to cover the creation of sustainability mindset and sustainability management approach encompassing the entire IRPC supply chain. In the latest revision in 2021, the policy was once again expanded to cover sustainability management in the Company's overseas operations as well.

Key points of the sustainability management policy

IRPC Group Sustainability Management Policy 2015

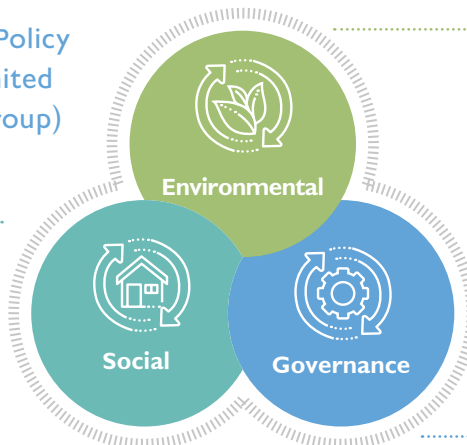
- Operate business taking into account maintenance of balance in economy, society, and environment, along with positive stakeholder relationships
- Reduce the impact of business operations throughout the entire value chain
- Develop sustainability-oriented strategies
- Promote innovation for sustainability
- Establish public disclosure to ensure operational transparency and continuous development
- Promote a culture of sustainability among personnel

IRPC Group Sustainability Management Policy 2019

- Operate business taking into account maintenance of balance in economy, society, and environment, along with positive stakeholder relationships
- Reduce the impact of business operations throughout the entire value chain
- Develop sustainability-oriented strategies
- Promote innovation for sustainability
- Establish public disclosure to ensure operational transparency and continuous development
- Promote a culture of sustainability among personnel
- Ensure full regulatory compliance in the country we operate in
- Expand the scope of sustainability mindset and sustainable management practices among partners and customers across the entire supply chain

Sustainability Management Policy of IRPC Public Company Limited and its subsidiaries (IRPC Group) Revised Version 2021

Operate business with **responsibility**, taking into account the importance of upholding human rights, labor rights, safety, and hygienic standards, and maintaining good working environment, along with continuous human resource development to ensure employees improve and acquire new capabilities and needed skills. Make full use of the corporate expertise to create shared values and improve the quality of life of the community to grow sustainably.



Implement business transformation towards **low-carbon society** along with environmentally friendly operations that use resources wisely, while **controlling and reducing impact** of business to ecosystem and biodiversity as well as **mitigating impact of and adapting to climate change**.

Comply with the principles of good corporate governance, act with integrity, obey the law, honor commitments and requirements of the country we operate in, as well as following international best practices. Establish public disclosure to ensure operational transparency, **implement risk management**, adapt to changes in a timely manner, identify suitable opportunities for sustainable business growth, mitigating impact of business operations throughout the entire supply chain, and adopt a balanced approach to stakeholder engagement.

IRPC Sustainability Strategic Framework

IRPC is committed to “creating material and energy efficiency innovations for life” under sustainable development approach, with firm adherence to corporate responsibility principles and practices as well as active participation of all stakeholders based on mutual trust. With operational excellence, transparency and focus on continuous innovation and technology development, the Company seeks stable and sustainable growth, encompassing three dimensions: environmental, social, and corporate governance, that meet the sustainable development goals. To achieve such goals, IRPC sets out Sustainability Strategic Framework as follows:

Strategic
Direction

“Low Carbon +”

Climate
Change
Management

Short-Term/
Long-Term
Operational
Goals

Short-term goals

Direct and Indirect GHG emission
in 2021 not exceed 4.14 MtCO₂e

Long-term goals

Support and Drive towards Low
Carbon economy including setting
strategy, targets, and plans to
achieve Net Zero emission target

Performance
Index

- The amount of greenhouse gas emissions of the IRPC
- Review the base-year emissions and long-term goals of IRPC's greenhouse gas emissions control
- Review the Energy Intensity Index* goal setting

Support for
UN SDGs

“Living +”

Circular Economy
management
model

Short-term goals

Create network to utilize both Post
Industrial Recycle (PIR) and Post
Consumer Recycle (PCR) plastic
waste as well as maximize natural
products usage

Long-term goals

Seek new business opportunities
in renewable energy business and
apply PTT Group circular economy
model level 3 in line with British
Standard Institution Framework for
Implementing the principle of the
circular economy in organizations
guide (BS8001:2017) in 2030

- Continuously seeking opportunities in circular economy projects to partner with customers to produce recycle compound resin, such as PP, PS, ABS recycle compound, and Bio compound



“Recognition +”

Creating Social Value

Short-term goals

Achievement of Quality
Awards to certify and improve
sustainability

Long-term goals

Recognition in creating positive
impacts to well-being of
communities and society through
business operations, products
and CSR projects

- Value of social impact created by social investment budget*
- Goal set for zero human rights complaints



Note: *Corporate KPIs

Corporate Sustainability Assessment

IRPC gives foremost priority to the management of eco-efficiency of manufacturing processes and its constant improvement, along with respect for the human rights, enterprise-wide innovation and workforce development, climate change adaption as well as water management, hygienic and safety standards, and quality of life of the community and customer relationship management, etc. All these measures, put in place to ensure maximum effectiveness, coupled with dedication of the management and personnel to good governance principles and sustainable development policy, contributed to the Company being recognized and selected as a member of the 2021 Dow Jones Sustainability Indices (DJSI) in the Oil & Gas Refining and Marketing sector for eight consecutive years, and was ranked Gold Class The Sustainability Yearbook 2021, which are testament to our business acumen guided by IRPC sustainable development policy, good corporate governance as well as our commitment to maintenance of balance in economy, society and environment, along with positive stakeholder relationships, to drive growth and prosperity for all.



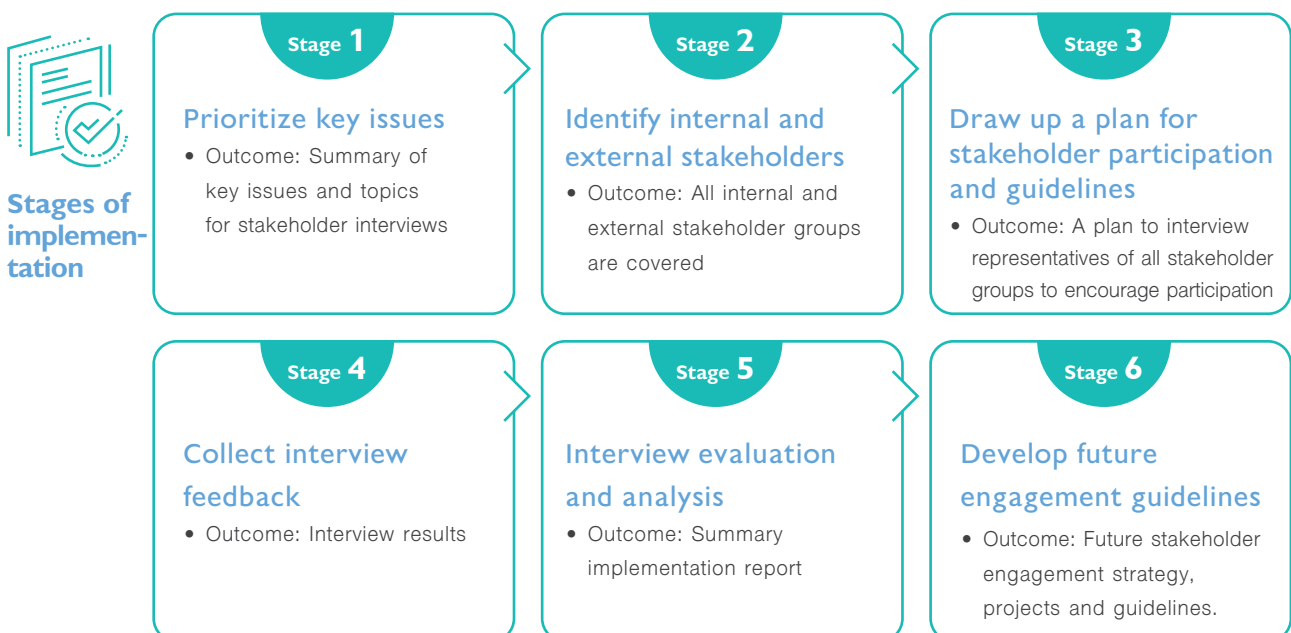
Sustainability Award
Gold Class 2021

S&P Global

Stakeholder Engagement^{GRI 102-21, GRI 102-42}

IRPC conducts internal and external stakeholder engagement every year to understand the views, interests, expectations, and concerns, especially from the economic, social, and environmental perspectives, of each stakeholder group. The business unit responsible for engagement with each stakeholder group identifies stakeholders and draws up IRPC's stakeholder engagement procedure.

Stakeholder Engagement Procedure



IRPC stands ready to move towards a stable and sustainable future, acutely aware of stakeholder expectations. The Company has regularly organized consultative sessions to engage all stakeholder groups. On the strategic direction of its future operations, IRPC holds consultations with public sector agencies, shareholders as well as key stakeholders on economic, social, and environmental

issues. Each relevant business unit tasked with engaging a specific stakeholder group, provides a briefing to monthly management committee meetings. Findings from stakeholder engagement sessions form the basis of sustainability materiality assessment and the annual corporate strategic planning.



Results of Stakeholder Engagement GRI 102-40, GRI 102-43, GRI 102-44

Stakeholder	Engagement approach (frequency)*	Engagement objective	Identified issue	Management approach
Shareholders/ Investors	<ul style="list-style-type: none"> Domestic and international roadshows (online channel) Analyst meeting (quarterly, online channel) Conference call (online channel) Operational site visit (annual) 	<ul style="list-style-type: none"> Opportunity for investors to ask questions about IRPC Provide information and explanation on IRPC's operations, e.g., sustainability performance 	<ul style="list-style-type: none"> Covid-19 support and resources for employees Sustainable actions, such as water management, net-zero emission strategy Operational improvements, such as cost management Global sustainability trends 	<ul style="list-style-type: none"> Explaining guidelines on Covid-19 support for employees Answering investors' sustainability questions Taking actions to increase production capacity and seeking new businesses Fixed cost management planning
Employees	<ul style="list-style-type: none"> Employee engagement survey (annual) Update Covid-19 news and measures (weekly or more frequently as needed) 	<ul style="list-style-type: none"> Evaluate and promote IRPC corporate culture and encourage positive behaviors Evaluate human resource management performance Update Covid-19 hygienic and safety measures 	<ul style="list-style-type: none"> Promote iSPIRIT corporate values and desirable behaviors Employee engagement Human resource management and development 	<ul style="list-style-type: none"> IRPC DNA development guidelines Strategic personnel management excellence Implementation of improvements to increase employee engagement

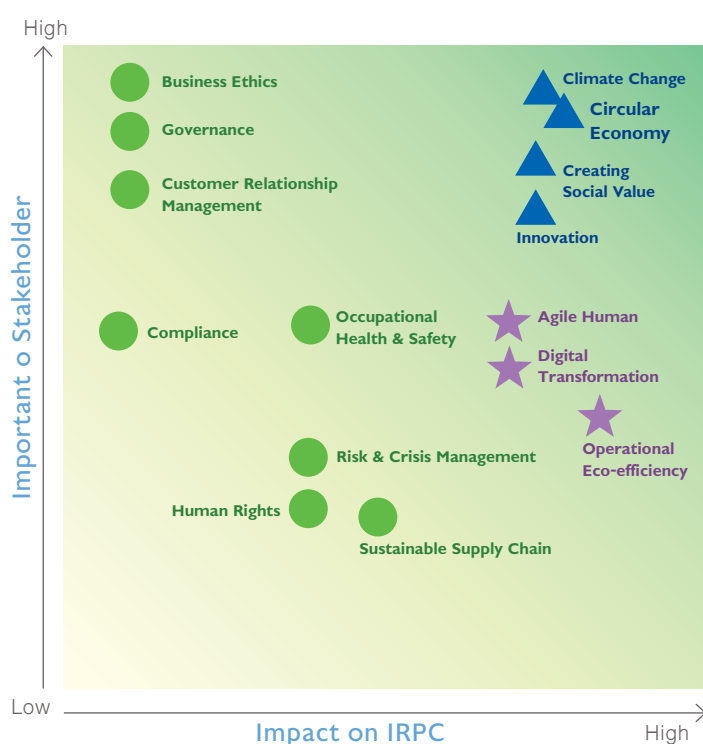
Stakeholder	Engagement approach (frequency)*	Engagement objective	Identified issue	Management approach
Customers/ Consumers	<ul style="list-style-type: none"> Customer webinar (annual) Customer satisfaction survey (annual) Customer relationship initiatives and activities, such as holiday gifts, sporting events, seminars, thank you parties (annual) Online communication channels, such as webinars, Microsoft Team app, electronic news 	<ul style="list-style-type: none"> Customer webinar (annual) Customer satisfaction survey (annual) Customer relationship initiatives and activities, such as holiday gifts, sporting events, seminars, thank you parties (annual) Online communication Keep customer information up to date 	<ul style="list-style-type: none"> Keep track of updated product information and IRPC's expectations Detailed information on legal issues and market trends Product development plan Demand for and expectations of eco-friendly products Marketing plan Customer concerns relating to Covid-19 	<ul style="list-style-type: none"> Knowledge exchange and sharing guidelines Communicating customer's needs, expectations and concerns to relevant business units and make plans to meet them Product information update guidelines Strategies to respond to customer needs, such as water usage strategy, sales strategy
Suppliers	<ul style="list-style-type: none"> Training prior to ESG Audit (annual) Supplier satisfaction survey (annual) Supplier performance assessment (annual) Supplier Conference 2021 (annual) 	<ul style="list-style-type: none"> Clarification of ESG audit objectives Take into consideration supplier satisfaction with IRPC's procurement process 	<ul style="list-style-type: none"> Improving suppliers' knowledge of ESG regulations Improving supplier engagement and satisfaction throughout the supply chain Partnership to grow business together Business operations that respect human rights 	<ul style="list-style-type: none"> Integrated supply chain management
Communities, society, and environment	<ul style="list-style-type: none"> Engaging with communities before/ during/after establishing CSR projects Organizing public hearings (for every EIA report) Community satisfaction survey (annual) Complaint channels 	<ul style="list-style-type: none"> Discuss communities' needs and concerns Provide relevant information to promote understanding of construction projects Summarize communities' concerns and demands relating to construction projects Promote mutual trust and acceptance of construction projects and the company 	<ul style="list-style-type: none"> Communities' demands and problems encountered Concerns, suggestions for construction projects 	<ul style="list-style-type: none"> CSR strategies Strategies for implementing mitigation measures identified in the Environmental Impact Assessment (EIA) report

Note: *Due to the Covid-19 pandemic, engagement with certain stakeholder groups has been postponed or switched to online channels.

IRPC Materiality Assessment

IRPC gathers materiality assessment results relating to stakeholders, regulations set out by government and domestic and international organizations, such as SASB, SustainAbility, World Economic Forum, UN Sustainable Development Goals and NSTDA, etc. The Company takes these into consideration along with corporate risks, sustainability policy, business operations, and results of the analysis and review of the previous year's operations, to identify and prioritize issues affecting sustainable business operations in accordance with the GRI Reporting Principles for Defining Report Content.

IRPC Materiality Assessment Result



Sustainable Value Creation Material Issues



- Focus on creating value for sustainable growth
- Set a top-down approach and long-term strategic, direction and target, to be deployed into the business plan at corporate level
- Set lagging KPIs, long-term targets, and a clear roadmap

Enabling Material Issues



- Manage similarly to managing the Sustainable Value Creation Material Issues as it was a crucial issue which enhances the effectiveness of the Sustainable Value Creation management

Business Fundamental Material Issues



- Focus on the value creation, risk mitigation and productivity improvement
- Integrate into the corporate management systems and assign relevant units to take responsibility for material issues at the corporate level
- Set leading indicators and medium-term target.



Disclosed in this report



Disclosed on the company's website

Sustainability material issue	Sub-issue	Scope of impact	Supporting the Sustainable Development Goals	Topic location	
				One Report	Website
Sustainable Value Creation Material Issue					
Climate Change	<ul style="list-style-type: none">Water Related Risk ManagementEmissions	<ul style="list-style-type: none">IRPC and subsidiariesCustomers/ ConsumersEmployeesCommunities, Society and Environment	<div><div>13CLIMATE ACTION</div><div>6CLEAN WATER AND SANITATION</div><div>12RESPONSIBLE CONSUMPTION AND PRODUCTION</div><div>7AFFORDABLE AND CLEAN ENERGY</div></div>	Climate Change Management	Climate Change, Energy, and Water Resource Management
Circular Economy		<ul style="list-style-type: none">IRPC and subsidiariesCustomers/ Consumers	<div><div>12RESPONSIBLE CONSUMPTION AND PRODUCTION</div></div>	Circular Economy	Circular Economy
Creating Social Value	<ul style="list-style-type: none">Local CommunitiesIndirect Economic Impacts	<ul style="list-style-type: none">IRPC and subsidiariesCommunities, Society and Environment	<div><div>3GOOD HEALTH AND WELL-BEING</div><div>4QUALITY EDUCATION</div><div>6CLEAN WATER AND SANITATION</div><div>10REDUCED INEQUALITIES</div></div>	Creating shared values for society	Social well-being
Innovation		<ul style="list-style-type: none">IRPC and subsidiariesCustomers/ Consumers	<div><div>8DECENT WORK AND ECONOMIC GROWTH</div><div>9INDUSTRY, INNOVATION AND INFRASTRUCTURE</div><div>12RESPONSIBLE CONSUMPTION AND PRODUCTION</div></div>	Innovation and specialty products	Innovation for sustainability
Enabling Material Issues					
Agile human	<ul style="list-style-type: none">EmploymentStrategic Workforce PlanningTraining and Education	<ul style="list-style-type: none">IRPC and subsidiariesEmployees	<div><div>4QUALITY EDUCATION</div><div>8DECENT WORK AND ECONOMIC GROWTH</div></div>	<ul style="list-style-type: none">Management and human resource developmentSummary of performance	<ul style="list-style-type: none">Personnel management
Digital transformation		<ul style="list-style-type: none">IRPC and subsidiariesShareholders/ InvestorsEmployeesCustomers/ ConsumersPartners		Digital transformation	Cyber security
Operational Eco-efficiency	<ul style="list-style-type: none">EnergyEmissionsWasteEnvironmental Compliance	<ul style="list-style-type: none">IRPC and subsidiariesCustomers/ ConsumersEmployeesCommunities, Society and Environment	<div><div>6CLEAN WATER AND SANITATION</div><div>7AFFORDABLE AND CLEAN ENERGY</div><div>8DECENT WORK AND ECONOMIC GROWTH</div><div>9INDUSTRY, INNOVATION AND INFRASTRUCTURE</div><div>11SUSTAINABLE CITIES AND COMMUNITIES</div><div>12RESPONSIBLE CONSUMPTION AND PRODUCTION</div></div>	<ul style="list-style-type: none">Operational Eco-efficiencySummary of performance	<ul style="list-style-type: none">Operational Eco-efficiency

Sustainability material issue	Sub-issue	Scope of impact	Supporting the Sustainable Development Goals	Topic location	
				One Report	Website
Business Fundamental Material Issues					
Business ethics		<ul style="list-style-type: none">IRPC and subsidiariesShareholders/ InvestorsEmployeesCustomers/ ConsumersPartners	<div><div>8 DECENT WORK AND ECONOMIC GROWTH</div><div>10 REDUCED INEQUALITIES</div><div>16 PEACE, JUSTICE AND STRONG INSTITUTIONS</div></div>		Governance
Governance	<ul style="list-style-type: none">Organizational ProfileGovernanceAnti-corruptionPublic Policy	<ul style="list-style-type: none">IRPC and subsidiariesShareholders/ InvestorsEmployeesCustomers/ ConsumersPartners	<div><div>8 DECENT WORK AND ECONOMIC GROWTH</div><div>10 REDUCED INEQUALITIES</div><div>16 PEACE, JUSTICE AND STRONG INSTITUTIONS</div></div>		Governance
Compliance		<ul style="list-style-type: none">IRPC and subsidiariesShareholders/ InvestorsEmployeesCustomers/ ConsumersPartners	<div><div>8 DECENT WORK AND ECONOMIC GROWTH</div><div>10 REDUCED INEQUALITIES</div><div>16 PEACE, JUSTICE AND STRONG INSTITUTIONS</div></div>		Governance
Customer Relationship Management	<ul style="list-style-type: none">Consumer Health and SafetyMarketing and LabelingCustomer Privacy	<ul style="list-style-type: none">IRPC and subsidiariesCustomers/ Consumers		<ul style="list-style-type: none">Customer Relationship Management and Customer EngagementSummary of performance	<ul style="list-style-type: none">Customer Relationship Management and Customer Engagement
Occupational Health and Safety	<ul style="list-style-type: none">Occupational Health and Safetymachine stability and safety in the production process (Asset Integrity and Process Safety)	<ul style="list-style-type: none">IRPC and subsidiariesEmployeesCommunities, Society and Environment	<div><div>8 DECENT WORK AND ECONOMIC GROWTH</div></div>	<ul style="list-style-type: none">Occupational Health & SafetySummary of performance	<ul style="list-style-type: none">Occupational Health & Safety
Risk and crisis management		<ul style="list-style-type: none">IRPC and subsidiariesShareholders/ InvestorsEmployeesCustomers/ ConsumersPartnersCommunities, Society and Environment		Risk and Crisis Management	Risk and Crisis Management
Human Rights	<ul style="list-style-type: none">Human Rights Policy and Related PoliciesImplementation of human rights projects	<ul style="list-style-type: none">IRPC and subsidiariesEmployeesCustomers/ ConsumersPartnersCommunities, Society and Environment	<div><div>5 GENDER EQUALITY</div><div>8 DECENT WORK AND ECONOMIC GROWTH</div><div>10 REDUCED INEQUALITIES</div></div>	<ul style="list-style-type: none">Implementation of Human RightsSummary of performance	<ul style="list-style-type: none">Implementation of Human Rights
Sustainable supply chain management		<ul style="list-style-type: none">IRPC and subsidiariesCustomers/ ConsumersPartners	<div><div>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</div></div>		<ul style="list-style-type: none">Sustainable Value Chain

Sustainable Value Creation

Input

Financial Capital



- Operating Cost THB 228,989 Million
- Equity THB 87,712 Million

Manufactured Capital



- Property, Plant and Equipment THB 109,067 Million
- Spending on purchasing of products and services from suppliers and contractors in Rayong 11% of Total procurement budget

Intellectual Capital



- R&D Investment THB 291.49 Million

Human Capital



- Total Employee 4,533 persons
- Employee training hours 27.5 hours per person per year
- Employee development expenses THB 31.5 Million

Social & Relationship Capital



- Corporate Governance, Business Ethics Relationship with stakeholders, and Human Rights
- Community Development Budget THB 59.6 Million

Natural Capital



- Crude Oil consumption 9.23 million tons
- Water consumption 40 million m³
- Energy consumption 60 million GJ

Value Creation Process

IRPC's Mission

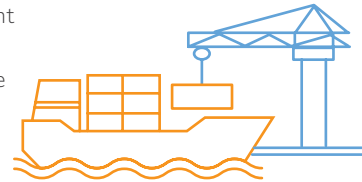
To Deliver with Innovations the Better Attributes and Solutions of Sustainable Material and Energy for the Future

Supply Chain Management

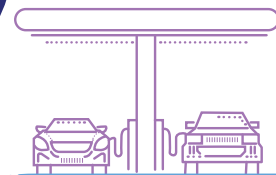
- Supplier Code of Conduct
- Sustainable Procurement Manual
- Procurement Excellence

Tools

- ISC 4.0 and PRO 4.0



Management Commitment



Customer Relationship Management

- Customer relation Manual

Tools

- B2B/ Big Data Analytics/ Market and Competitor Intelligence
- Dashboard/ Control Tower: Logistics and Client Excellence



Output

Operational Eco-efficiency

- Operation Excellence
- Process safety management
- Climate Change Strategy and Management
- Sustainable water management

Tools

EKON\$/ idMS

Innovation and Product Development

- Innovation Framework

Tools

EKON\$/ R&D
Digital Dashboard

“To shape
material and
energy solution
in harmony
with life

Community Well-being

- Community Development Manual
- Respect of Human Rights
- Human Rights Policy

Shareholder/ Investor

- Revenue THB 255,115 Million
- Tax privilege from BOI THB 889 Million
- EBITDA THB 26,961 Million
- Payments to providers of capital THB 4,600 Million

Employees

- Employee Engagement 85%
- Employee wages and benefit THB 9,285 Million
- Total Recordable Injury Rate from Employee 0.1 case per million working hour

Customer/ Consumer

- Customer satisfaction 92.85%
- Petroleum & Petrochemical Product 11.99 Million Tons
- Incremental profit from R&D THB 233 Million

Supplier

- New suppliers were screened using environmental, human rights, and labor practices criteria.
- Supplier Satisfaction 92.85%
- Zero accident from logistics On-time delivery rate
- Customer Satisfaction 100% On-time deliverable

Community and Environment

- Community Satisfaction 98.63%
- 18,580 hours of volunteer employees
- Tax paid to the government THB 19,778 Million
- THB 538 Million to Environmental protection expenditures and investment
- Direct and Indirect GHG Emissions 4.34 Million tCO₂e
- Zero Waste to Landfill

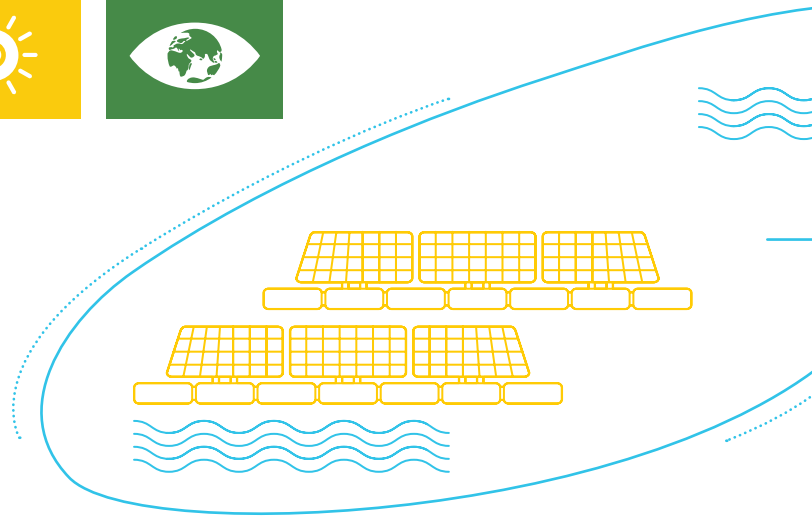
Sustainability Strategy Focus

Supported by IRPC Sustainability Strategy

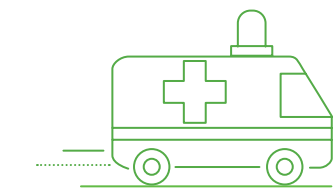
Climate Change Management “Low Carbon +”



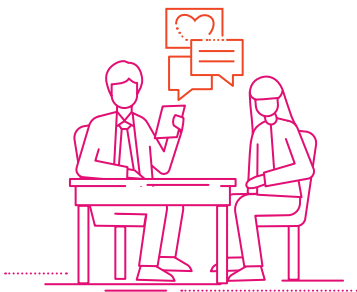
Circular Economy “Living +”



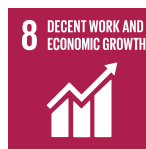
Creating Social Value “Recognition +”



supported by IRPC Policies and Activities



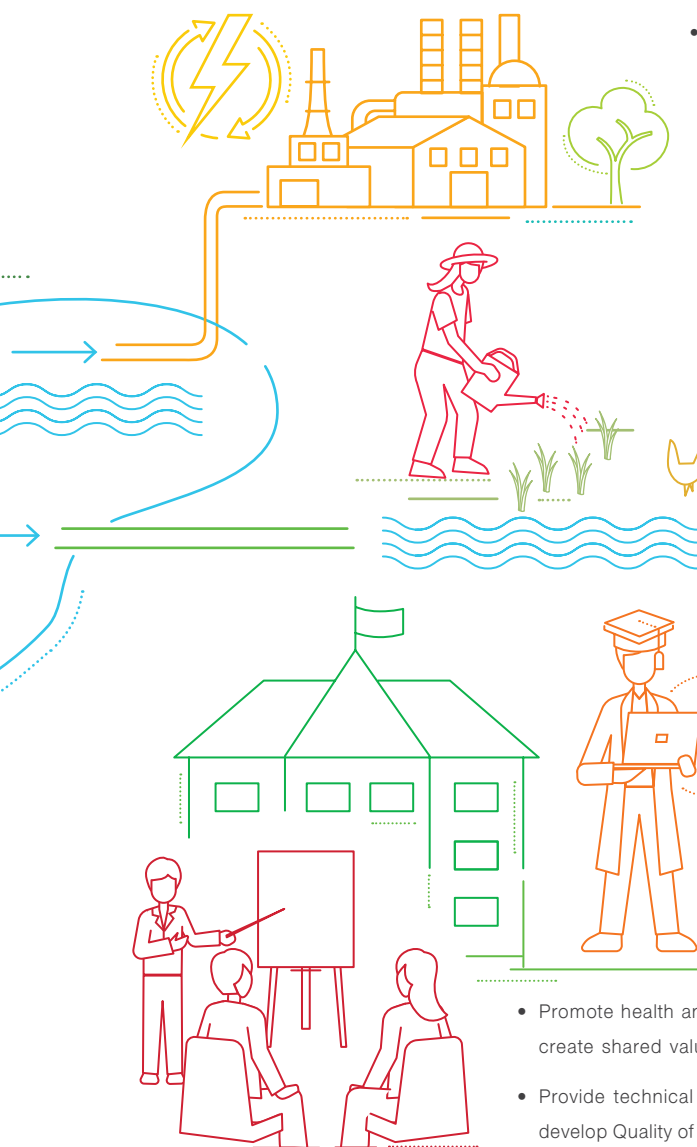
- Human Rights Policy, Diversity and Inclusion Policy, Awareness raising and related activities
- Target: Zero case on human rights violation



- Suppliers awareness raising and audits on ESG issues/ Sustainable Supplier Code of Conduct
- Target: 100% of suppliers passed ESG audit

supported by IRPC Activities and Awareness





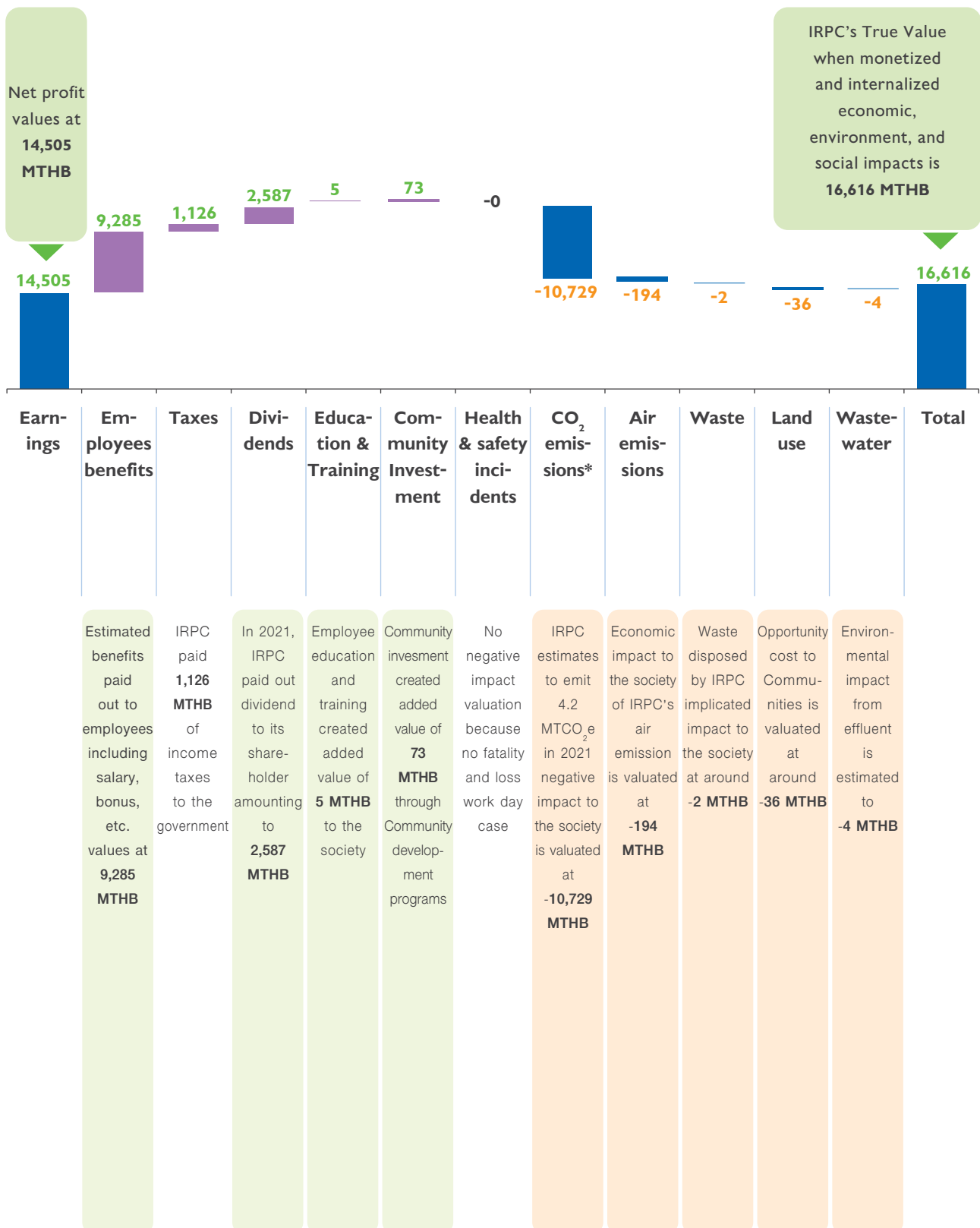
- Comprehensive water management, such as water risk management, efficient use of water, raising awareness of water, build employees cooperation including creating knowledge understanding and sharing water with the community
- Empowering agricultural communities facing water scarcity problems to be able to cope with the effects of drought and improve the quality of life of Agricultural communities
- Study the project on the use of renewable energy which is clean energy, such as Floating Solar Power, as well as the long-term goals of the index IRPC's energy efficiency (Energy Intensity Index: EII) to reduce and use energy efficiently
- Develop and execute strategies climate change Reduce greenhouse gas emissions by 20% by 2030
- Allocate budget for research and development recruiting personnel with knowledge and abilities at the doctoral level to do research and development and promote culture and Knowledge of innovation in the organization and seeking innovative new business opportunities, supporting research grants research personnel
- Set targets for the implementation of greenhouse gas emissions, scope 1 and 2, related air pollution emissions, Volatile Organic Compounds from the incinerator and significant spills improving the process of investing in projects to achieve goals, including the adoption of the 3Rs principle in the production process
- Promote health and education for the community Around IRPC industrial park through the project to create shared values for society
- Provide technical and professional education to youth through IRPC Technology with a strategy to develop Quality of education according to international standards, emphasizing excellence in vocational capacity building in petrochemical and energy and other fields that meet the needs of the country



- Expressing a position in not participating in any case of corruption Create a transparent management system and free from Corruption and bribery in all activities
- Target: 100% of employees declared conflict of interest report Zero complaints related to corruption and bribery



Impact Measurement & Valuation



Note: * The study's focus was limited to the impact of IRPC operations alone in 2021, excluding those of partners or customers. Refer to the US EPA's 2018 Social Cost (116 USD/tCO₂e) for further information on the effect of Greenhouse Gas Emissions. https://www.epa.gov/sites/production/files/2016-12/documents/social_cost_of_carbon_fact_sheet.pdf

Sustainability Management in Economic Dimension

Innovation and Product Specialties



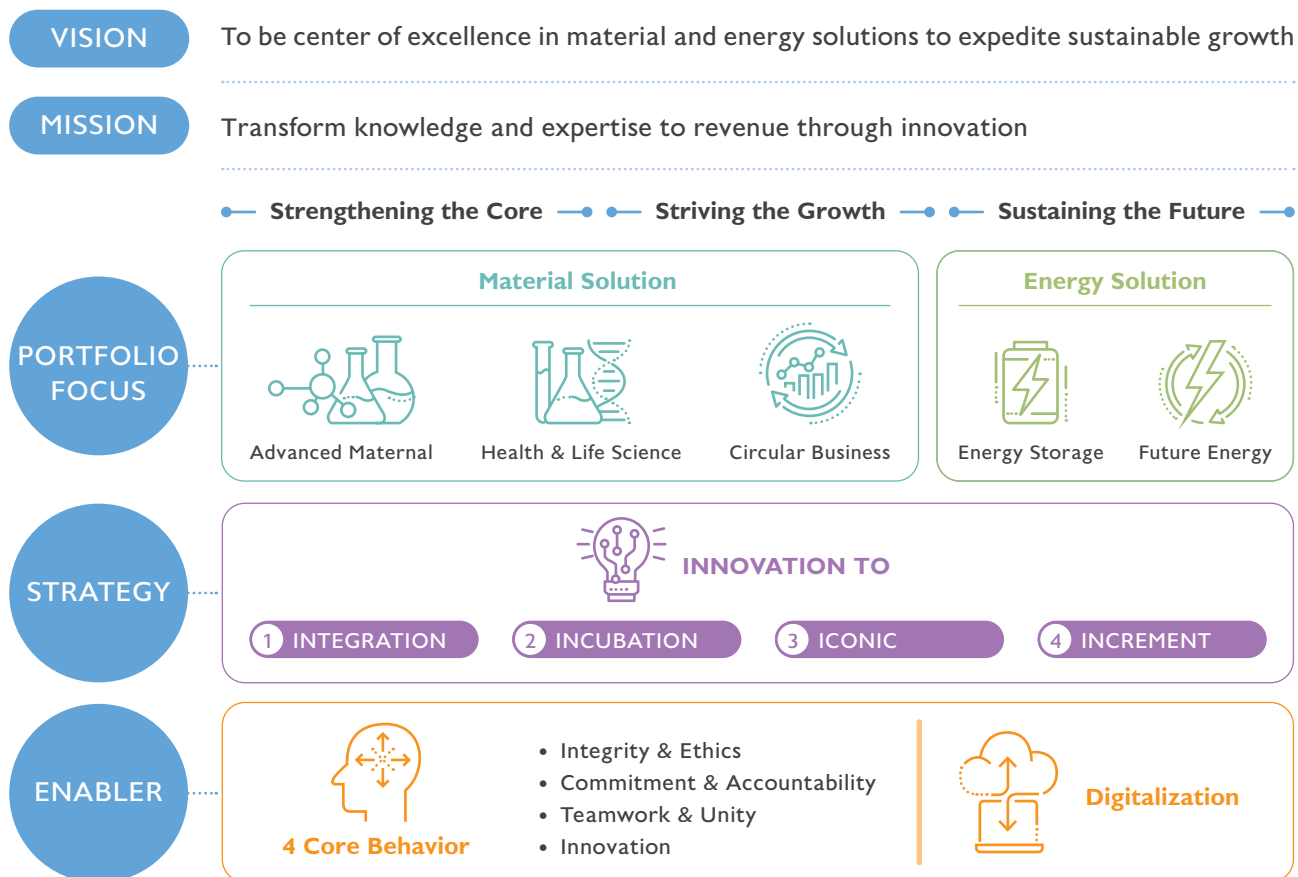
Opportunities and challenges

IRPC's new vision and strategy underscore the significance of innovations to enhance competitiveness leading to sustainable growth. Such innovations, particularly those developed to provide solutions to environmental and social issues, may help improve quality of life of the community, social wellbeing and the environment amid the COVID-19 pandemic and natural disasters brought on by global warming. The Company has taken upon itself to highlight its role to promote cooperation in developing innovations consistent with the lifestyle changes in the "New Normal."

Strategy and goals

In 2021, IRPC Innovation Center has revised its vision "To be the center of excellence in material and energy solutions to expedite sustainable growth" in line with the Company's customer-centric strategy. The new vision places emphasis firmly on research, development and innovation involving Advanced Materials, Health & Life Sciences, Circular Businesses, Future Energies and Energy Storage.

IRPC Innovation Center Strategy and Enabler



Goals have been set along the three key components that correspond with the IRPC Innovation Center's operations as follows:

1. Uplift in competitiveness of core business and add value to specialty products based on Adjacent Business innovations
2. Pursue New S-curve Businesses
3. Innovation services

Under the supervision of the Innovation Management Committee (IMC), which superseded the Product Development Committee, and is chaired by the Chief Executive Officer/ President. The IMC, comprising senior executive vice presidents and heads of relevant departments, is tasked with oversight responsibilities for the Company's innovation in terms of policies, processes and resource allocation for sustainable growth of the Company.

Material Issues

In 2021, there are 121 employees, 2.6% of total employees, in the Innovation center. with 291.5 Million THB in budget allocation to develop talents, seek innovations, research and develop new technology to create added value to the products in line with a strategy to increase competitiveness. IRPC owns 3 types of intellectual property as follow;



- Registered copyright totaling **12 items**, comprising **7** computer programs **4** music & lyrics and **1** publications



- Trademarks totaling **171 items** registered in **25 countries** around the world



- Registered patents totaling **18 items** and another **20 items** pending, covering production processes of polymer, petroleum and chemical products



Ratio of Researcher with Ph.D Degree

14 %

of all R&D personnel



R&D Effectiveness

1.95 times

of incremental margin of new product aged 3 years per R&D investment in that year

Performance indicator



Total quantity sold of plastic pellet products (tons)

914,738



Quantity sold from specialty plastic pellet products (tons)

226,683



Proportion of revenue from specialty plastic pellet products to total revenue from plastic pellet products (%)

20



Performance 2022

Project implementation

The Innovation Center prioritizes innovations of Advanced Materials, Health & Life Sciences, Circular Businesses, Future Energies and Energy Storage under the INNOVATION TO strategy through 4 pronged approach:

1. INNOVATION TO INTEGRATION

Research and development to achieve Core Uplift and Adjacent Business innovations focuses on 5 industries, namely, Automotive, Electric and Electronics, Packaging, Construction, and Medical and Hygiene, through Digital Innovation Process, Innovation and Technology Management System (ITMS+) with a Scoring Criteria System, and Monitoring and Review Product Portfolio under the cooperation between R&D, sales and marketing, and production to ensure speed, transparency and traceability of the production processes.

Despite a plethora of challenges in 2021, IRPC Innovation Center developed 14 commercialized products, generating a combined incremental profit of Baht 223 million. The R&D projects covered global environmental and social trends, including innovative solutions to the Company's business sustainability. Examples of innovative products are listed below.



• Innovations of plastic pallets respond to the growth of electrical appliance industry

Innovative SR305 extrusion-grade acrylonitrile-butadiene-styrene (ABS) pellets is suitable for sheet extrusion for electrical appliance industry, such as refrigerator, etc. With good mechanical properties, the ABS pellets can be used to manufacture refrigerator cabinet of considerable depth with relatively thin wall panels. Thus, using less material and yet resistant to chemicals according to internationally accepted refrigerator manufacturing standards. In addition, the Company has conducted raw material R&D for the production of ABS pellets as import substitutes, making it possible to cut back on production costs, improving its competitiveness. This product generated incremental profits of up to Baht 39 million per year.



• Innovation of medical-grade plastic pellets for the sustainability of Thailand's public health system

The COVID-19 pandemic triggered medical supply shortages, particularly foreign-sourced respiratory protection equipment and relevant medical devices for which Thailand heavily imported to meet domestic consumption. The Company has successfully developed Melt Blown: 1100XC, 1100YC and 1100ZC for the manufacture of non-woven fabrics that can be used in a variety of applications, such as face masks, air filter and personal protective equipment (PPE) as well as disposable diapers, water filters, etc. In addition, these plastic pellets do not contain Phthalate carcinogens and have low volatile matter content. With these products, the Company became the first manufacturer in Thailand that contributed to the sustainability of the country's public health through challenging times.

• Product innovations that provide solutions to eco-sustainability.

The Innovation Center has conducted R&D on hybrid polypropylene pellets with a mixture of natural materials, such as rubber wood pulp powder, rice husk, etc. making up to 30 per cent of content, which retain high molding performance and is amenable to coloring. In addition, these plastic pellets can also be molded or extruded into food containers as they meet the international standards, such as US FDA 21 CFR 177.1520, and EU 10/2011. This provides solution to the Company's strategy to be mindful of the global environmental problems.

Furthermore, new R&D projects of the Innovation Center have consistently and systematically yielded innovations leading to the



IRPC Center for Social
& Environmental
Innovation





manufacture of a wider range of specialty products. The Center's ongoing R&D and innovation projects and those in the pipeline is worth up to Baht 450 million, spread out across various stages of completion and time lines.

2. Innovation to incubation

The R&D and innovation efforts to identify New S-curve products, building on other existing commercialized products to create new business opportunities. The IRPC Innovation Center manages this group of products specifically through the De Novo Research R&D program, to monitor and assess potential New S-curve products at the Proof of Concept phase.

Should the proof of concept prove to be successful, the R&D projects move forward to the sandbox phase, where the prototypes are subjected to pre-commercialization testing under real-world market conditions and a learning

process within new business ecosystems, unencumbered by inherent limitations of existing businesses to ensure that innovations are brought to the market effectively, creating new businesses for the Company. There are currently 3 projects in the sandbox phase: Conductive Ink, 3D Printing and Technology Enablement for Solar Energy, undertaken in close collaboration between R&D, Sales and Marketing, and Business Development departments under the Design Thinking concept to generate a constant stream of new ideas.

All innovation projects will be implemented through an open innovation and technology investment strategy to fast-track R&D process and reduce risks associated with bringing new products to commercial production by collaborating with leading domestic and foreign research institutions, including Vidyasirimedhi Institute (VISTEC), Japan Advanced Institute of Science and Technology (JAIST) and companies within PTT Group, etc., in addition to investments in startups that offer technologies that align with the Company's strategy.

3. INNOVATION TO ICONIC

IRPC has developed and introduced graphene-enhanced fabric masks to the market, its first product ever to be sold via Business-to-Consumer (B2C) channels, under KleanTeQ brand. The collaboration between the Company and iPolymer Co., Ltd., specialized in online and offline B2C sales, have popularized the graphene-enhanced fabric mask leading to rising sales. Further R&D is underway to release new graphene-enhanced fabric mask products along with other graphene-related functionalized products.



To promote sustainable agriculture, a key economic sector of Thailand, through the Smart Farming initiative, the Company, building upon existing businesses through R&D to offer an innovative use of zinc oxide (ZnO) as an important components of fertilisers, plant nutrient supplements for rice and durian growers, etc. Such ZnO-enriched products are found to promote plant growth and increase yields, as small amounts of water-stable ZnO can be readily absorbed by plants. In 2021, the Company was granted a commercial fertilizer production license and a ZnO fertilizer registration number, enabling the Company to start commercial production, distribution and sales through Rakpasak Company Limited.

4. INNOVATION TO INCREMENT

In 2020, IRPC, in cooperation with Faculty of Medicine Vajira Hospital of Nawamindradhirat University, established Vajira Lab for Society Co., Ltd. as a laboratory center to provide analysis and quality testing services for personal protection medical equipment products according to standards.

The Innovation Center has set its sight on upgrading the analysis and testing capabilities of the Company's Analytical and Laboratory Center to be on par with the world's leading institutes. The Analytical and Laboratory Center conducts quality control on raw materials and provides product quality assurance before products go to the market. Applying digital system to improve the capabilities of analysis and testing with high accuracy and precision, to upgrade equipment and laboratory complex to ensure safety and maintain cutting-edge equipments, along with human resource development. The Analytical and Laboratory Center also provides analytical testing services to external customers capitalizing on its high-caliber personnel and specialized instruments, devices and equipment as well as testing services that meet the internationally accepted standards. In 2021, the Center generated a total of Baht 10.4 million in revenue.

Digital Transformation

Digitalization is one of the key success factors enabling IRPC to capitalize on new business opportunities by applying Artificial Intelligence (AI) and new technologies in its business operations.

IRPC's Digital Strategic Framework focuses on 2 principal areas:

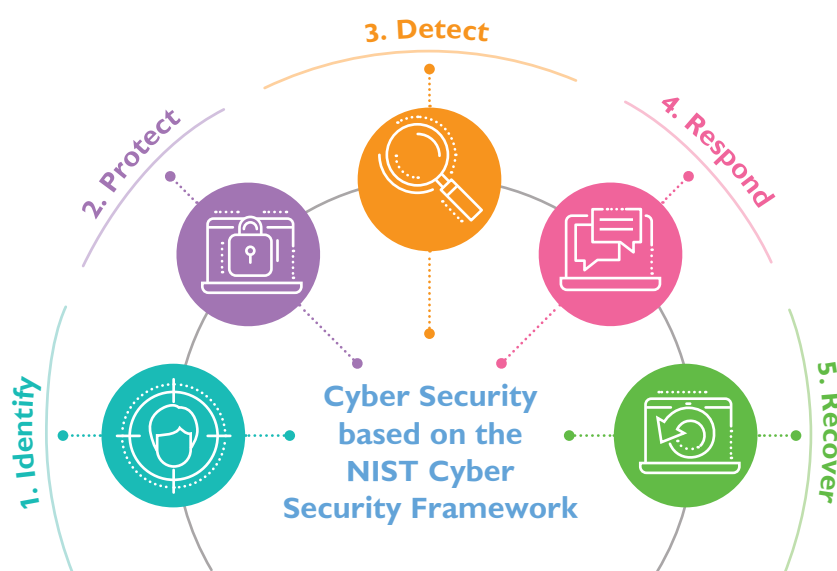
1. Cyber Security aimed at strengthening defense against cyber attacks to ensure that the company can operate safely
2. Data Analytics to develop and improve the efficiency of data analysis and decision-making by employees at all levels in order to generate extra income for the company

Implementation approach

1. Cyber Security

IRPC implements Cybersecurity based on the NIST Cyber Security Framework, which consists of 5 core functions:

1. **Identify:** Promote better understanding within the enterprise to manage cybersecurity risks that threaten systems, assets, data, and capabilities
2. **Protect:** Develop and implement appropriate safeguards to ensure delivery of critical infrastructure services
3. **Detect:** Develop and implement appropriate activities to identify cybersecurity incidents
4. **Respond:** Develop and implement appropriate activities to tackle cybersecurity incidents
5. **Recover:** Develop and implement appropriate activities to maintain a contingency plan to ensure flexibility and recoverability of any capability or service compromised by a cybersecurity incident



IRPC's Cybersecurity Roadmap is based on components of the NIST Cyber Security Framework. The Company has already put in place cybersecurity work plan for 2021-2025, applying modern technologies to upgrade its cybersecurity operations, for example, Operational Technology, which is an innovative technology to help protect and secure the company's operational processes.

IRPC is the first company in the PTT Group to deploy Operational Technology (OT) to safeguard against cyberattacks. OT detects and manages industrial/manufacturing processes, assets, and equipment. The Company plans to expand OT to other companies within the PTT Group in the future.

Key success factors of IRPC's Cybersecurity are as follows:

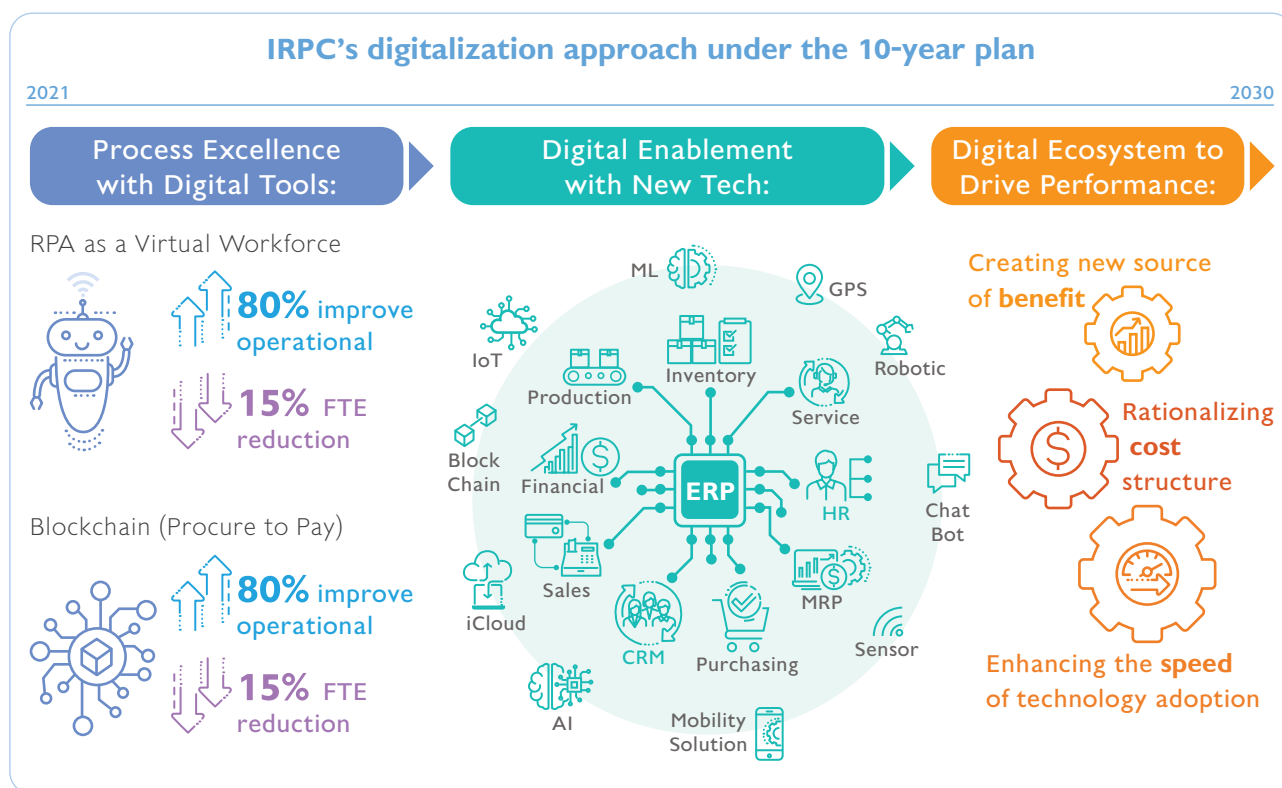
- 1. Process Excellence:** Cybersecurity policy formulated in accordance with international standards, such as ISO 27000, and the role of the security operating model clearly defined, along with the introduction of disaster recovery plan and establishment of monthly review of cybersecurity incidents
- 2. Technology Excellence:** Installing equipment for protection against cyber threats and 24-hour surveillance
- 3. People Excellence:** Creation of a CSIRT committee to oversee cybersecurity operations and appointment of a Change Agent to communicate information relating to digitalization or setting up a club for digitalization knowledge exchange



2. Digitalization and Data Analytic

IRPC's digitalization under the 10-year plan, covering 2021-2030 period, comprises three key functions as follows:

- 1. Process excellence with Digital tools:** Implementing Robotic Process Automation, or RPA, to increase efficiency by 80%, equivalent to about 15% of the workforce. Blockchain Technology has also been adopted in payment processing, improving efficiency by 40%, equivalent to 10% of the workforce
- 2. Digital Enablement with new Tech:** Adopting new technology in the Company's business operations, such as IoT, iCloud, etc.
- 3. Digital ecosystem to drive performance:** Shifting the workplace ecosystem towards digitalization to drive better performance which enables the Company to generate new sources of revenue, better manage cost structures and speed up technology adoption



Foster Analytical Mind, along with other key skills that employees need that are relevant to their job functions and scope of responsibilities, along with their willingness to receive training. Planned skill development through the Business Intelligence Analyst (BIA) & Data Scientist (DS) projects, have already been underway over a period of 5 years from 2020 to 2024 to develop employees with an Analytical Mind.

1. Business Intelligence Analytic (BIA) aims to develop knowledge and practice analytical thinking skills. and presentation (Intelligence Analytic Dashboard) to use information in decision making for more efficiency

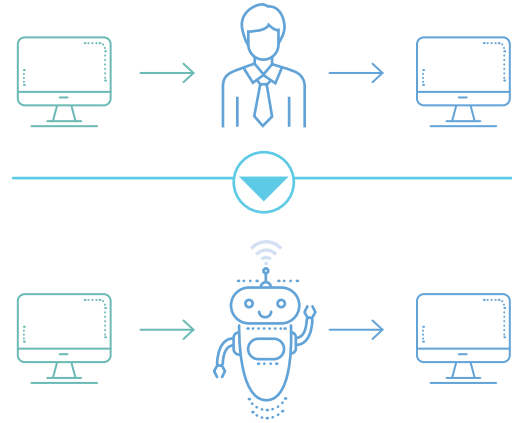
2. Data Science (DS) aims to develop knowledge and practice analytical skills, programming to Build a model with Machine Learning Algorithm that can analyze trends and make predictions, helping to work more efficiently and and predict results, helping to work more efficiently and create added value for the organization

The Developing Advanced Analytics Capabilities program started in 2019 and has continued to this day. With the goal of 2024, there will be 300 Business Intelligent Analysts and 30 Data Scientists. Currently, there are 77 Business Intelligent Analysts, 33 Data Scientists, a total of 110 people.

Ongoing Projects

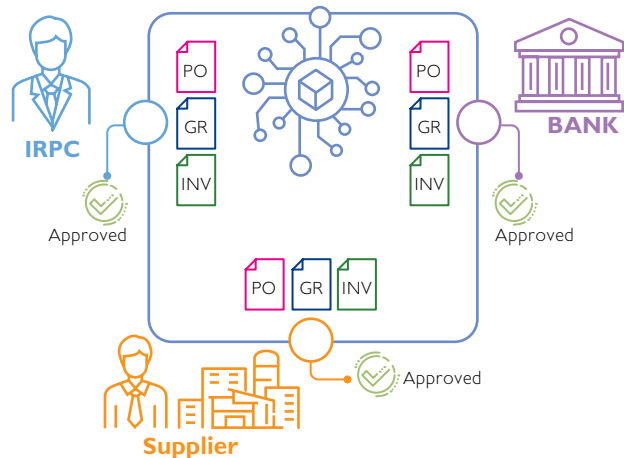
Robotic Process Automation (RPA)

This is one of the initiatives under WorkSmart A project aimed to automate repetitive work processes to reduce or replace human input. A pilot was introduced in finance and accounting work processes featuring routine tasks that must be repeated on a regular basis, and some of which need to be done during the night. After the pilot was successfully completed, RPA was expanded to cover all business units, which together implemented RPA in more than 70 processes, achieving total decrease of 28 FTE positions.



Blockchain for Procure-to-Pay (B2P)

IRPC has applied Blockchain technology to its procurement, billing, and payment processes to improve competitiveness. Capitalizing on innovation and Fintech, the company is able to increase efficiency in financial transactions. By using the same payment platform, the company is able to effectively control counterparty risk and legal risk. Blockchain technology offers high security and enables the Company to monitor and review data throughout the process. More than 1,000 IRPC's suppliers have expressed interest to use this Procure-to-Pay system.



Rotating Predictive Maintenance

This project harnesses the power of 6,000 sensors surrounding the Rotating Machine to retrieve data for analysis and predict an impending failure before the alarm goes off. Thus, preventing damage and opportunity loss. The system was developed into iPredict Platform, which benefited from IRPC's earlier project, Developing Advanced Analytics Capabilities, to produce Data Scientists who came up with models for maintenance management. This platform combines various predictive models relating to maintenance work, capable of integrating spare of failure agent that occurs.



Analytic



Neural Network



K-Means



Linear Classifier



PCA-T2

Autoencoder

Prophet
(Facebook)Prophet
(Facebook)

Model



Retraining

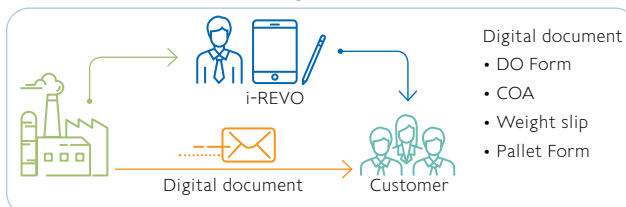
i-REVO

This refers to the use of Tablets for transportation and logistics management to increase efficiency in product delivery and ensure customer and supplier satisfaction. This electronic-based management system on tablets replaces paper-based system, which requires a large number of documents being sent back and forth between warehouses, shipping companies, suppliers, and customers, and it takes time to process as everyone waits for the required documents. The i-REVO provides a real-time system that can do everything on the tablets, thus saving time and increase efficiency.

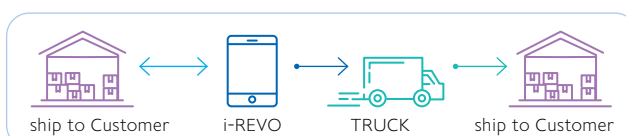
Tracking Status



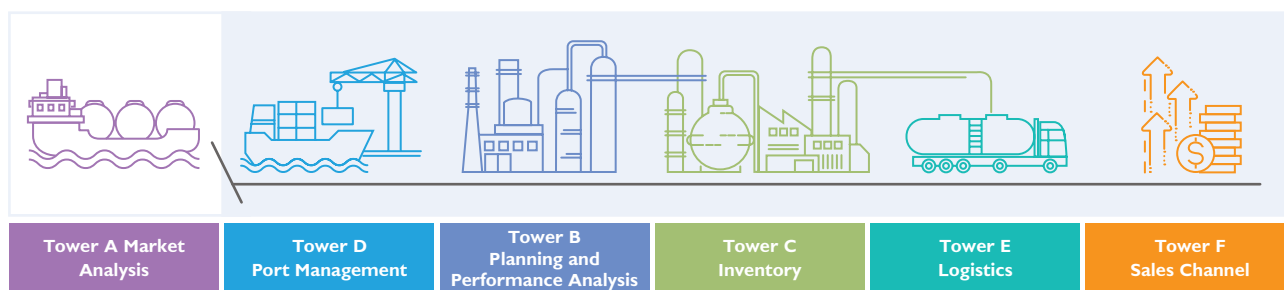
Paperless



Return Process to Customer



Control Tower



provides executives with enhanced visibility of operational overview. There are six control towers currently in use at IRPC:

Tower A Market Analysis: An overview of the purchase of crude oil, prices, and costs to support decision-making on crude oil selection and hedging of oil price risk in crude purchased and crude price movements influenced by events to maximize gross profit

Tower B Planning and Performance Analysis: An overview of production plant status, production planning, forecasting prices, production output and production efficiency, revision of production plans, efficiency analysis to help executives make better decisions across the supply chain, reducing the time it takes to process data manually

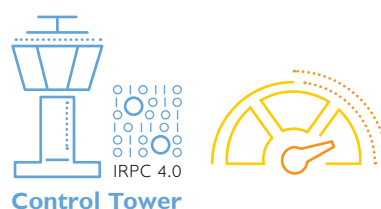
Tower C Inventory: An overview of reserved feedstocks for petroleum and petrochemical production and price forecasts and market trends, analyzing pricing and timing of product sales. This allows for better planning, execution, and pricing, reducing losses from slow/dead stocks

Tower D Port Management: An overview of port and shipping management to increase supply chain security for high-value customers and to reduce costs

Tower E Logistics: An overview of transport efficiency, transportation management, analyzing pricing and timing of product sales. This allows for better planning, execution, and pricing, reducing operational costs

Tower F Sales Channel: An overview of sales of petroleum and petrochemical products to maximize overall sales

Data from these control towers can be integrated and Data Analytics techniques can be applied, and the outputs presented on a Dashboard.



Sustainability Management in Social Dimension

Human resource management



Opportunities and challenges

IRPC believes that corporate growth hinges on good employees. The company, therefore, has formulated a proactive policy with emphasis on human resource management that moves in tandem with modernization, technological advancement, and evolving international standards. The aim is to develop talented employees with integrity who are social-minded and together help drive the company towards a High Performance

Organization that is keenly competitive and adept at corporate transformation.

The impact of the Covid-19 pandemic continued to play out, having wreaked havoc to the global economic and financial systems. This served as impetus for change at IRPC in this industrial sector. There was obviously a need to adapt in order to stay on top of rapidly changing situations. At the same time, many businesses have already been struggling with or about to face the full impact of a demographic shift towards aging society. In terms of human resource management, that means highly capable senior employees would eventually be retiring and leave the company. Succession planning to get new generation of employees ready to take over soon-to-be-vacated positions became a necessity. In 2021, IRPC intensified its human resource management to ensure employees not only turn out to be valuable human resource but also help propel the Company towards stable and sustainable growth while maintaining IRPC's competitive edge within its industrial sector at the national and international levels.

Strategic Workforce Planning (SWP)

Simulate workforce demand per job cluster

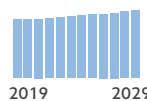
Workforce demand

5 Rights

- Size
- Shape
- Type
- Spend
- Skill

Future demand

Future demand



Strategic scenarios

Analyze workforce supply per job cluster

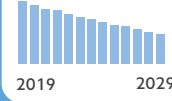
Current workforce

Assumptions, e.g.,

- Attrition
- Retirement
- Phased retirement
- Competencies
- ...

Future supply

Headcount



Identify gaps and risks

Develop strategic workforce plan
By 3Bs

Materiality assessment

Good human resource management and creation of new corporate values are key contributing factors to ensure IRPC's strategy will lead to the fulfillment of its vision and goals. The Company's human resource strategy has three components as follows:

1. People Readiness

Strategic Workforce Planning (SWP), a systematic analytical process for workforce planning in line with all business strategies to ensure that the company has at its disposal appropriately skilled personnel well attuned to existing and future business plans. The SWP process starts with the analysis of the future demand for personnel in terms of work units, required skills and suitability for job clusters, together with skills and capabilities of employees who are about to retire, in order to identify future demand. The process then helps find practical and management solutions to those issues as well as develop strategic workforce planning according to the 3Bs (Build – Buy – Borrow) method to find future supply.

• Build

This refers to a model where a company invests in a new human resource management system to build its own talents from new recruits and existing employees to meet the qualifications and skill requirements. To create new talents, employees' basic skills must be updated to suit new way of working.

The human resource development program covers employees at all levels, from the operational level to the senior vice president, divided into 3 main parts: Leadership Development, Work Competency Development Program, and New Stream Upskill and Reskill. The emphasis is on having an attitude that is in line with the modern business world that requires constant self-learning and quick adaptation, enhanced analytical thinking skill and familiarity with various digital tools for decision-making as well as the creation of a forum for knowledge exchange between internal and external experts.

• Buy

Personnel acquisition or buying talented individuals from other companies to create value for the company and help it achieve objectives. The company must consider the Source, that is, where to look for talents or whether it should use a recruiting agency. The Tool to recruit suitable talents, such as how to evaluate candidates' competencies through interviews or whether to consider their social media profiles, etc. And the Challenge associated with determining pay structure and suitable remuneration.

• Borrow

This approach puts emphasis on the kind of attitude that is more aligned with the modern business world, characterized by constant self-learning, quick adaptation, enhanced analytical skills, and familiarity with the use of digital tools to aid decision-making.

To borrow individuals with the required competencies from other companies, a company may need to draw up an agreement with a strategic partner in a way that is mutually beneficial or to address the parties' respective needs, such as overcoming certain weaknesses. The PTT Group created the Management Pool Development Program to facilitate such exchange among companies within the PTT Group and its strategic partners.

2. Reforming the Organization

Reorganization to achieve a more flexible organizational structure and chain of command is a crucial factor enabling the company to achieve its goals. All units must review and reorganize work in accordance with workforce target, eliminate redundant jobs and streamline the organizational structure through delayering and span of control, outsourcing service and labor, new work processes, table of authority, use of new technologies and digitalization, analytics, improvement of remuneration and welfare benefits, with the aim to change cost structure by using lowest monetary cost and time spent to achieve highest efficiency. The organizational structures of different job clusters may vary as appropriate.

3. Strategy to promote core value to enhance business expansion

It cannot be emphasized enough that a change in corporate culture and employee mindset are among key contributing factors enabling a company to achieve its goals. Core value, iSPIRIT and desired behavior, IRPC DNA provide additional positive attributes as follows:

1. Role Model to subordinates and colleagues
2. Work Collaboration to build teamwork
3. Open Mind to be receptive to new things
4. Accept Change to adapt to changes
5. Real Accountability, the skill to take ownership of corporate work, to safeguard the Company's interests and good reputation as well as working together with dedication to enable the Company to achieve goals.

Promoting corporate culture



INDIVIDUAL OWNERSHIP



SYNERGY



PERFORMANCE EXCELLENCE



INNOVATION



RESPONSIBILITY FOR SOCIETY



INTEGRITY & ETHICS



TRUST & RESPECT



INDIVIDUAL OWNERSHIP



RESULT ORIENTED



PROMISE AND DELIVER



CONTINUOUS IMPROVEMENT



DO THINGS TOGETHER



NO BIAS



ACTIVELY SOLVE THE PROBLEM

Transformation needs...



(Good *Great *Grow) to Success

01 Role model

02 Work collaborate

03 Open mind

04 Accept change

05 Real accountability



Human resource management projects

Digitalization of operations during COVID-19 pandemic

IRPC constantly assessed the situation and took precautions against business continuity risk. The Company ramped up IT preparedness to ensure uninterrupted operations, without limitations in terms of workspace, time, and equipment. Employees are at the ready to work under a wide variety of circumstances in a timely manner under normal conditions or during crisis brought on by the COVID-19 pandemic. By adopting e-meeting system and COVID-19 surveillance mobile app to track the spread of the contagious virus, IRPC was able to operate its business without a hitch while keeping employees safe. The company's business continuity was assured during the COVID-19 crisis while many other businesses had been interrupted or even shut down.

IRPC took occupational safety of its employees as seriously as its operational efficiency. The company has undertaken to change the way its employees work to reduce the likelihood of them or their families catching the deadly virus, by introducing the Voluntary Work from Home program at the discretion of supervisors. Workers commuted to work less but kept on delivering good work at a high level of success metrics for human resource management efficiency as before, while at the same time achieving better work-life balance and spending more time with families. Overall operational effectiveness remained the same or even better in certain aspects, such as more productive meetings and follow-up activities.

Employee Potential Development Training Project

IRPC development framework has been designed to link to organization target and based on competency-based learning. The objective is to develop all employees from the first day to high level management personal which comprise of knowledge and capability development according to level of responsibilities and employee groups per Work Competency, Leadership Competency and Future Skill (Upskill & Reskill) development programs as follows:

1. Work Competency: The company organize a competency group by job roles which emphasizes Value Chain to develop employee's knowledge and skill to

suit their role and responsibilities which is vital for work operations. Also, this project is to encourage employee to apply knowledge to operation effectively by planning self-development program, supporting employee potential to meet professional standard, and focusing on knowledge and skill development required for each professions. Today, there are 7 Core HR Skills and Competencies.

2. Leadership Competency: This is focus on leadership management and business knowledge for each employee level.

1. Onboarding Development : There are variety of leaning methods: Orientation, Self Development, (Specialized) Common Course for QSHE operations including (iSPIRIT) which reflect necessary competency and good governance.
2. Development of fundamental operation employee: LEAD Program (Leadership Development Program), employee will learn basic of business operation and learn how to manage themselves and work with others effectively (Lead Self)
3. Development of management employee: LEAD 2 (Leadership Development Program), employees will learn principal of business operation and how to be an efficient leader (Lead Team)
4. Development of Administration staff: LEAD 3 (Leadership Development Program) is the curriculum which emphasize leadership development. The content comprise of the competency development for management level, and Business Management Program to manage change efficiently (Lead Function)
5. Development of VP management: VP/LEAD 4 (Junior Executive Leadership Development Program) is to develop C-level staff. There are curriculum of Leadership and Business to create organization strategy (Lead Business) including outside seminars to prepare potential management such as TMA (Thailand Management Association), CCL (Center for Creative Leadership), SEP (Sasin), EDP (Fiscal Policy Research Institute Foundation) King Prajadhipok's Institute etc.
6. Development of Executives: LEAD 5 (Executive Leadership Development Program) is the program to develop Executives both Leadership and Business Executive for organization growth (Lead Growth)

7. Program for high potential employee: Next role (Talent Pool development through succession planning)
8. Program to develop high executive in corporation with PTT Group: This program is to prepare executives to develop knowledge and competency to understand Humans and works management for next level promotion. There will be learning; exchanging ideas, knowledge and experiences; sharing new visions; doing case study with Best practices from leading world class speakers and trainings. This is to create a relationship (Networking) among PTT group executives. In addition, this is also a stage for experience exchange of the executives and build a good relationship (Networking) among our organization management and other leading private and public organizations

3. Development in Accelerate Program to Upskill & Reskill employees:

The Company put effort to support new knowledge and skills required to compete in digital era (Future Skill) such as digitalization upskill, Multi-Skill which is practical, self-development capability to put them in the same level as people with same job roles in leading companies (Benchmarking with Peers), clear decision making skill, including attitudes and point of view that prioritize common interest and joint long-term benefit thru self-online training system. However, employee must plan their self-training session following their Learning Roadmap guidelines.

Diversity in IRPC

IRPC and its subsidiaries advocate diversity and active participation of employees in the unrelenting effort to improve its operations and to achieve goals set forth in its business strategy. The Company puts emphasis on providing a wide range of training programs as part of succession planning. Our diversity policy describes the Company's position against discrimination based on gender, age, race, cultural heritage, or religious faith, while promoting active participation of all employees. In 2021, IRPC announced a policy to promote diversity and inclusion. This is part of our commitment to build a culture of respect for diversity among personnel at all levels while fostering diversity and inclusiveness in all job positions within the Company as an assurance for equal treatment throughout the company.



Freedom of Association

Under the employee relations policy, IRPC supports employees' freedom of association and labor union memberships. In this regard, the company's President encourage discussion and exchange of views between supervisors and subordinates to create better understanding of welfare benefits, employee career path development as well as business direction of the company. Informal meetings, such as CEO Town Hall, are held regularly in addition to meetings with labor union leaders on a quarterly basis to foster good employee relations.



77%
of employees who are
labor union members



100%
of complaints/ suggestions were
addressed and resolved

Performance

In 2021, Employees participating in the assessment of employee engagement accounted for 82% of workforce, and the level of employee engagement was at 85%, which compared favorably to other companies in the same industrial sector at the national and international levels. IRPC's employee engagement was in the Top Quartile, which was testament to our commitment to continually improve employee engagement, effective communication of our vision and strategic goals among all employees, resulting in better overall employee engagement.

Performance Indicator



Employee engagement (per cent)

82

79

80

85



Employees who participated in the survey (per cent)

93

82

93

82

Target 2020

Performance 2020

Goal 2021

Performance 2021

Performance Indicator



Average employee training (hours per person per year)

40

15

40

14

Target 2020

Performance 2020

Goal 2021

Performance 2021

Performance Indicator



Benefit from Human Capital Development Program (million Baht)

1,477

2,077

1,566

264

ROI 2018

ROI 2019

ROI 2020

ROI 2021



Employee training expenses in 2021

31.5

Million Baht

100 %

of internal personnel who were promoted to new positions compared to all job openings



Creating Shared Value



IRPC is committed to creating shared value with communities and the society at large through various projects focusing on improving the quality of life of communities, promoting education, enhancing public health, and conserving natural resources and the environment. The Company believes business, communities and the society can grow together. We are confident that with improved standard of living communities and society will come to appreciate our sustainable business approach by undertaking the following strategy:



**Promote CSR to
create Social Impact**



**Build good relationships
with all stakeholder groups**



**through effective
Engagement and
Community
Communication**

CSR projects

In 2021, IRPC implemented projects aimed at creating value for communities surrounding the company's industrial zone and the society at large. These included:

IRPC Prostheses Project

Objectives

1. To create sustainable social benefits capitalizing on the Company's business operations in bringing together products of high-quality standard, innovations, and personnel knowledge base to create prosthetic legs and prostheses parts free of charge
2. To enhance the quality of life of amputees
3. To create social and business innovations through the Company's CSR project
4. To help support the society and public sector in caring for many amputees
5. To advance the United Nations Sustainable Development Goals (SDGs), Article 10, Reduced Inequalities

IRPC donated Polypropylene (PP) plastic pellets to the Prosthetic Leg Foundation under the patronage of the late HRH Princess Mother for the production of prosthetic legs and prostheses parts for the amputees to improve their quality of life under the Creating Shared Value (CSV)

approach. In so doing, the Company was able to use its commercial products for the benefits of the amputees, creating shared value in the process. The project has been ongoing since 2011. IRPC donated about 20 tons of Polypropylene to the foundation each year.

IRPC's plastic pellet products have been delivered for the production of prosthetic legs at the head office of the Prostheses Foundation in Chiang Mai for distribution not only throughout Thailand but also to neighboring countries, such as Malaysia, Myanmar, and Cambodia. The foundation's prosthetic leg production facilities at 94 hospitals in all parts of Thailand have also received donated plastic pellets from the company. So have the prosthetic leg production workshops that the Prostheses Foundation helped set up at military hospitals in Burundi, Senegal, where many people had been amputated following political unrest, and in Indonesia's Banda Aceh hard hit by a tsunami many years ago. Between 2011 and 2021 (as of September 30, 2021), a total of 32,632 prosthetic legs were produced using the Company's plastic pellet products.

Lam Sai Yong Model Project

Lam Sai Yong Model Project was established in mid-2014 in Lam Sai Yong Subdistrict, Nang Rong District, Buri Ram Province, with the objective to apply water resource management knowledge to provide solutions for drought-stricken communities. Under the project, water storage areas were developed and effectively managed to increase water supply for irrigation during the dry season. IRPC has since introduced the Lam Sai Yong Model water resource management project to other areas, such as Ubon Ratchathani, Uttaradit, Sisaket, and Udon Thani provinces. IRPC learned that water shortage is a huge and complex problem that cannot be resolved by piecemeal measures. The Company then relaunch the Lam Sai Yong Model with a new integrated management approach, encompassing the Water-Food-Energy Nexus, to bring about positive change and mitigate impact of the seasonal water shortages that tend to have knock-on effects on other aspects of the Company's business directly and indirectly.

Objectives

1. To apply IRPC's innovations, personnel knowledge base and capabilities in water resource and alternative energy management to raise the standard of living of communities, the society and protection of the environment
2. To build capabilities for farming communities to adapt to or mitigate the impacts of Climate Change and water crises
3. To bring about change and improvement in the quality of life of farming communities in arid areas to ensure Water and Food Security as a solid foundation for the future growth of Thailand's agricultural sector
4. To expand social development networks in collaboration with external parties, such as state agencies, the private sector, and non-profit organizations
5. To serve as a model for private enterprises to implement community development projects according to their level of capabilities and skills in order to spread the benefits to other communities
6. To advance the United Nations Sustainable Development Goals (SDGs)

Article 2 To end hunger, achieve food security, enhance nutrition, and promote sustainable agriculture (Zero Hunger)

Article 6 To ensure Clean Water and Sanitation for all

Article 7 To ensure Affordable and Clean Energy

Lam Sai Yong Model Project in Udon Thani Province

IRPC has implemented the Lam Sai Yong Model Project at the Center for the Development of Persons with Disabilities, Udon Thani Diocese, in Ban Sri Wattana, Ban Muang Subdistrict, Ban Dung District, Udon Thani. This is the same area where the Company created a project to provide occupational training for people with disabilities in 2017, which currently provides jobs in farming and animal husbandry for a total of 51 disabled persons according to their conditions and skills. Due to chronic water shortages, these people had been forced to stop working, depriving them of livelihood and income.

IRPC, therefore, implemented the Lam Sai Yong Model Project to provide adequate water supply during the dry season as well as putting in place a long-term agricultural development in accordance with the sufficiency economy approach in the 200-rai project area. The combined farming and animal husbandry project that meets farming and hygienic standards can now be used as a learning center for sustainable agricultural training for people of disabilities.

IRPC's SMART Farming

In 2021, IRPC further developed and expanded the Lam Sai Yong Model Project by applying appropriate agricultural technology in combination with innovations in an area of 35 rai at the Center for the Development of Persons with Disabilities, Udon Thani Diocese, designated as IRPC Smart Farming project in collaboration with the Center for the Development of Persons with Disabilities. The project provides opportunity for persons with disabilities, the elderly, including bed-ridden persons with limited mobility, to learn agricultural techniques appropriate for their capabilities and conditions so that they can earn extra income and support themselves and family. In the 3-year plan (2021-2023) receives support from IRPC in acquiring appropriate and simple technologies and innovations suitable for location conditions and way of life of disabled persons.

In this regard, the work principles of the late HM King Bhumibol Adulyadej the Great, Rama IX have been applied

to set the vision for the project implementation. This refers to “combining agriculture techniques with technology suitable for local conditions and way of life of the community based on frugality, simplicity and maximum benefits.” Supported by education, training and guidance of experts, quality of life of persons with disabilities can be improved to enable them to make a living in farming, earn income and produce quality and marketable crops. An MOU was signed between IRPC and the Faculty of Engineering, Kamphaeng Saen campus, Kasetsart University, to implement IRPC Smart Farming project at the Center for the Promotion of Development of Persons with Disabilities, Udon Thani Diocese on June 21, 2021. Through this collaboration, knowledge and expertise based on experience in water resource management and crop development using agricultural innovations and technologies can be imported to learners. The MOU on IRPC Smart Farming covers the 3-year period, June 21, 2021 to June 20, 2023.

In addition, **IRPC Smart Farming project took part in employment creation under PTT's Restart Thailand project** in support of the government's Restart Thailand initiative as an economic stimulus and social development by

hiring 846 new graduates (holders of vocational certificate-bachelor's degree) to take part in PTT's innovative Smart Farming & Smart Marketing for a period of 12 months. Of these, 150 participants underwent training in Smart Farming, 136 in Smart Marketing, and 560 in Education.

IRPC assigned 6 employees from the Restart Thailand project trained in Smart Farming to implement its Smart Farming project at the Center for the Development of Persons with Disabilities, Udon Thani Diocese. The workers went to work from February 1, 2021 until December 31, 2021 under the supervision of Area Manager, Mr. Krisada Praphasaranon, Specialist, Social Affairs Team (Bangkok), Corporate Reputation Management Unit and Business Relations) in accordance with the job descriptions, work plan in accordance with policies and performance indicators set by PTT.

In addition, IRPC also implemented other related activities as follows:

Dug a water harvesting and storage pond for agriculture, calculated and designed by the company's engineers, covering an area of 7 rai, 1 ngan, 84 square wah, with a depth 3 meters and storage capacity of 28,000 cubic meters.



Water from the pond is used for agriculture in IRPC Smart Farming project (in an area of 35 rai) and part of it is held in reserve for the demands of the Center for the Development of Persons with Disabilities during the dry season.

Built an integrated fish and poultry farming pond under the “raising chicken and get fish”. Raising chicken above a fish farming pond helps farmers lower feed cost, reduce pollution from chicken manure and bring down labor for cleaning chicken coops and disposal of waste. The contractor hired to dig the water storage pond offered to dig a fish farming pond in an area of one rai, measuring 40x40 meters, with a depth of 3 meters, free of charge. The hen house, measuring 5x16 meters, is designed according to hygienic standards with installation and placement of equipment, such as feeding and water troughs, to facilitate access for people with disabilities to do the daily chore of cleaning. The coop accommodates 220 egg-laying chicken, which currently produces about 300 eggs per day. Solar-power pump and rooftop sprinklers keep the hen house cool during the day, especially during the hot season.

Installed a solar power generation system, consisting of six 340W solar panels, and water pumps to divert water from the reserve storage pond to the fish pond where

the egg-laying chicken house is located. The pond also supplies water for farmland, animal husbandry and smart vegetable-growing greenhouse. The project area is beset by weather fluctuations, having low, irregular rainfall with long dry spells in between even during the rainy season months. As a result, the amount of water accumulated in reserve pond is much less than expected. Therefore, there is a need to solve this problem as a matter of urgency. Insufficient water has an enormous impact on these projects.

Installed a vegetable greenhouse, an arch-shaped enclosure with straight walls, measuring 6x20 meters, and is equipped with an automatic watering system powered by solar panels. This helps reduce electricity costs and daily chores of persons with disabilities who work in and maintain the greenhouse. The objective of this project is to experiment with growing vegetables that fetch high prices in the rainy season. By selecting vegetables that would otherwise be damaged by rainfall, farmers can earn more during the rainy season. It was found that such vegetables as morning glory, Chinese cabbage, etc., tend to thrive and produce better yields on raised platforms inside the greenhouse compared to those grown in the open fields. Outcomes of this trial vegetable-growing greenhouse have been assessed and analyzed and serve as input for crop planning for 2022.

We Care by IRPC Project extends a helping hand to stakeholders and the society during COVID-19 pandemic

The number of people infected and hospitalized by the COVID-19 pandemic overwhelmed the public health system, resulting in, among other things, an acute shortage of medical equipment and public health resources. On July 22, 2021, PTT Group held a meeting to discuss ways to help during the worst of COVID-19 outbreak between July and December 2021 in order to lay the groundwork for an assistance scheme that is well coordinated with the government's efforts to bring the situation under control. The Company has provided assistance through PTT Group and the Ministry of Energy as well as acting on its initiative, such as donating 43,000 liters of fuel oil for cremation of the



deceased, providing survival bags, and installing field hospitals and waiting centers with a total budget of about Baht 7 million.

Zinc Oxide Nano Project for farmers

IRPC organized a workshop to share knowledge with durian growers and demonstrate durian tree trunk injection techniques to break the cycle of fungal and bacterial diseases and rehabilitation of trees suffering from root and stem rot. The workshop was held in large-scale durian growers group's office in Moo 1, Kachad Subdistrict, Muang District, Rayong Province. Ninety sets of free samples of Zinc Oxide Nano products were distributed to growers.

In addition, IRPC also implemented other activities as follows:

- Organized workshop to share knowledge with farmers on the prevention of plant diseases and pests at Yai Da agro-tourist resort in Taphong Subdistrict
- In collaboration with the Nanochemical Factory and the R&D team, shared knowledge and demonstrated trunk injection with Zinc Oxide Nano with farmers in



Natakhwan Subdistrict at Kamnan Sukit Orchard of the former Subdistrict headman of Natakhwan

- Visited the durian orchard of Mr. Nippon Krasaesin, Moo 12, Ban Nong Tarot, Taphong Subdistrict, as requested, and demonstrated trunk injection with Zinc Oxide Nano to rehabilitate durian trees suffering from root rot and serious deterioration
- Visited Yai Da eco-tourist resort in Moo 3, Taphong Subdistrict

Implementation of Learning Center, Herb Garden, Community Forest, and Underground Water Bank projects

Description of projects as follows:

- IRPC dug 18 underground water bank wells and 3 demonstration wells for community learning as well as planting trees on a 2-rai plot in community forest.
- Participated in the activity of Trees for our Beloved Father at health promotion hospital Ban Kon Nong Hospital to commemorate the anniversary of the death of King Rama IX. Over 200 perennial and fruit-bearing trees were planted as part of merit-making, led by Dr. Satit Pitutecha, Deputy Minister of Public Health, Muang Rayong District Chief, Rayong Chief Provincial Public Health Officer, community leaders, volunteers, teachers at Ban Lang Community School, Banlang environmental conservation group and the Ban Lang Subdistrict community volunteer group, and was attended by about 80 people.

The Spirit of IRPC Volunteers

The "10,000 IRPC volunteers for cultivation of 12,500 saplings" initiative delivered 1,250 sets of seeds and sapling cultivation tools to volunteer coordinators for sapling cultivation in the communities surrounding IRPC industrial zones in 2022.

- To absorb 112,500 kg of carbon dioxide per year
- To release oxygen to meet the needs of 25,000 people per year
- To trap 17,500 kg of dust particles and airborne pollutants per year



Corporate Social Responsibility (CSR) Awards and Sustainability Awards (Sustainability)

Details appear "Awards Of Recognition For Success" on page 20-25

IRPC Social Impact Dashboard 2021

Supporting community for sustainable growth



>4,000

persons

received needed health services



1,320

employees participated in voluntary activities



98.63%

Community Satisfaction



0

incident of business interruption caused by community protest



350,000 THB

income generated with support provided in 3 projects



>15,000

saplings cultivated for planting in communities surrounding industrial zones and community forests



12 factories

received CSR-DIW certification



65

communities

visited for relationship-building and engagement



0

notice received on failure to follow EIA/EHIA regarding good community relations practices

Performance Indicator



Community satisfaction (per cent)

93

Goal 2021

98.63

Performance 2021

95

Goal 2022

Cash Contribution
18
MTHB

Time Volunteered
18,580
Hrs.

In-kind Giving
7.09
MTHB

Management Overhead
85.49
MTHB



Charitable Donation
MTHB

18.17



Community Investment
MTHB

18.15



Commercial Initiatives
MTHB

1.86

Sustainability Management in Environmental Dimensions

Circular Economy



Opportunities and challenges

Circular economy is an alternative environment oriented economic concept being used around the world to manage the accumulating plastic waste today. This, coupled with the drive to combat global warming and the wider issues of climate change, the quest for low-carbon society or net zero emissions by 2050, is what encourages the world to switch to products with higher recycled content. EU carbon taxes aimed at reducing carbon footprint of imported products is one of driving forces for IRPC to adopt circular economy as an integral part of our sustainability strategy to ensure sustainable growth.

Material issues

Enterprise level indicators



Level of circular economy maturity according to the British Standards Institution: Framework for implementing the principles of the circular economy in organizations - Guide (BS 8001: 2017)

Short-term/long-term indicators

Applying Circular Economy Principles in PTT Group's business operations in order to meet the 3rd Level of Circular Economy Application, referring to BS 8001: 2017, by 2030.

Performance

Assess the level of circular economy maturity for PTT Group, referring to BS 8001:2017 for self-assessment, acknowledging the circular economy maturity level.



Establish a management strategy in line with the circular economy while retaining the 3Rs concept (Reduce, Reuse and Recycle).

Focus on building networks for Post Industrial Recycled (PIR) and Post Consumer Recycled (PCR), as well as optimizing the use of natural materials.

Continuously increasing circular economy projects to increase the opportunity for adding value to existing businesses by producing Recycle Compound Resin, such as PP Recycle Compound, PS Recycle Compound, ABS Recycle Compound and Bio Compound products.



Key sustainability performance

IRPC has continuously implemented circular economy projects which are being assessed by the circular economy maturity level of the PTT Group, referring to BS 8001:2017 for self-assessment. To acknowledge the level of circular economy maturity for the second year in a row. In addition, the Company has also undertaken projects throughout the

value chain to implement Post-Industrial Recycled and Post-Consumer Recycled through cooperation with KFC for the second consecutive year, expanding to 21 branches to recycle and reuse as much single-use plastic products as possible. Meanwhile, 3Rs (Reduce, Reuse, Recycle) projects were maintained to ensure optimization of resources.

Major initiatives

Reduce

IRPC invented products that reduce the use of limited resources, including:

• Joint project with Daiso

Bio-based products include Polypropylene Grade W1561RW, or Polypropylene (PP) compound with 30% Thai wood pulp powder, an industrial waste, as substitute for natural wood. The plastic compound is used to manufacture lightweight plant pots that look like wooden ones. The product received certification US FDA 21 CFR 177.1520 certification (Olefin Polymers) and EU Regulation No. 10/2011.



• Joint project with KFC

IRPC has collaborated with Thai World Ware Polyproducts Co., Ltd. to manufacture cutlery products based on Bio-based Polystyrene Grade PK150B20 for use in KFC restaurants, by mixing High Impact Polystyrene (HIPS) with 20% starch content. Thus, increases the use of natural products while reducing non-renewable materials. The products received US FDA 21 CFR 177.1640 (Styrene Polymers) and EU Regulation No. 10/2011 certification.



• Joint project with Cafe Amazon

As for construction material and decorative products, IRPC developed R-MAXX L-Cement made from plastic mixed with cement, which can be easily injection-molded instead of cast-molded. Such compound, strong, durable with cement-like textures, can be used for the manufacture of a wide range of decorative items, such as attractive lamp shades and plant pots that blend in well with Cafe Amazon's Green Concept decor.



Reuse

• “We Care by IRPC” Project

As the crisis brought on by COVID-19 pandemic continued to play out, shortage of hospital beds for patients became a severe problem for many health care establishments. To help alleviate the problem to make sure patients receive timely treatments, IRPC collaborated with partners, including Success Plast Co., Ltd., sheets, and RMC Intergroup Co., Ltd., a manufacturer, and distributor of PP BOARD, under “We Care by IRPC” project, to provide beds for field hospitals and isolation centers for patients awaiting treatments. POLIMAXX



Polypropylene (PP) resin was used in the production of such field beds, with properties, such as strength, durability, waterproof, maximum load capacity of 200 kilograms, that can be regularly cleaned and disinfected and repeatedly used for patients for up to two years. These waterproof, lightweight beds can be safely cleaned to remove bodily fluids and then disinfected by disinfectant solutions or heat treatment, do not take up much space, is easily moved, assembled, and can be safely recycled.



Recycle

IRPC, as a sustainable petrochemical and oil refining operator, gives utmost priority to management of our environmental impact, focusing on optimization of resources and reduction of production waste by creating an Eco Solution Model for plastic waste management from the production processes to the end of product life to ensure efficient recycling in a closed loop operational system that does not allow post-industrial recycled (PIR) plastic waste to escape. The Company also undertakes to create innovative solutions, adding value to PIR in accordance with the Eco Solution Model in a plastic

waste management effort throughout the entire supply chain. In addition, IRPC has also established Collector Network to collect plastic waste from household, commercial, industrial and services sectors, known as Post-Consumer Recycled (PCR), to be sorted according to recycling purposes. Examples of such project include:

- In collaboration with partner, Ban Krong Nam,

to collect used water filters made with block copolymer type of PCR Polypropylene product group, for recycling as raw materials for the manufacture of green plastic products, in cooperation with Qualy a stationery brand, under its creativity, happiness and sustainability concept.



- The ongoing IRPC-KFC

single-use plastic waste management project was joined by the Mirror Foundation in collecting, sorting, cleaning, and delivery of plastic waste to our partner, Best Polymer International Co., Ltd. to produce PS Recycled Compound from single-use plastic mixed with High Impact Polystyrene (HIPS) for use in the manufacture of brand name watch presentation cases and jewelry boxes by another partner, Cosmo Group Co., Ltd.



RMM151 (PCR PS 45% + HIPSUB 55%)

- IRPC has also partnered with Best Polymer International Co., Ltd.

in upscaling Polypropylene used in battery cases and HDPE in lubricant packaging from PTT Fit Auto shops, turning them into raw materials for the development and creation of plastic and non-agricultural wood composite, which can be used to manufacture extruded sheets to create durable, moisture-resistant and easy-to-wipe clean products that have wood-like textures in any color as required. Such composite is suitable for shelving, cupboards, tables as well as store decoration at PTT Fit Auto shops.



Operational Eco-efficiency

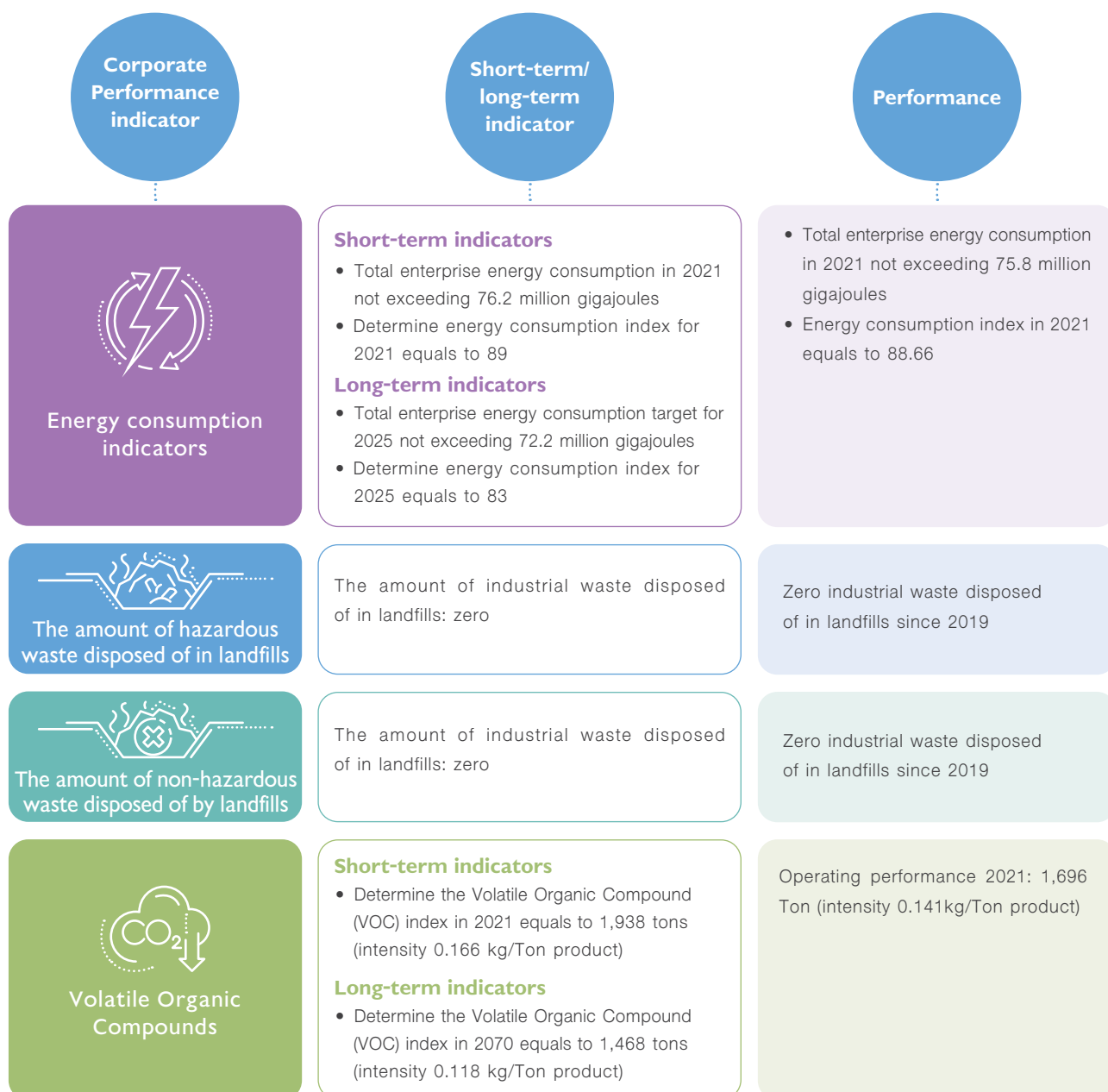


Opportunities and challenges

Mindful of the need to continually advance sustainable solutions to address the country's environmental problems, from solid waste and air quality to wastewater and deteriorating natural resources through proactive policy-making and national agenda-setting, IRPC has wholeheartedly participated in the national agenda to address particulate air pollution, and public-private collaboration to phase out and ban single-use plastic, etc.

IRPC places utmost importance on the cost-effective use of resources in the production processes, mitigation of impact from its operation on the environment that may adversely affect communities and the society at large, throughout its value chain. The company has formulated policies on quality, security, safety, environmental protection, and energy management. This includes the implementation of standard systems, such as ISO 14001, ISO 5001, and Operational Excellence (OEMS) in environmental quality management to reduce the impact on society, communities and to achieve eco-efficiency in production processes

Materiality assessment



Notable eco-efficiency achievements

IRPC gave priority to efficient use of resources and reduction of impact on the environment in 2021, undertaking projects to mitigate impact on the environment, consisting of energy efficiency, air quality and odor management, water resource management, wastewater management, waste management, and complaint resolution projects, to ensure the company's stable and sustainable growth. In 2021, the company received the Thailand Energy Awards 2021 and outstanding creative energy award, reduction in steam energy consumption at ARU refineries by switching to new synthetic amine formula developed by IRPC's refineries under the RESR (SRU) department. IRPC's energy management team at the Ethylene production plant (ETP) also received an award of recognition from the Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy.

Important projects or activities

Energy efficiency

In 2021, IRPC implemented 70 energy conservation projects, which altogether reduced energy consumption by 410,054 gigajoules and cut total energy costs by Baht 116 million and GHG reduction 22,998 tCO₂e. Some of the projects are listed below:

- **Project to adjust (reduce) steam level at 54C002 of Naphtha distillation tower to use electricity from STG unit I**

that had yet to reach its full power-generating capacity. As a result, the STG unit was able to increase its production output from this project by 2.54 GW/year, thus, reducing electricity costs by Baht 5.2 million per year.

- **Project to decrease pure H₂ product loss to flare by switching to Fuel Gas (FG) system**

Typically, the H₂ system maintains system pressure by releasing a portion of excess hydrogen, also known as H₂ buffer, to the flare stack. Efforts have been made to find a way to feed the H₂ buffer into the FG system instead of releasing it to the flare stack by modifying function control to divert the excess hydrogen destined for the flare to the 52C004 and on to the FG system as fuel instead. If the distillation system's demand for H₂ increases, that excess hydrogen can be recovered by reducing the supply of excess hydrogen to the FG system. At the same time, the H₂ buffer continues

to serve its purpose of maintaining the H₂ system pressure. Such excess hydrogen can be recovered instantaneously when needed. The modification enables IRPC to utilize excess hydrogen destined for the flare and reduces fuel cost by Baht 5.48 million per year as well as cutting back on impact on the environment from the company's operations.

- **Project to reduce the pressure at the top of the Toluene distillation tower (03C002) from 4.8 BarG to 4.7 BarG**

Reduce OVHD Pressure of Toluene column at BTX plant This is a project to lower heat energy at furnace 03B001, which provides heat to the distillation tower. The principle of distillation is based on the difference in the boiling point of each respective component in the mixture. The boiling point of the liquid is inversely proportional to the vapor pressure. The lower the pressure above the liquid, the lower the temperature at which the liquid will boil. Therefore, decreasing the pressure at the top of the Toluene distillation tower lowers the boiling point of Toluene. This results in a reduction in heat energy consumption at 03B001 furnace, lowering fuel consumption at 03B001 by 709 gigajoules per year, or a reduction in fuel expense of Baht 126,465 per year.

Air quality and odor management

- **NO_x, SO_x, and TSP management**

IRPC attaches foremost importance to control of air pollutant emissions, starting with control of factors that determine combustion efficiency in an effort to mitigate environmental impact. The company opted for fuels with low environmental impact, such as fuel gas, coupled with conditions of combustion processes to minimize pollutants like NO_x, SO_x, and TSP. In addition, IRPC insisted on using Low NO_x Burners that significantly lower NO_x emissions.

Other than its choice of combustion control technology and less polluting fuel, IRPC also established a regular annual maintenance plan for furnaces to ensure combustion efficiency, together with continuing effort to minimize environmental impact. The company has engaged a third-party consultant to monitor the quality of air pollutant emissions. Emissions measurement results have passed the IRPC industrial zone's pollution

control criteria as well as the standards prescribed under Notifications of the Ministry of Industry. This is testament to the efficiency of our air pollution management targeting SOx, NOx, and TSP.

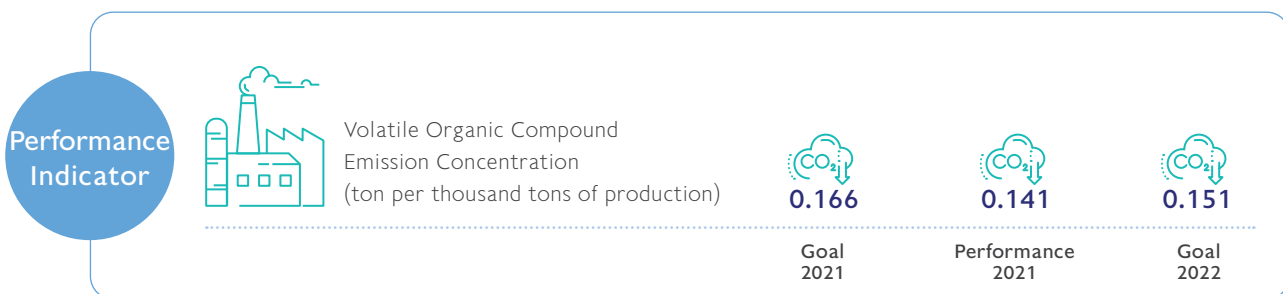
• Management of Volatile Organic Compounds (VOCs)

IRPC started a project to upgrade the Reformate tank roofing at the storage tank yard. Under the project, to be completed in the first half of 2022, existing cone roof tanks were being replaced with internal floating roofs. The project aims to reduce VOC emissions by 90%, compared to before the improvement.

Actions are being taken to control, and prevent VOC discharge during maintenance work, using the Green Turnaround concept aimed at assessing risk of VOC discharge associated with various maintenance

activities to find appropriate measures to prevent it. Measurements will be taken at the facility prior to maintenance disassembly, and surveillance measures taken around the factory perimeter walls to verify outcomes of preventive measures as well as to analyze and identify any source of significant discharge. This is in order to find sustainable solution to the problem.

IRPC collaborated with the public sector to provide information to draft a standardized code of practice (COP) on the prevention of volatile organic compound emissions from three major sources: storage tanks, flare stacks, and from maintenance works. The Company also extended cooperation to others within the same industrial sector to promote adapting the draft COP in actual operations in a move towards finding a sustainable solution to VOC management problems.



Water management

Water is a vitally important resource, not only for IRPC but for everybody else in all sectors of the society. The company takes it upon itself to participate in water resource management in collaboration with government agencies and other water users within the PTT Group as well as external parties. Participation in water resource management must start at the upstream to ensure the company's operations do not interfere with water consumption patterns linked to ways of life of people in the agricultural sector, the needs of industrial sectors and the general public. In 2022, a water user committee was established with the objective to achieve a balanced approach to the sharing of natural water resources between IRPC and communities. This is implemented alongside the company's effort to ensure smooth, continuous operations, uninterrupted by scarcity or shortage.

IRPC's internal water resource management approach is based on the 3Rs concept: reduce, reuse, and recycle. That is, reduce water consumption at the source, then reuse and recycle industrial discharge that has undergone treatment to meet quality standards suitable for reuse for other purposes, such as watering plants and using treated water instead of distilled water to prepare chemical solutions. As for digitalization, the i-utility application is being used to monitor and compare water consumption against efficient usage to promote awareness. This could lead to less water being extracted from the sources in the first place. The company also launched a campaign to encourage employees to conserve water in their daily life at home and at work as part of the effort to instill in them a culture of water conservation.

Wastewater management

IRPC has conducted measurements and surveillance of wastewater based on effluent quality parameters applicable within the company's own industrial zone to ensure it meets the standards of the Online COD at the Receiving Ponds 1 and 2. Measurement results are then delivered to the Department of Industrial Works' monitoring system.

IRPC has registered two wastewater treatment plants in IRPC industrial zone in Rayong Province to ensure efficiency in the management of wastewater from the company's operations. The operation of IRPC's wastewater treatment plants are controlled by a pipeline network that covers all factories in the industrial zone. Wastewater quality is checked against internal standards prior to being discharged into the treatment facility to ensure the efficiency of treatment at the source and to minimize measurement reading errors at the central wastewater treatment system.

To ensure water treatment management efficiency and assure stakeholders of the company's operational sustainability, IRPC has engaged third-party consultant and government agencies to regularly collect wastewater samples for analysis to ascertain its wastewater quality meets both its internal standards and the standards prescribed by Notifications of the Ministry of Industry.

Waste management

On waste management, the company adopted the 3Rs and Circular Economy concepts to guide its effort to achieve maximum resource management efficiency. The company has conducted R&D in collaboration with waste disposal operators to explore the possibility of recycling or recovery to reduce pollution and to add value to the recovered resources. The company also organized activities to promote the 7Rs principles in various operational processes, including maintenance, the Green Turnaround Project, featuring Reuse Insulation project that advocates the reuse of used but functional insulation, which throughout 2021 reduced disposal and material replacement costs by over Baht 400,000, and 10 tons of used insulation materials that would otherwise have ended up in the incinerator. In addition to the management of waste at its final stage, IRPC also implemented a project to improve the efficiency of machines to reduce maintenance costs and to keep machines and facilities clean as part of the effort to cut back on industrial waste at its source.

Performance Indicator



Hazardous waste landfill volume compared to total hazardous waste volume (per cent)



Community Complaint Management

IRPC has set up Emergency Control Center (ECC) responsible for receiving complaints from the community 24 hours a day. The system administrator will refer a complaint to the relevant units, make a field trip to investigate the cause of complaint and report the results to the top management who will provide guidance, analyze the cause, monitor and support for

remedial action and complaint resolution. The complainant will be informed of the cause of their grievance, the company's response to the complaint and remedial action. In 2021, the number of complaints decreased by 35% compared to 2020. This was attributed to improvement in data analysis of complaints enabling the company to identify the root cause

of grievance so that corrective actions could be taken leading to complaint resolution. The company also created a Zero Complaint road map that provides clarity in the way odor issues will be resolved in the future through short- and long-term solutions. To address odor issues, IRPC has implemented 10 projects, such as Enclosed Ground Flare, Waste Water Treatment Closed System, and CPI/API Improvement, etc.

IRPC has proactively communicated its environmental actions to stakeholders through various channels, such as organizing meetings, seminars or visiting the community, distributing newsletters through community learning centers.

These outreach activities cover new projects with pending EIA, projects in construction phase and ongoing projects.

Through its operations in 2021, IRPC received 32 Green Industry Awards Level 5; nine factory awards for REFY, COND, LUBE, EBSM, PS, EPS, CCM, UT-IP, PWP; and 23 Green Industry Awards Level 4, including REFY, COND, LUBE, DCC, UHV, EBSM, PS, EPS, CCM, ABS, BTX, ETP, ACB, PRP, HDPE, PP, PTK, CD1, UT-BK, UT-IP, PWP, WWT1&2, WWT3. The Company received the most awards of recognition in this year's award presentation event.



IRPC and the conservation of sea turtle species at Koh Mun Nai

IRPC joined the conservation of sea turtle species in collaboration with the Marine Research Center and the Eastern Gulf of Thailand. The first project, Homecoming turtles, in the Footsteps of the Beloved King on December 7, 2016, featuring activities such as trash and litter collection, crowd forming human alphabets to commemorate the death of King Rama IX, and release of hatchlings of two sea turtle species: green and hawksbill turtles. This project is ongoing.

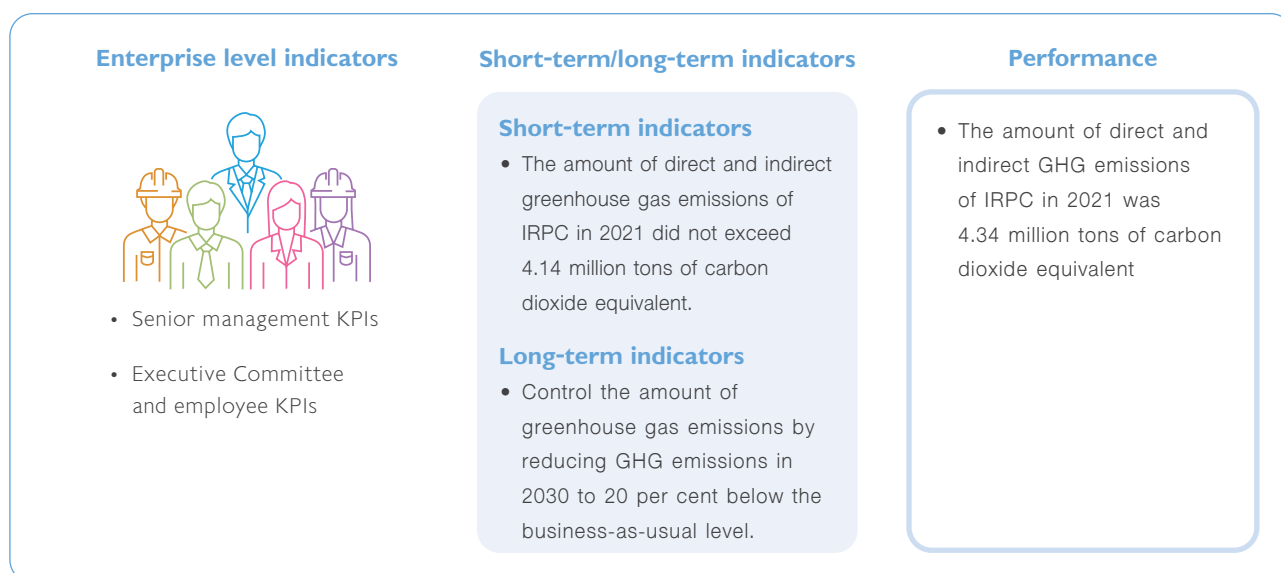
Climate Strategy



Opportunities and challenges

The COP26 summit urged countries to set more ambitious greenhouse gas reduction targets to keep a rise in global average temperature within 1.5 degrees Celsius compared to pre-industrial levels, to achieve the target of net-zero emissions by 2050. The UN conference also called for more stringent global trade rules to accelerate green transition. Mindful of such challenges, IRPC is fully prepared and determined to continue to roll back greenhouse gas emissions according to PTT Group's guidelines. Greenhouse gas emission targets and plan of actions have been reviewed and new targets set to further cut back emissions in all operational processes and continue investing in projects that reduce emissions and promote renewable energies.

Material issues

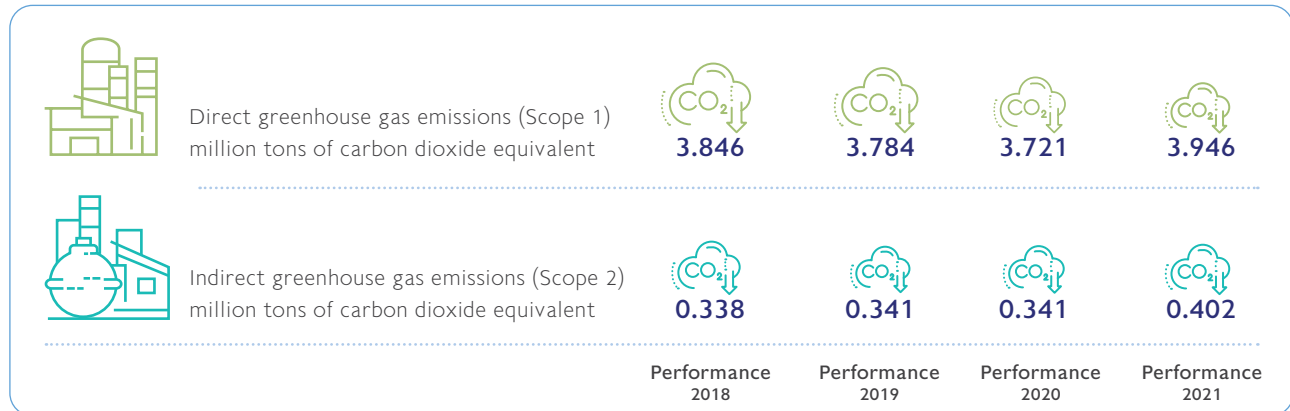


Key climate change performance

IRPC reviewed its corporate strategy to correspond with climate 2021, IRPC identified climate change as one of its sustainability challenges brought on by climate change, a target is set to reduce GHG emissions in 2030 to 20 per cent below the business-as-usual level. The Company was also reviewing targets aimed to achieve net-zero GHG emissions together with PTT Group. In 2021, a new target of direct and indirect GHG emissions was set at not more than 4.14

million tons of carbon dioxide equivalent. However, due to the use of coal in 2021 to generate electricity at IRPC's power plants, the amount of GHG emissions was 4.34 million tons of carbon dioxide equivalent. IRPC remains committed to reduce GHG emissions by implementing energy conservation projects to minimize emissions and an unwavering quest for clean energy alternatives to coal.

IRPC has also applied Task Force on Climate-related Financial Disclosures (TCFD) principles for the assessment of risks, impacts and business opportunities as well as identifying measures to effectively manage risks and contingency.

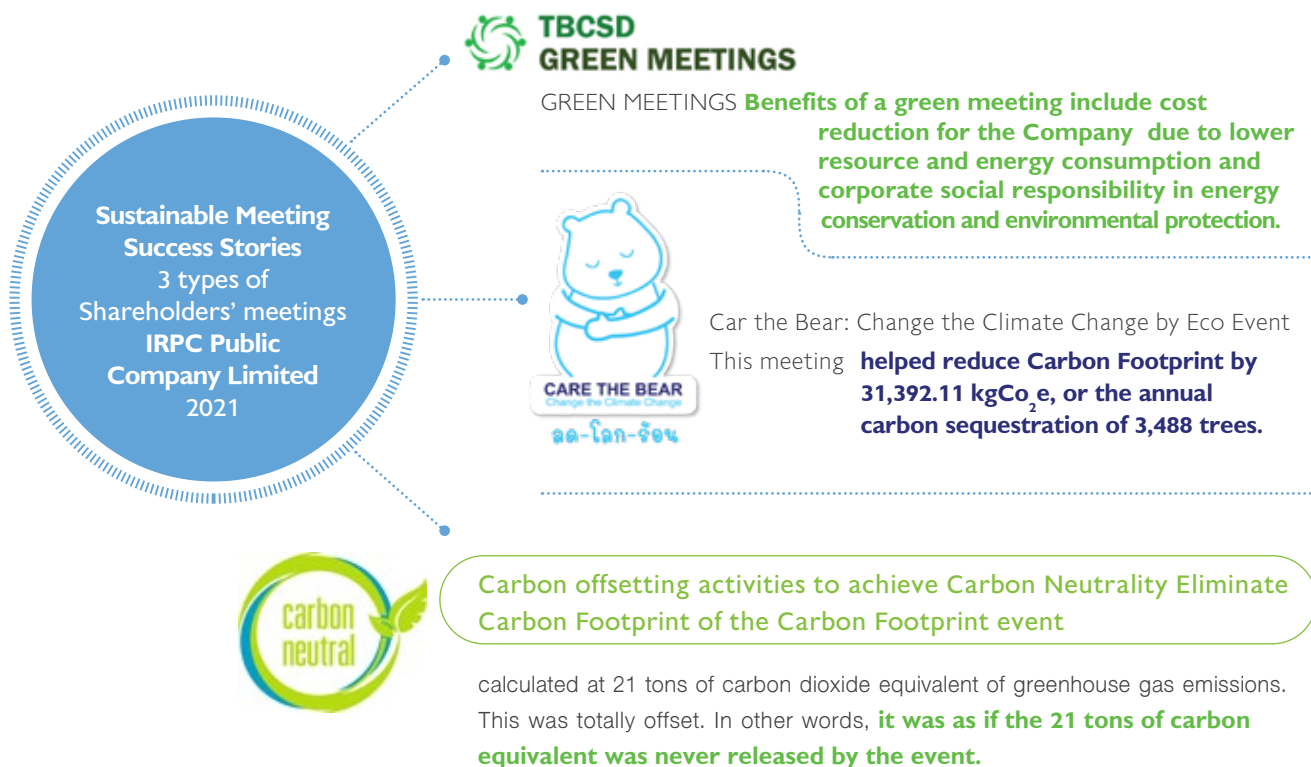


Major projects or activities

Carbon-neutral Shareholders' meeting



In 2021, IRPC received certification for the second consecutive year for hosting a Carbon Neutral Event. The combined carbon footprint of annual shareholders' meeting along with associated seminars and events on March 31, 2021, was calculated at 20.51 tons of carbon dioxide equivalent of GHG emissions. The GHG emissions produced by such event were completely offset, resulting in carbon neutrality as if the 20.51 tons of carbon dioxide equivalent of GHG emissions never took place, through the implementation of Mitr Phol Bio-Power (Danchang) – Block 2 project.



Internal Carbon Pricing

In 2021, IRPC adopted the concept of internal carbon pricing (ICP), or shadow price, in evaluation and decision-making on green projects and investments, alongside other financial tools, such as internal rate of return (IRR). IRPC set an ICP 20 US\$20/TonCO₂e in accordance with the guidelines on the

determination of carbon pricing and low carbon investment as recommended by Thailand Greenhouse Gas Management Organization (TGO) in collaboration with World Bank. Such green investments include the Floating Solar Phase II 9.0 MW for PP Plant, VDU Heater Energy Efficiency Improvement for Lube Plant.

Carbon Emissions Management Certification

IRPC is committed to play an active role in reducing GHG emissions in Thailand and at international level through participation in the Conference of Parties (COP) under the United Nations Framework Convention on Climate Change. The Company applied for Carbon Footprint for Organization Certification (CFO) certification, Carbon Footprint of Products (CFP) certification and Carbon Footprint Reduction Label, to reduce emissions from its operations, lower cost of resources and create new opportunities for growth and improvement in competitiveness.

IRPC has for seven consecutive years taken part in the Carbon Footprint for Organization (CFO) project, organized by the Federation of Thai Industries with financial support from Thailand Greenhouse Gas Management Organization (TGO). The project offers tools to help companies manage their carbon emissions by quantifying and reporting reduction in GHG emissions from operational activities, such as fuel combustion, electricity consumption, waste management and transportation. In 2021, IRPC obtained the Carbon Footprint Reduction Label from the TGO for four production plants: CHP & PW, DCC, UHV and LBOP.

In addition, IRPC applied to the TGO for Carbon Footprint Labels for 6 products: power, combine heat and power, tap water (from Ban Khai) and IP water filtration plant) along with demineralized water for the

production processes of the factory and has been certified for renewal of the Carbon Reduction Label from the Thailand Environment Institute Foundation in the following plastic pellet products under POLIMAXX trademark:

- Polypropylene plastic (PP) products for PP Homo Polymer products (69,787.49 tons CO₂e per year); PP Random Copolymer (20,043.57 tons CO₂e per year); and PP Block Copolymer (14,171.46 tons CO₂e per year).
- Expandable Polystyrene (EPS) for STD type (Standard type) (3,430 tons CO₂e per year) and SE TYPE (Self extinguishing type) (3,430 tons CO₂e per year).
- Polystyrene plastic (PS) products for High Impact Polystyrene (HIPS) (3,932 tons CO₂e per year) and General Purpose Polystyrene (GPPS) products (3,844 tons CO₂e per year).

IRPC receives “excellence” TGO award for Low Carbon and Sustainable Business Index Project

Our determination and prioritization of energy resource management for energy optimization and efficiency through R&D leading to innovations in alternative clean and renewable power sources in its production processes. For this, IRPC received outstanding Low Carbon and Sustainable Business Index (LCSI) project award 2021 from Thailand Greenhouse Gas Management Organization (TGO). Such recognition is testament to IRPC’s unfailing commitment to drive low carbon businesses that provide solutions to some of climate change-related issues.



IRPC joins the low-carbon business community to reduce GHG emissions by setting science-based targets (SBT)

IRPC’s Combined Heat and Power (CHP&PW) joined to Science Based Targets initiative (SBTi) to encourage the private sector to set science-based targets in their GHG emission reduction efforts. Organized by Thailand Greenhouse Gas Management Organization (TGO), the initiative to study goal setting based on scientific methods and operational planning to keep the increase in global average temperature to within 1.5 and 2 degrees Celsius above pre-industrial levels. IRPC first joined the seminar to promote the application of SBTs on September 13, 2021. The initiative followed the Carbon Footprint for Organization project that helps businesses analyze and identify GHG emission hot spots. The SBT initiative is designed to help businesses set realistic targets to reduce GHG emissions as part of the effort to raised sustainability standards of the Thai private sector in their transition to a low-carbon future.



Lam Sai Yong Model receives a certificate of recognition as a Low Emission Support Scheme (LESS)

IRPC received a certificate of recognition as a Low Emission Support Scheme, also known as LESS, an initiative to develop activities to raise awareness of GHG emission reduction by Thailand Greenhouse Gas Management Organization. The TGO officially recognized Lam Sai Yong Model for its low-carbon water resource management with the installation of solar energy pumps and irrigation systems at Lam Sai Yong Model project, which is part of IRPC Smart Farming. The water resource management project reduced GHG emissions by 7,414 kilograms of carbon dioxide equivalent in the period from August 1, 2018 to December 31, 2020.





Thailand Voluntary Emission Reduction Program: T-VER

IRPC's 12.5 MW capacity Floating Solar Power Plant project was awarded a plaque of recognition and certificate for Thailand Voluntary Emission Reduction (T-VER) project by Thailand Greenhouse Gas Management at TGO Board of Directors' meeting No. 8/21 on Thursday, August 26, 2021.

The Floating Solar Power Plant was registered as a T-VER project, which is expected to reduce GHG emissions an average of about 9,459 tons of carbon dioxide equivalent per year ($\text{tCO}_2\text{eq/y}$) during the carbon credit calculation period of 7 years, from January 1, 2021 to December 31, 2027.

Assessing risks, impacts and opportunities in accordance with the Task Force on Climate-related Financial Disclosures (TCFD) guidelines

IRPC fully recognizes the risks associated with climate change as a major threat to sustainable development that may impact the company's business operations. These include physical risks from natural disasters and risks arising from the rapid changes in policies, regulations and technologies as society and economies shift towards more climate friendly future (transition risks).

The Company has adopted the Task Force on Climate-Related Financial Disclosures (TCFD) in four key areas: Governance, Strategy, Risk Management, and Metrics and Targets as guidelines for assessing risks, impacts and opportunities in line with our business operations in 2022.



“

IRPC highly values the presentation of qualitative assessment of the management's performance as well as forecasts and business outlook to make sure investors have adequate, accurate and reliable information to make informed decisions. Effective execution of IRPC's well-conceived business strategy contributed to the company's net profits of Baht 14,505 million in 2021, an increase of 336 per cent, compared to the previous year.

”

Management Discussion and Analysis (MD&A)



Executive Summary

	Unit	2021	2020	%Change
Crude Intake	Million bbl	70.19	70.35	(0.2%)
Sales ^[1]	Million Baht	255,115	174,463	46%
Net Sales ^[2]	Million Baht	235,174	152,319	54%
Market GIM	Million Baht	29,588	19,414	52%
	USD/bbl ^[3]	13.12	8.78	49%
Accounting GIM	Million Baht	40,692	17,825	128%
	USD/bbl	18.04	8.06	124%
EBITDA	Million Baht	26,961	4,692	475%
Net Profit	Million Baht	14,505	(6,152)	336%

Notes: ^[1] Sales include (1) Petroleum Sales (2) Petrochemical Sales (3) Power and Utilities Sales (4) Sales of tank farm and port service, etc.

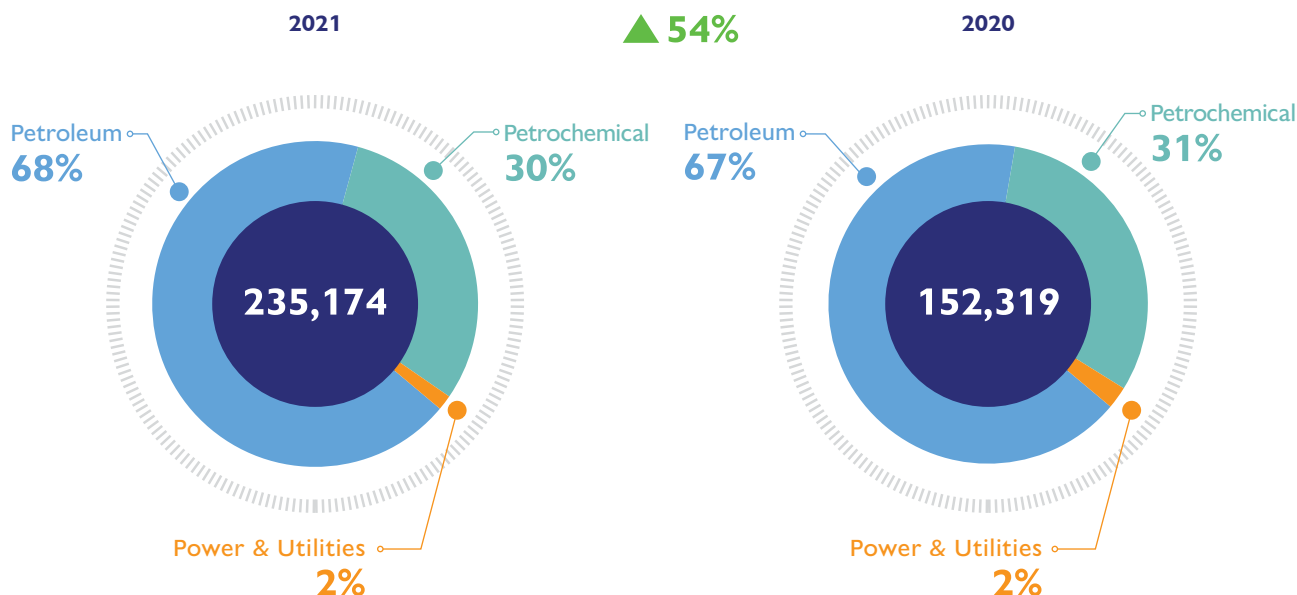
^[2] Net Sales include (1) Petroleum Sales (excluding excise tax) (2) Petrochemical Sales (3) Power and Utilities Sales

^[3] Market GIM per bbl: [(Market GIM/Crude Intake)/exchange rate]

The operating results in 2021 compared to those in 2020: In 2021, the Company registered net sales of Baht 235,174 million increasing by 54% from those in 2020. This attributed to a 55% increase in average selling prices following higher crude oil price versus a 1% decrease in sales volume. The average crude intake was 192,000 barrels per day, similar with that in 2020.

Net Sales

(Unit: MB)



The Market Gross Integrated Margin (Market GIM) was Baht 29,588 million (USD 13.12 per barrel) rising by 52% following an increase in both petroleum and petrochemical products spreads as the COVID-19 pandemic continued to unwind after widespread vaccination as well as lockdown lifts in several countries, while the crude premium rose.

The crude oil price extremely increased from USD 42.21 per barrel in 2020 to USD 69.24 per barrel in 2021 as the tight crude oil market situation. The occurrence was mainly caused by loosening pandemic-related restrictions. Plus, OPEC and allies cooperated to control oil production, especially an additional crude oil output cut of 1 million barrel per day by Saudi Arabia at the beginning of the year. Meanwhile, the U.S. crude oil production slightly rose. Hence, the Company had the net stock gain of Baht 11,104 million or USD 4.92 per barrel involving the stock gain of Baht 13,112 million while the loss on Lower of Cost or Market (LCM) of Baht 54 million and the realized oil hedging loss of Baht 1,954 million compared to the net stock loss of Baht 1,589 million or USD 0.72 per barrel in 2020. Therefore, the Accounting Gross Integrated Margin (Accounting GIM) was Baht 40,692 million or USD 18.04 per barrel increasing by Baht 22,867 million or USD

9.98 per barrel. The operating expenses were Baht 13,594 million decreasing by 2%. These led to the earnings before interest, tax, depreciation and amortization (EBITDA) of Baht 26,961 million increasing by Baht 22,269 million or 475%.

The Company recorded the depreciation expenses of Baht 8,587 million declining by 4%. The net financial cost was Baht 1,699 million decreasing by 8% because of lower interest rate. The loss on financial derivatives amounted to Baht 302 million declining by 28% and the loss on foreign exchange from US Dollar-Borrowings was Baht 474 million increasing by Baht 472 million owing to the Thai Baht depreciation. The Company had outstanding USD debt of 140 million at the end of 2021. Meanwhile, there was the unrealized gain on oil hedging of Baht 313 million compared to the unrealized loss on oil hedging of Baht 961 million. The gain on investments was Baht 719 million rising by 112%. The Company had the corporate income tax amounting to Baht 2,351 million compared to the 2020 corporate income tax benefit of Baht 1,554 million because of the significantly improving operating results. All previously mentioned resulted in the 2021 net profit of Baht 14,505 million against the net loss of Baht 6,152 million in 2020.

Key incidents in 2021

The issuance of debentures

On May 20, 2021, the Company has completed fund raising from the issuance of unsubordinated and unsecured debentures in 5 tranches in a total amount of Baht 12,000 million including;

Tranche 1: The debentures are offered to Individual Investors in the amount of Baht 4,000 million with tenor of 5 years. The debentures have a fixed coupon rate of 3% per annum.

Tranche 2-5: The debentures are offered to the Institutional Investors and/or High Net Worth Investors in the amount of Baht 8,000 million with tenor of 3-15 years. The debentures have a fixed coupon rate of 1.77%-4.10% per annum.

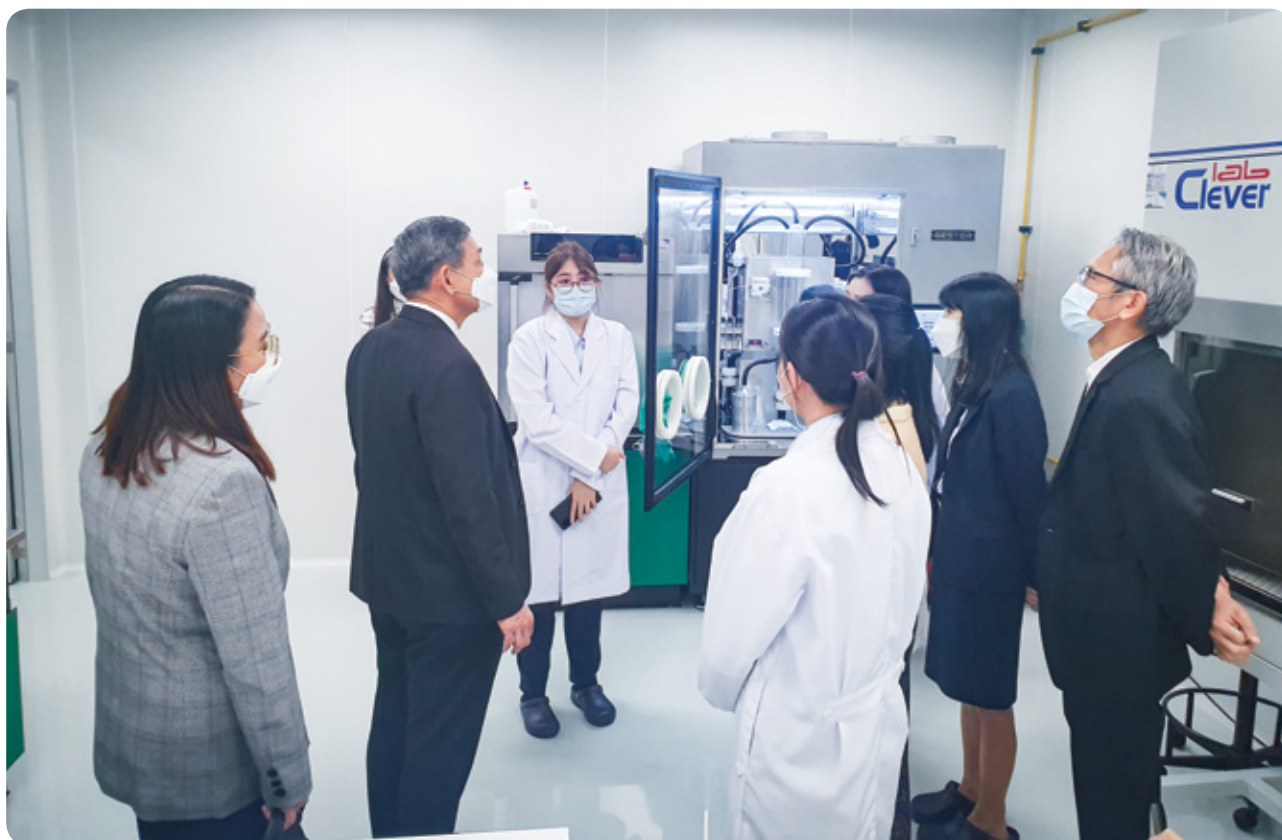
The investment in Innopolymed Company Limited

The Company jointly invested in Innopolymed Company Limited with Innobic (Asia) Company Limited, a subsidiary

of PTT Public Company Limited. The registered capital was Baht 260 million by which the Company and Innobic (Asia) Company Limited hold the shares being equivalent to 60% and 40% of the total shares respectively. Thus, such company has been the subsidiary of the Company. The objective of Innopolymed Company Limited is to operate the production and distribution of non-woven fabric and medical consumables businesses. Such company has been completed its registration in 2Q21.

The investment in Vajira Lab for Society Company Limited

The Company jointly invested in Vajira Lab for Society Company Limited by holding shares with Navamindradhiraj University in the equal proportion at 50% of the total shares in 2Q21. Thus, such company has been the joint venture of the Company with the registered capital of Baht 22 million. The objective of such company is to set up a laboratory providing sampling, analysis and certification services for medical devices in terms of a social-enterprise.



Operating Performance

1. Operating Performance by Business Units

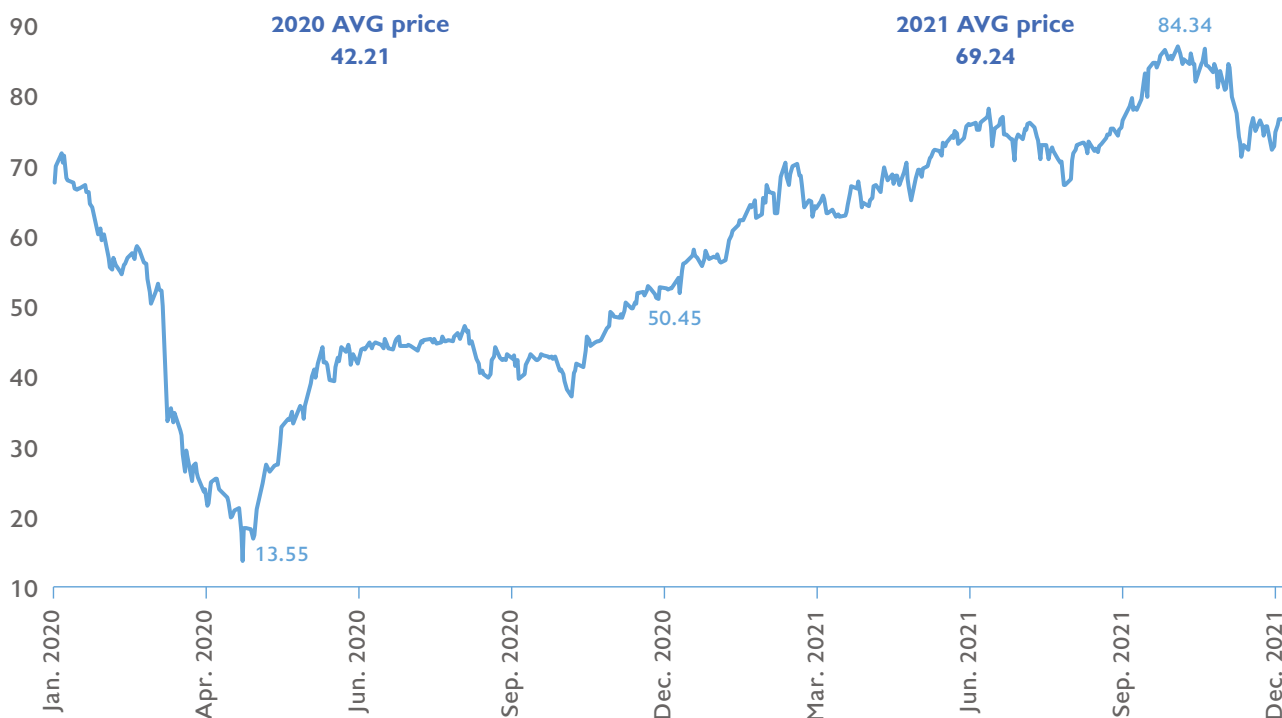
1.1 Petroleum business unit

1.1.1 Petroleum Market Overview

Crude oil situation in 2021: The global oil consumption was 98.4 million barrels per day rising by 5.1 million barrels per day compared to the 2020 oil consumption of 93.3 million barrels per day. The Dubai price in 2021 moved between USD 50.45 per barrel and USD 84.34 per barrel, with an average of USD 69.24 per barrel that rose by USD 27.03 per barrel from USD 42.21 per barrel in 2020. This was mainly because overall situations of COVID-19 pandemic improved continuously being consistent with COVID-19 vaccine distribution. These occurrences led to eases of epidemic-related restrictions entailing rising oil demand. Furthermore, OPEC and allies cooperated to reduce crude oil production, especially Saudi Arabia announcing to provide an additional production cut of around 1 million barrel per day in early 2021, while the U.S. crude oil production increased by only 0.7 million barrels per day from that in early 2021. Meanwhile, the oil production growth was 2 times lower than the oil demand growth that led to a tight-supply condition boosting the crude oil price.

Dubai Price

(Unit: USD/bbl)



1.1.2 Crude Intake and Capacity

Petroleum	2021	2020	%Change
Crude Intake			
Million barrels	70.19	70.35	(0.2%)
KBD	192	192	0%
Utilization Rate			
Refinery	89%	89%	0%
RDCC	115%	90%	25%
Lube Base Oil	90%	85%	5%

In 2021, crude intake was 70 million barrels or 192,000 barrels per day (192 KBD). Refinery utilization rate was 89% being approximate to that in 2020.

The utilization rate of RDCC plant in 2021 was 115% increasing by 25% from that in 2020 of 90% owing to improved petroleum and petrochemical market situations.

The utilization rate of Lube Base Oil plant in 2021 was 90% rising by 5% from that in the prior year thanks to the improved market situations.



In 2021, crude intake was 70 million barrels or 192,000 barrels per day. Refinery utilization rate was 89% being approximate to that in 2020.



1.1.3 Petroleum Sales

Products	Sales Volume (Million Barrels)		Sales Value (Million Baht)	
	2021	2020	2021	2020
Refinery	52.73	53.84	136,063	87,025
Lube Base Oil	7.37	7.25	24,563	14,404
Total	60.10	61.09	160,626	101,429

In 2021, net sales of petroleum businesses increased by 58% from that in the previous year as the average selling prices increased by 60% following the rising crude oil price, while the sales volume was down by 2%.

In 2021, net sales of petroleum businesses were Baht 160,626 million increasing by Baht 59,197 million or 58% from that in 2020. This was mainly because of a 60% increase in the average selling prices following the rising crude oil price versus a 2% decrease in the sales volume, from 61.09 to 60.10 million barrels. The drop in the sales volume was mainly from Naphtha and Lube Base Oil, while the sales volume of Diesel and Asphalt improved.

1.1.4 Petroleum Sales Breakdown

Products	2021		2020	
	Local	Export	Local	Export
Refinery	62%	38%	62%	38%
Lube Base Oil	41%	59%	41%	59%
Total	59%	41%	59%	41%

In 2021, the proportion of domestic and export of petroleum products was 59:41 being similar to that in 2020. The export products in 2021 were mostly shipped to Singapore, Cambodia and Malaysia respectively.

1.1.5 Petroleum Products Spread

Average Price	2021	2020	%Change
Dubai Crude Oil (USD/bbl)	69.24	42.21	64%
Petroleum (USD/bbl)			
Naphtha-Dubai	1.4	(1.8)	178%
ULG95-Dubai	11.1	4.4	152%
Gas Oil 0.05%S-Dubai	6.7	6.1	10%
FO 180 3.5%S-Dubai	(4.9)	(3.0)	(63%)
Lube Base Oil (USD/MT)			
500SN-FO 180 3.5%S	845	389	117%
150BS-FO 180 3.5%S	1,234	514	140%
Asphalt-FO 180 3.5%S	(11)	38	(129%)

The spread between Petroleum products and Dubai

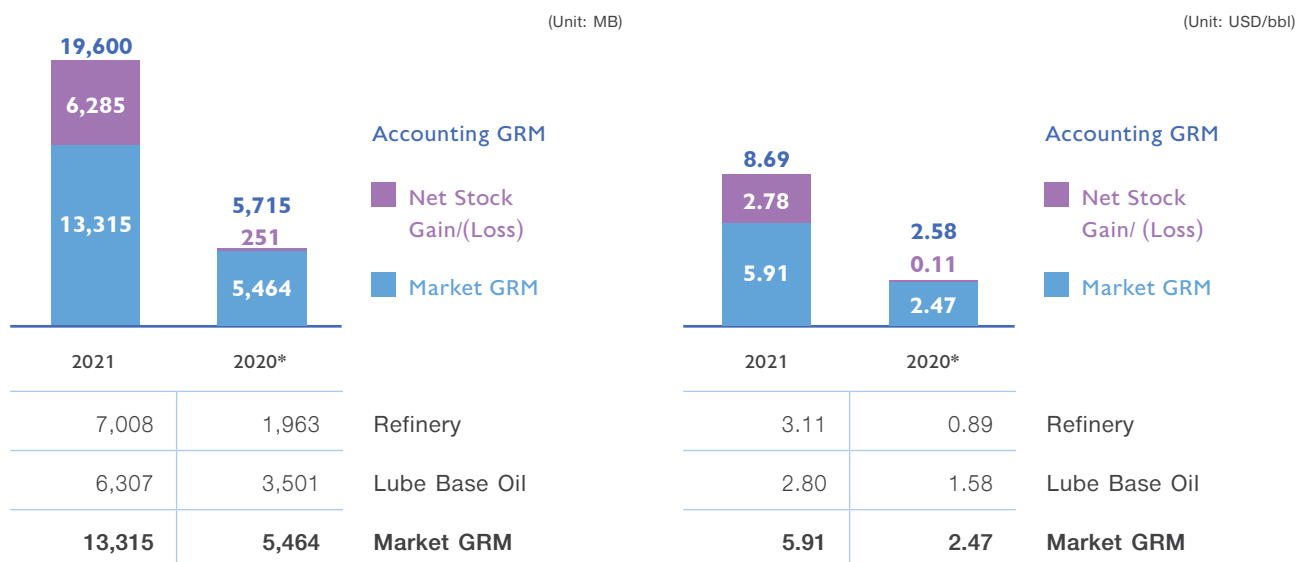
- Naphtha Spread - Higher:** Naphtha - Dubai spread in 2021 was USD 1.4 per barrel increasing by 178% from USD -1.8 per barrel in 2020. This was because the price of LPG, a raw material for olefins production, was high, hence increasing Naphtha demand for substituting LPG utilization in such production. In addition, higher Gasoline spread led to increasing Naphtha demand for producing Gasoline. In 4Q21, Naphtha - Dubai spread was USD 3.6 per barrel increasing by 71% from USD 2.1 per barrel in 3Q21. This was owing to high Gasoline and LPG prices boosting Naphtha demand for substituting the use of such products.
- ULG95 Spread - Higher:** ULG95 - Dubai spread in 2021 was USD 11.1 per barrel increasing by 152% from USD 4.4 per barrel in 2020 thanks to eases of COVID-19-related restrictions, especially in European countries and the U.S., which entailed rising Gasoline demand. In the meantime, the Gasoline demand in Asia at the end of 2021 reached the pre-pandemic level. In 4Q21, ULG95 - Dubai spread was USD 15.5 per barrel enhancing by 31% from USD 11.8 per barrel in 3Q21 as the demand improved regularly, especially in the U.S., owing to better overall COVID-19 pandemic situations.
- Gas Oil Spread - Higher:** Gas Oil - Dubai spread in 2021 was USD 6.7 per barrel increasing by 10% from USD 6.1 per barrel in 2020 due to the rising price of LNG, being a raw material for power generation, hence escalating Diesel demand for substituting LNG utilization or so-called Gas-to-oil switching. In 4Q21, Gas Oil-Dubai spread was USD 11.4 per barrel improving by 111% from USD 5.4 per barrel in 3Q21. This was because Diesel demand enhanced seasonally over a quarter, particularly in Asia that the Diesel demand recovered following the lockdown eases, while a Diesel export from China declined due to refinery maintenance shutdowns.

- Fuel Oil Spread - Lower:** High Sulphur Fuel Oil (HSFO) - Dubai spread in 2021 was USD -4.9 per barrel declining by 63% from USD -3.0 per barrel in 2020 owing to weak HSFO demand following congestions at certain major ports and decreasing crude oil exports from the U.S. and countries in the Middle East. In addition, HSFO production increased according to improving refinery utilization, which pressured the HSFO price. In 4Q21, HSFO - Dubai spread was USD -6.9 per barrel dropping by 103% from USD -3.4 per barrel in 3Q21 as the HSFO demand was weak following the port congestions, while the Gross Refining Margin revived encompassing growing overall refinery utilization resulting in the rising HSFO production.

The spread between Lube Base Oil products and FO 180 3.5S

- 500 SN Spread - Higher:** Lube Base 500SN - Fuel Oil spread in 2021 was USD 845 per ton increasing by 117% from USD 389 per ton in 2020 owing to the declining supply according to maintenance shutdowns of several Lube Base Oil plants, whilst the Lube Base Oil demand was steady. In 4Q21, 500SN - Fuel Oil spread was USD 671 per ton dropping by 25% from USD 895 per ton in 3Q21 as the supply recovered after the heavy shutdown period of the refinery plants was over. Meanwhile, the demand was pressured as certain factories in China adjusted their operating rates down because of insufficient power issues in China.
- Asphalt Spread - Lower:** Asphalt - Fuel Oil spread in 2021 was USD -11 per ton declining by 129% from USD 38 per ton in 2020 as the Asphalt demand decreased owing to budget allocation focusing more on boosting economies and healthcare systems, thus lower budget for infrastructure improvement. Moreover, the Asphalt demand in China was curbed by Zero COVID policies leading to lockdowns in certain areas of China. In 4Q21, Asphalt - Fuel Oil spread was USD -29 per ton increasing by 33% from USD -43 per ton in 3Q21 as the demand in 3Q21 was constrained amid rainy season.

1.1.6 Gross Refining Margin



Note: *Reclassified GRM and Net Stock Gain/ (Loss)

“ In 2021, Market GRM was Baht 13,315 million or USD 5.91 per barrel escalating by Baht 7,851 million or USD 3.44 per barrel, YoY, as most petroleum products spreads improved. ”

The Gross Refining Margin (Market GRM) in 2021 was Baht 13,315 million or USD 5.91 per barrel escalating by Baht 7,851 million or USD 3.44 per barrel, YoY. This was mainly because most petroleum products spreads improved, especially the spreads of Gasoline and Lube Base Oil. The Company obtained a net stock gain of Baht 6,285 million or USD 2.78 per barrel comprising of a stock gain of Baht 8,243 million versus a loss on Lower of cost or market (LCM) of Baht 4 million and a realized oil hedging loss of Baht 1,954 million. Such figures led to the Accounting Gross Refining Margin (Accounting GRM) equaling to Baht 19,600 million or USD 8.69 per barrel increasing by Baht 13,885 million or USD 6.11 per barrel, YoY.

1.2 Petrochemical business unit

1.2.1 Petrochemical Market Overview

Petrochemical market situation in 2021: The overall demand for petrochemical products in 2021 increased from that in the previous year being in accordance with a global economic growth of 5.5% that was supported by the improved COVID-19 pandemic situations over a year. Such pandemic prompted consumers to work from home and become more concerned about their health resulting in greatly rising petrochemical products demand for food packaging as well as hygiene and medical related equipment. In addition, large-scale economic stimulus

measures from various parts of the world such as the U.S., Europe, and Thailand also encouraged the demand recovery. However, the supply chain disruption being caused by shortages of semiconductor chips as well as ships and containers, along with elevated freight costs, remained major impediments lowering the demand for petrochemical products significantly owing to rising prices following higher costs. These obstacles were seen in certain industries including automotive, electrical and electronics

appliances. Furthermore, according to the COVID-19 situations, there were some new production capacity in Asia being initially planned to start the commercial production in late 2020 that were postponed to the second half of 2021 and 2022. The postponement entailed pressured petrochemical product prices in late 2021 due to the expanding production capacity, particularly from China, South Korea, India, and Vietnam.

1.2.2 Petrochemical Capacity

Petrochemical	2021	2020	%Change
Utilization Rate			
Olefins Group	95%	93%	2%
Aromatics and Styrenics Group	99%	98%	1%

In 2021, the utilization rate of Olefins group was 95% increasing by 2% from that in 2020 of 93%. In addition, the utilization rate of Aromatics and Styrenics group was 99% being close to that in the prior year.

1.2.3 Petrochemical Sales

Products	Sales Volume (KMT)		Sales Value (Million Baht)	
	2021	2020	2021	2020
Olefins Group	1,062	1,029	42,011	29,578
Aromatics and Styrenics Group	727	703	29,078	17,879
Total	1,789	1,732	71,089	47,457

Note: Included sales of Trading business (iPolymer)

Net sales of petrochemical businesses in 2021 were Baht 71,089 million rising by Baht 23,632 million or 50% from that last year. This was mainly owing to a 47% increase in the average selling prices and a 3% increase in the sales volume equaling 57,000 tons. The escalated sales volume was mainly from PP in Olefins group and all products in Aromatics group.



Net sales of petrochemical businesses in 2021 rose by 50% from that in 2020 as the average selling prices improved by 47% and the sales volume increased by 3%.



1.2.4 Petrochemical Sales Breakdown

Products	2021		2020	
	Local	Export	Local	Export
Olefins Group	64%	36%	64%	36%
Aromatics and Styrenics Group	45%	55%	40%	60%
Total	56%	44%	55%	45%

Note: Included sales of Trading business (iPolymer)

The proportion of domestic and export petrochemical sales in 2021 was 56:44. The domestic sales proportion increased by 1% from that in 2020, mainly from PP in Olefins group and entire Aromatics and Styrenics products. Meanwhile, the petrochemical exports in 2021 were mainly shipped to Singapore, Hong Kong and Vietnam respectively.

1.2.5 The spread between key petrochemical products and raw material

Average Price (USD/MT)	2021	2020	%Change
Naphtha	646	380	70%
Olefins			
Ethylene-Naphtha	362	333	9%
HDPE-Ethylene	279	294	(5%)
HDPE-Naphtha	641	627	2%
Propylene-Naphtha	320	395	(19%)
PP-Propylene	335	207	62%
PP-Naphtha	655	602	9%
Aromatics			
BZ-Naphtha	268	105	155%
TOL-Naphtha	83	58	43%
MX-Naphtha	104	91	14%
Styrenics			
SM-Naphtha	532	383	39%
ABS-Naphtha	1,713	1,142	50%
PS (GPPS)-Naphtha	955	731	31%

The spread between Polyolefins group and Naphtha

- **HDPE Spread - Higher:** HDPE - Naphtha spread in 2021 was USD 641 per ton increasing by 2% from that in 2020 of USD 627 per ton as the COVID-19 pandemic situations improved, so the demand for construction in Southeast Asia started to recover. In 4Q21, HDPE - Naphtha spread was USD 563 per ton being approximate to that in the previous quarter of USD 564 per ton. This was due to seasonally declining demand for construction during winter, while new capacity in China and South Korea increased.
- **PP Spread - Higher:** PP - Naphtha spread in 2021 was USD 655 per ton increasing by 9% from that in 2020 of USD 602 per ton thanks to the improving COVID-19 pandemic situations leading to the recovering demand, both domestic and international ones. The increasing demand is mainly in the food packaging industry and industries relating to hygiene and medical equipment, according to work from home behaviors. In 4Q21, PP - Naphtha spread was USD 558 per ton being close to that in the previous quarter of USD 560 per ton. This was owing to the increasing Naphtha price following the rising Dubai price. Meanwhile, the demand fell towards the end of the year as downstream producers maintained their optimal inventory levels together with the increasing of new supply from China, South Korea, India, and Vietnam. However, China's Dual-control policy caused several Chinese producers to reduce their operating rates.

The spread between Aromatics group and Naphtha

- **TOL Spread and MX Spread - Higher:** In 2021, Toluene - Naphtha spread and Mixed Xylene-Naphtha spread were USD 83 per ton and USD 104 per ton respectively rising by 43% and 14% when compared with those in 2020. This was mainly caused by improving PX market sentiments, which resulted in the increasing demand for Toluene and Mixed Xylene, the major raw materials being used in PX production. In 4Q21, Toluene-Naphtha spread and Mixed Xylene-Naphtha spread were USD 43 per ton and USD 28 per ton respectively, down by

51% and 76% accordingly when compared with those in 3Q21. This was due to the volatile product prices being in accordance with crude oil and Naphtha prices. The product prices in December declined significantly because of the concerns about the Omicron variant of COVID-19 and the manufacturers had maintained optimal inventory levels during year end.

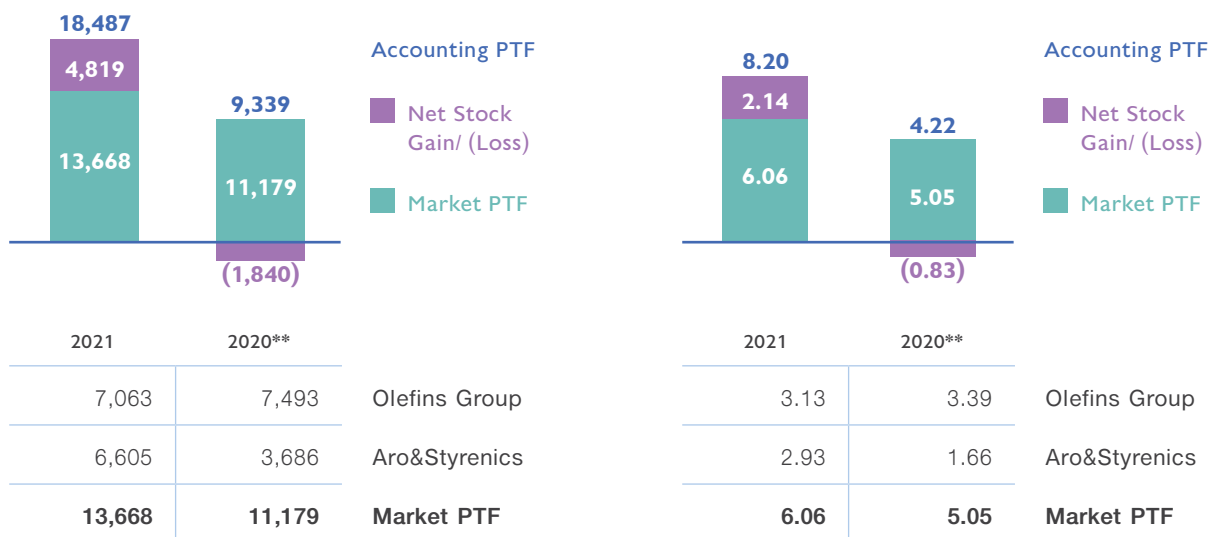
The spread between Polystyrenics group and Naphtha

- **ABS Spread - Higher:** ABS - Naphtha spread in 2021 was USD 1,713 per ton increasing by 50% when compared to USD 1,142 per ton in 2020. This was supported by the improving COVID-19 pandemic situations and the resumption of economic activities. The occurrences enhanced the demand for finished goods in the industries covering electrical and electronic appliances, medical and hygienic equipment as well as automotive. In 4Q21, ABS - Naphtha spread was USD 1,462 per ton, down by 13% when compared to USD 1,682 per ton in 3Q21. This was due to continuously rising production costs and freight costs following shortages of semiconductor chips and containers. Consequently, the demand for automotive as well as electrical and electronic uses dropped. In addition, most end-buyers retarded their orders to manage inventory levels before year end that caused the peak demand season to end earlier than usual.
- **PS Spread - Higher:** PS - Naphtha spread in 2021 was USD 955 per ton increasing by 31% when compared to USD 731 per ton in 2020. This was due to the increasing demand in food and beverage packaging industry, along with the electrical and electronics appliances industry, according to the work from home behaviors and the gradually recovering economic activities. In 4Q21, PS - Naphtha spread was USD 867 per ton moving up by 3% from 3Q21 of USD 840 per ton from the tight supply in Southeast Asia due to annual maintenance shutdowns across the region.

1.2.6 Product to Feed Margin (Product to Feed: PTF)*

(Unit: MB)

(Unit: USD/bbl)



Notes: * Included Trading business (iPolymer)

** Reclassified PTF and Net Stock Gain/ (Loss)



In 2021, the Market PTF was Baht 13,668 million enhancing by Baht 2,489 million from that in 2020 as most petrochemical products spreads improved owing to overall economic situations reviving from COVID-19 pandemic.



The Market Product to Feed Margin (Market PTF) in 2021 was Baht 13,668 million or USD 6.06 per barrel enhancing by Baht 2,489 million or USD 1.01 per barrel from that last year. This was because there were spread improvements of most petrochemical products, especially those in Olefins and Styrenics groups according to revived overall economic situations from COVID-19 pandemic.

The Company obtained the net stock gain of Baht 4,819 million or USD 2.14 per barrel comprising of the stock gain of Baht 4,869 million against the LCM loss of Baht 50 million. The aforementioned figures led to the Accounting Product to Feed Margin (Accounting PTF) equaling Baht 18,487 million or USD 8.20 per barrel rising by Baht 9,148 million or USD 3.98 per barrel from that in the previous year.

1.3 Power Plant and Utility business units

Capacity and Sales

	2021	2020	%Change
Utilization Rate			
Electricity	75%	70%	5%
Steam	61%	64%	(3%)
Sales (Million Baht)			
Electricity	2,032	2,027	0.2%
Steam	1,107	1,175	(6%)
Others	319	231	38%
Total	3,459	3,433	1%

Utilization rates of Electricity and Steam: In 2021, the utilization rate of Electricity was 75% increasing by 5% from that in 2020 of 70% while the utilization rate of Steam was 61% in 2021 reducing by 3% from that last year.

The net sales of Power and Utility businesses: In 2021, the Company recorded the net sales of Power and Utility businesses equaling Baht 3,459 million, up by Baht 26 million or 1% compared with that in 2020 of Baht 3,433 million.



2. Total Operating Performance

Total Operating Performance of IRPC and its subsidiaries for year 2021 are as follow:

	Unit: Million Baht		Unit: USD per barrel	
	2021	2020	2021	2020
Average FX (THB/USD)	32.15	31.46		
Total Crude Intake (Mbbbl)	70.19	70.35		
Average Crude (USD/bbl) ⁽¹⁾	72.43	43.80		
Sales ⁽²⁾	255,115	174,463	113.05	78.83
Net Sales ⁽³⁾	235,174	152,319	104.22	68.82
Cost of Feedstock (Market Price)	(205,586)	(132,905)	(91.10)	(60.04)
Market GIM	29,588	19,414	13.12	8.78
Stock Gain (Loss)	13,112	(3,485)	5.81	(1.57)
Lower of Cost or Market	(54)	162	(0.02)	0.07
Realized Gain (Loss) on Oil Hedging	(1,954)	1,734	(0.87)	0.78
Net Stock Gain (Loss)	11,104	(1,589)	4.92	(0.72)
Accounting GIM	40,692	17,825	18.04	8.06
Other Incomes ⁽⁴⁾	1,968	2,176	0.87	0.98
Selling Expenses	(2,105)	(1,375)	(0.93)	(0.62)
Accounting GIM and Other Incomes	40,555	18,626	17.98	8.42
OPEX	(13,594)	(13,934)	(6.03)	(6.29)
EBITDA	26,961	4,692	11.95	2.13
Depreciation	(8,587)	(8,952)	(3.81)	(4.04)
EBIT	18,374	(4,260)	8.14	(1.91)
Net Financial Cost	(1,699)	(1,847)	(0.75)	(0.83)
Gain (Loss) on Financial Derivatives	(302)	(419)	(0.13)	(0.19)
Gain (Loss) on Foreign Exchange from Borrowing	(474)	(2)	(0.21)	-
Unrealized Gain (Loss) on Oil Hedging	313	(961)	0.14	(0.43)
Gain (Loss) on Impairment and Disposal of Fixed Assets	(46)	(535)	(0.02)	(0.24)
Gain (Loss) on Investment	719	339	0.32	0.15
Other Expenses	(1)	1	(0.00)	0.00
Net Profit (Loss) before Income Tax	16,884	(7,684)	7.49	(3.45)
Income Tax	(2,351)	1,554	(1.04)	0.70
Gain (Loss) on Non-controlling Interests	(28)	(22)	(0.01)	(0.01)
Net Profit (Loss)	14,505	(6,152)	6.44	(2.76)
Earning per Share (EPS) (Baht/Share)	0.71	(0.30)		

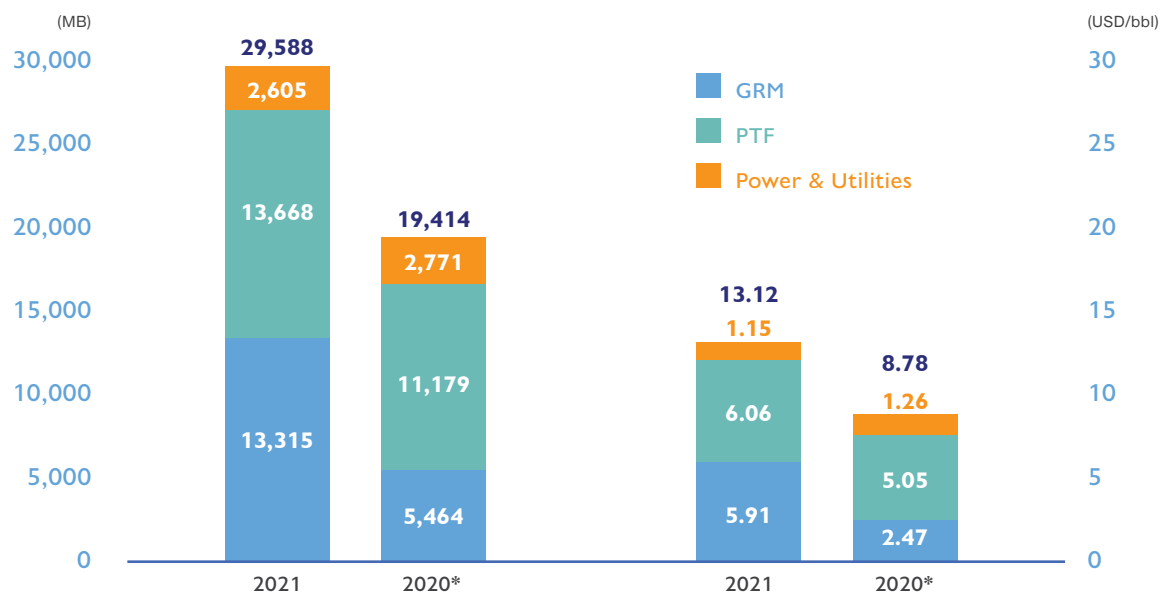
Notes: ⁽¹⁾ Average market prices of crude used in the production process

⁽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 land, tank farm and port service etc.

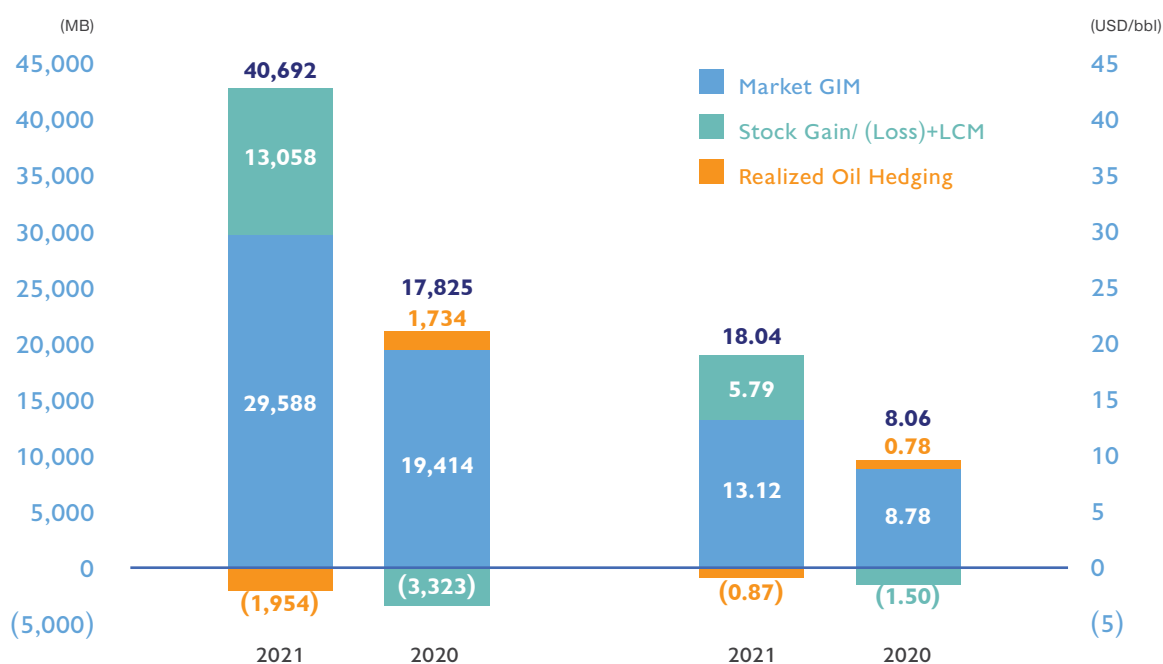
2.1 Market Gross Integrated Margin (Market GIM)



Note: *Reclassified GRM and PTF

The Market Gross Integrated Margin (Market GIM) in 2021 was Baht 29,588 million or USD 13.12 per barrel increasing by Baht 10,174 million or USD 4.34 per barrel from that last year. This was mainly from improvements of most petroleum and petrochemical products spreads. Such improvements was owing to the progressed overall COVID-19 pandemic situations. The Market GIM was also supported by the Company's efficiency-enhancement projects for production processes and the whole organization being performed regularly. However, the crude premium increased by USD 1.60 per barrel.

2.2 Accounting Gross Integrated Margin (Accounting GIM)



The Accounting Gross Integrated Margin (Accounting GIM) in 2021 was Baht 40,692 million or USD 18.04 per barrel rising by Baht 22,867 million or USD 9.98 per barrel from that last year as the Market GIM increased by Baht 10,174 million or USD 4.34 per barrel. In addition, the Company obtained the net stock gain of Baht 11,104 million or USD 4.92 per barrel comprising of the stock gain amounting to Baht 13,112 million or USD 5.81 per barrel versus the LCM loss of Baht 54 million or USD 0.02 per barrel and the realized oil hedging loss of Baht 1,954 million or USD 0.87 per barrel while there was a net stock loss amounting to Baht 1,589 million or USD 0.72 per barrel in 2020.

(Unit: Million Baht)	2021	2020	%Change
Market GIM	29,588	19,414	52%
Stock Gain/ (Loss)	13,112	(3,485)	476%
LCM	(54)	162	(133%)
Realized Gain/ (Loss) on Oil Hedging	(1,954)	1,734	(213%)
Net Stock Gain/ (Loss)	11,104	(1,589)	799%
Accounting GIM	40,692	17,825	128%

2.3 Other Incomes

Other incomes consist of port and tank farm services and other services. In 2021, the Company had other incomes of Baht 1,968 million decreasing by Baht 208 million from that in the previous year due to an income reclassification of iPolymer Company Limited from other incomes to sales of petrochemical businesses.

2.4 Operating Expenses

In 2021, the Company had operating expenses of Baht 13,594 million decreasing by Baht 340 million from that in the prior year, mainly from maintenance cost, consulting expense and employee expenses in terms of employment reorganization through “New Organization with Agile Human (NOAH)”.

Regarding the research and development (R&D) expenses for enhancing the Company's competitiveness, there were Baht 232 million in 2021. Such expenses comprised of expenses for internal and external R&D, salaries of staffs in the R&D department and costs of utilities supporting R&D activities amounting to Baht 189 million along with expenses for R&D equipment amounting to Baht 43 million.

2.5 Depreciation

In 2021, the depreciation was Baht 8,587 million decreasing by Baht 365 million from that in the prior year, mainly from fully depreciated assets.

2.6 Net Financial Cost

In 2021, the net financial cost was Baht 1,699 million declining by Baht 148 million from that last year, mainly from long-term loans and new debentures having a lower interest rate than that of the maturity bond.

2.7 Gain (Loss) on Financial Derivatives

In 2021, there was a loss on financial derivatives amounting to Baht 302 million, mainly from a loss on Cross Currency Swap (CCS) of Baht 313 million while a gain on Interest Rate Swap (IRS) of Baht 41 million. By comparing with 2020, the loss declined by Baht 117 million.

2.8 Gain (Loss) on Foreign Exchange from Borrowing

In 2021, the Company recorded a loss on foreign exchange from U.S. Dollar-Borrowings of Baht 474 million as Thai Baht was weaker from 30.21 Baht per USD at the end of 2020 to 33.59 Baht per USD at the end of 2021. The loss was up by Baht 472 million from that last year. In any case, the Company had long-term liabilities in USD amounting to USD 140 million at the end of 2021.

2.9 Unrealized Gain (Loss) on Oil Hedging

In 2021, the Company recorded the unrealized gain on oil hedging of Baht 313 million while there was the unrealized loss on oil hedging amounting to Baht 961 million in 2020.

2.10 Gain (Loss) on Impairment and Disposal of Fixed Assets

In 2021, the Company recorded the loss on impairment and disposal of fixed assets of Baht 46 million declining by Baht 489 million from that in the prior year as the Company recorded an impairment from the postponement of Maximum Aromatics (MARS) project amounting to Baht 456 million and the write-off of intangible assets - dredging in 2020.

2.11 Gain (Loss) on Investments

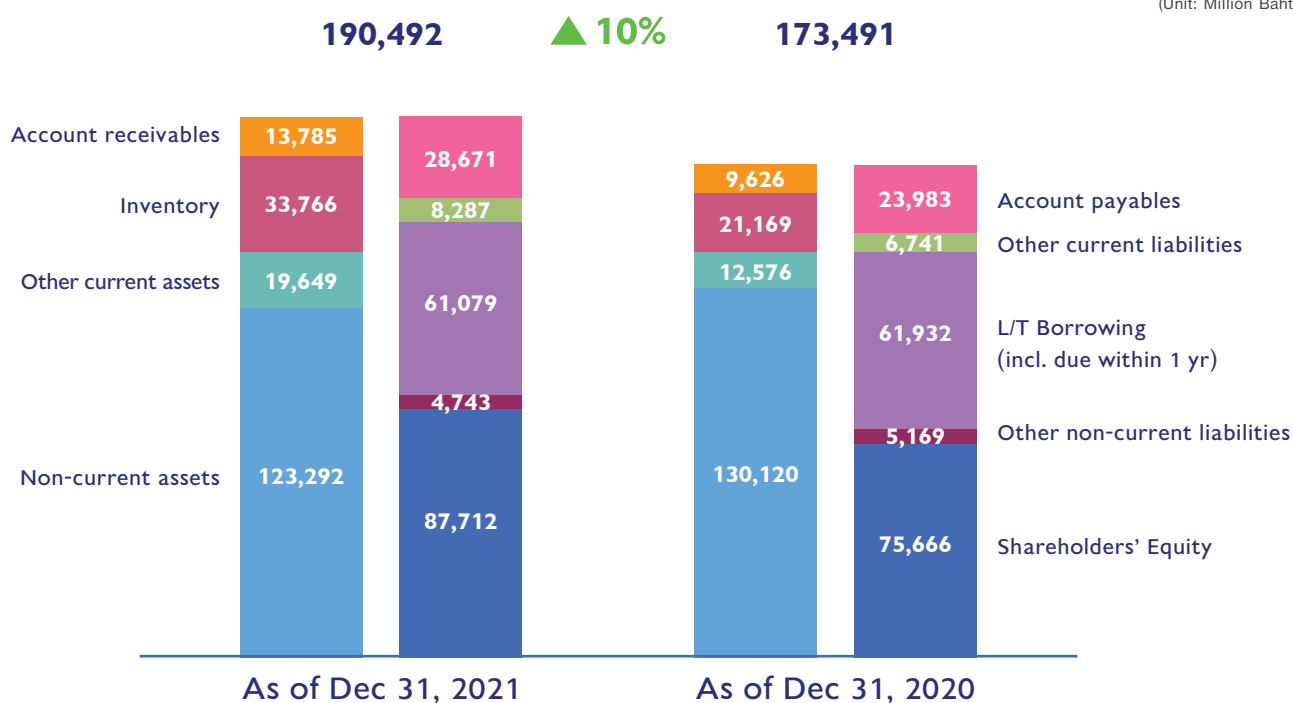
In 2021, there was the gain on investments of Baht 719 million increasing by Baht 380 million from that in the previous year. This was mainly from increasing profit sharing from investments in associates and joint ventures.

2.12 Corporate Income Tax

In 2021, the Company recorded the corporate income tax of Baht 2,351 million while recorded the corporate income tax benefit of Baht 1,554 million last year, owing to the significantly improved performance.

Financial Positions as of December 31, 2021

(Unit: Million Baht)



Assets

As of December 31, 2021, the Company had total assets of Baht 190,492 million increasing by Baht 17,001 million or 10% from that on December 31, 2020. It was due to the following reasons:

- **Trade receivables:** increased by Baht 4,159 million or 43% from that at the end of 2020, mainly due to a rise in average selling prices following the crude oil price. The Company's credit term policy is about 7-120 days and most customers made payment on schedule. As of December 31, 2021, there were trade receivables being overdue of over 3 months amounting to Baht 46 million which incorporated in the Company's provision for doubtful debt of Baht 30 million. The average collection period for 2021 was 17 days decreasing by 4 days from that at the end of 2020.

Trade receivables by payment period are as follows;

(Unit: Million Baht)

	2021			2020		
	Other Parties	Related Parties	Total	Other Parties	Related Parties	Total
Current	7,533	4,911	12,444	5,272	3,628	8,900
Overdue	1,335	36	1,371	744	12	756
- less than 3 months	1,303	22	1,325	714	12	726
- over 3 months but less than 12 months	4	14	18	2	-	2
- over 12 months	28	-	28	28	-	28
Total	8,868	4,947	13,815	6,016	3,640	9,656
<u>Less</u> Allowance for Doubtful Accounts	(30)	-	(30)	(30)	-	(30)
Total Account Receivables	8,838	4,947	13,785	5,986	3,640	9,626

- **Inventory:** increased by Baht 12,597 million or 60%, mainly due to a 62% increase in the crude oil price and products prices following market situations. The average inventory period was 44 days decreasing by 5 days from that at the end of 2020.
- **Other current assets:** increased by Baht 7,073 million or 56%. This was mainly attributed to an increase in amounts due from related parties by Baht 2,769 million, a rise in cash and cash equivalents by Baht 2,385 million and an increase in refundable value-added tax by Baht 1,943 million.
- **Non-current assets:** decreased by Baht 6,828 million or 5%, mainly due to a decline in fixed assets and investment properties of Baht 5,497 million. Most of which dropped due to an increase of the accumulated depreciation.

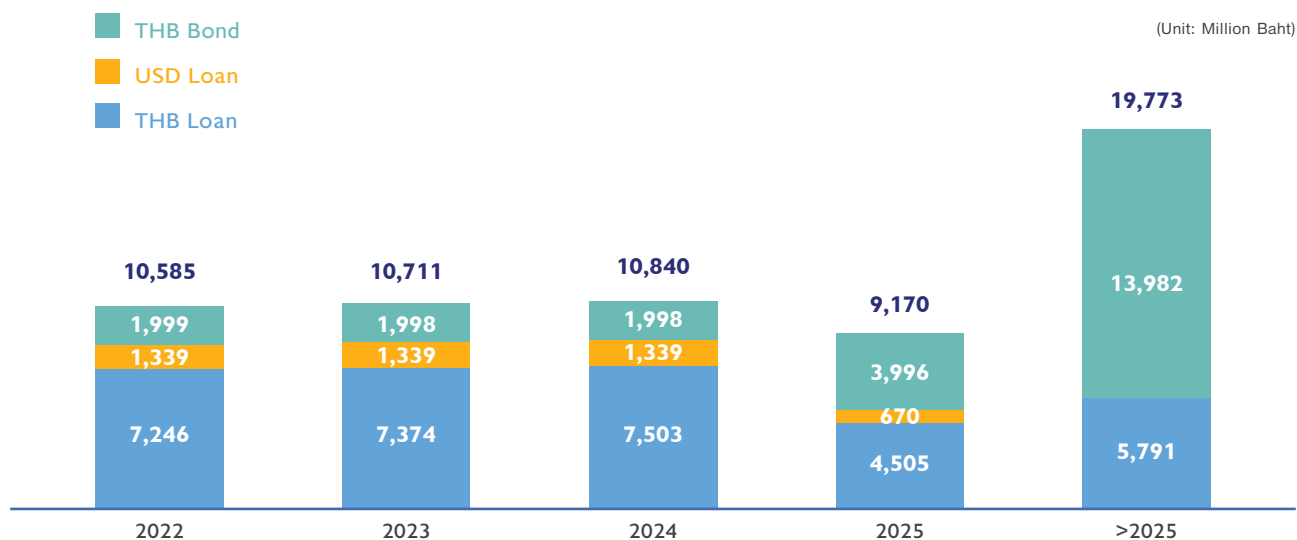
Moreover, there was a decline in deferred tax assets by Baht 1,660 million. Meanwhile, investments in subsidiaries, joint ventures and associates rose by Baht 607 million.

Liabilities

As of December 31, 2021, the Company had total liabilities of Baht 102,780 million increasing by Baht 4,955 million or 5% compared to that at the end of 2020. It was due to the following reasons:

- **Trade payables:** increased by Baht 4,688 million or 20%. It was mainly due to an increase in the crude oil price following the market situations while a decrease in accrued crude payable volume. The average payment period was 42 days decreasing by 9 days from that at the end of 2020.

Maturity of long-term borrowing



Note: Long-term borrowing as of December 31, 2021

- **Other current liabilities:** increased by Baht 1,546 million or 23%, mainly due to an increase in advance receipts for goods of Baht 1,071 million, an increase in accrued bonus expenses of Baht 796 million and a rise in corporate income tax payable of Baht 593 million, while there were a decrease in other payables of Baht 483 million and a decrease in financial derivative liabilities of Baht 313 million.
- **Long-term borrowing including current portion within one year:** decreased by Baht 853 million, mainly due to the redemption of maturity bond of Baht 6,890 million and loans repayment to financial institutions of Baht 6,450 million, while there was the issuance of unsubordinated and unsecured debentures in the amount of Baht 12,000 million and the loss on foreign exchange of Baht 474 million.

The details of long-terms borrowing are shown below;

(Unit: Million Baht)

	Dec 31, 2021	Dec 31, 2020	Change
Thai Baht Bond	23,972	18,873	5,099
USD Loan	4,688	4,207	481
Thai Baht Loan	32,419	38,852	(6,433)
Total	61,079	61,932	(853)
Less Current Portion of Long-term Borrowing	(10,585)	(13,335)	2,750
Net Outstanding Borrowing	50,494	48,597	1,897

Note: As of December 31, 2021, the Company had Cross Currency Swap (CCS) in a total amount of USD 110 million.

Shareholders' Equity

As of December 31, 2021, shareholders' equity amounted to Baht 87,712 million, which sharply increased from what was stated as of December 31, 2020 by Baht 12,046 million or 16%. This was mainly from a rise in the net profit amounting to Baht 14,505 million versus a decline in the dividend paid by Baht 2,857 million.

Statement of Cash Flow

(Unit: Million Baht)

		Jan.-Dec. 2021	Jan.-Dec. 2020
1	EBITDA	26,961	4,692
2	Change in operating assets and liabilities	(15,619)	6,457
3	Net cash flows from (used in) operating activities	11,342	11,149
4	Net cash flows from (used in) investing activities	(2,853)	(3,871)
5	Net cash flows from (used in) financing activities	(6,104)	(1,463)
6	Net increase (decrease)	2,385	5,815
7	Cash at beginning	8,851	3,036
8	Cash at ending	11,236	8,851

As of December 31, 2021, the ending cash was Baht 11,236 million. Net cash flow increased by Baht 2,385 million, which was mainly contributed from the following items:

- **Net cash inflow from operating activities:** of Baht 11,342 million. The cash inflow was mainly from EBITDA of Baht 26,961 million, an increase in trade payables of Baht 4,689 million and an increase in advance receipts for goods of Baht 1,071 million. Nevertheless, the cash outflow was mainly from an increase in inventory of Baht 12,767 million, an increase in trade receivables of Baht 4,161 million, an increase in amounts due from related parties of Baht 2,768 million and an increase in refundable value-added tax by Baht 1,943 million.
- **Net cash outflow from investing activities:** of Baht 2,853 million, mainly from disbursement for the completion of the expansion and efficiency improvement projects of Baht 2,932 million. Nevertheless, the cash inflow was from dividend received from joint ventures and associates of Baht 117 million.
- **Net cash outflow from financing activities:** of Baht 6,104 million. The cash outflow mainly comprised of the repayment for long-term loans and bond of Baht 13,340 million, dividend payment of Baht 2,857 million and interest payment of Baht 1,769 million. Still, there was net cash inflow that was mainly from the issuance of debentures amounting to Baht 11,983 million.

Liquidity and Capital Structure

In 2021, current ratio was 1.41 times increasing by 0.43 times compared with that in 2020 of 0.98 times. This was mainly owing to a rise in inventory and trade receivables. Thus, the Company has sufficient liquidity for its operations. At the end of 2021, net interest bearing debt to equity ratio was 0.57 times decreasing by 0.13 times from that in 2020 of 0.70 times. This was mainly due to an increase in shareholders' equity from retained earning. The Company could complete all payments on due date and comply with all of the Financial Covenants.

Other Factors Influencing Financial Performance

2022 Business Outlook

1. Petroleum Business

2022 Crude oil outlook: The global oil demand forecast is approximately 103 million barrels per day reaching the pre-COVID-19 demand level. Such demand forecast increases by about 4.6 million barrels per day from 98.4 million barrels per day in 2021 thanks to improving overall COVID-19 pandemic situations that can be seen from extensive vaccine distribution, both main and booster doses, along with lower severity of the symptoms. These result in eases of COVID-19-related restrictions being followed by rising economic activities and improving confidence of economic recovery. Office of the National Economic and Social Development Council forecasts that global economic growth is expected to be 4.8% being supported by the restriction eases and the government's economic stimulus that was also executed in 2021. For 2022 global oil supply, it is forecast to increase by 6.6 million barrels per day, YoY, to 103 million barrels per day being approximate to the global oil demand. The crude oil supply increase is mainly from OPEC of 2.9 million barrels per day; besides, OPEC and allies determine to gradually increase the production of 0.4 million barrels per day per month until April 2022. Moreover, the U.S. production is expected to rise at least 1 million barrel per day owing to a stable-high trend of the crude oil price boosting the U.S. producers' investment confidence, and if the U.S.' sanctions on Iran are lifted as expected, there will be around 1.4 million barrels per day of Iranian crude oil exports in 2H22. The Dubai price in 2022 is expected to be between USD 67 per barrel and USD 75 per barrel being close to the 2021 average price of USD 69 per barrel. Nevertheless, one of factors that may affect the 2022 crude oil price includes concerns over COVID-19 pandemic that may limit the oil demand recovery if there is a new surge in COVID-19 cases. Also, the ineffective lift of the U.S.' sanctions on Iran as well as unplanned shutdowns of crude oil production may lead to a robust tight-supply condition that might help escalate the crude oil price.

2. Petrochemical Business

2022 Petrochemical outlook: The demand for petrochemical products in 2022 is expected to improve along with the global economic recovery. The Office of the National Economic and Social Development Council forecast that the global economy will grow by 4.8% following the recovery of major economies such as the U.S., Eurozone, U.K., Australia, and the newly industrialized economies (NIEs) that have eased pandemic control measures. Additionally, improvements in vaccine distribution and the development of antiviral medications will also boost market confidence. These lead to a petrochemical products demand growth forecast of 3-4% each year, mainly from dominant end-user-focused industries such as food packaging, hygiene and medical equipment, construction, electrical and electronic, automotive, and robotic. Nevertheless, threats to the petrochemical outlook involve new variants of COVID-19 and inflationary pressures, which increase faster than predicted that may result in tighter financial conditions. Furthermore, a reduction of single-use plastic consumption to resolve environmental issues needs to be monitored closely as this may affect the demand for petrochemical products and plastic pellets in the future. A lack of ships and containers continues to drive up freight costs; besides, the lack is expected to be a significant obstacle that may result in considerable demand decreases in several industries, such as automotive as well as electrical and electronic, due to the rising prices following higher costs.

In 2022, it is expected that there will be certain new capacity beginning their commercial production in response to the increasing demand, especially in China as this may favor China's self-sufficiency economic strategy, along with Malaysia of which the new capacity start-up is postponed from the prior year owing to the COVID-19 pandemic situations. According to these new capacity, product price spreads may be pressured. However, China imposed Power Rotation measures in association with Dual-control measures to limit domestic energy consumption towards the end of 2021 causing some Chinese manufacturers to reduce their petrochemical production rates, which may help alleviate concerns about the expected increase in the addition capacity.

Investment Projects

1. Investment Project Progress

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 (Euro V) standard in accordance with the Ministry of Energy's policy determining that starting from January 1, 2024, diesel distribution must meet Euro V standards. 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 rising demand for Low Sulfur Diesel in domestic market and ASEAN Economic Community (AEC). The UCF project is able to reinforce competitiveness of the Company involving Diesel as a main product; besides, the project is

environmentally friendly and in line with the Company's Eco Factory policy. Meanwhile, the Board of Directors approved the Final Investment Decision (FID) in 3Q21. Currently, the project is under a construction process and has been planned to commercial operate within 1Q24. Once the project is completed, the Company's capacity will be able to convert entire high-sulfur Diesel to low-sulfur Diesel following Euro V standards.

2. Investment Plan

The Board of Directors has approved the company's five-year (Year 2022-2026) investment plan in an aggregate amount of Baht 41,350 million. The details are as follow:

(Unit: Million Baht)

Investment Projects	2022	2023	2024	2025	2026	Total
1. Ultra Clean Fuel Project (UCF)	6,108	2,544	1,698	108	-	10,458
2. Strengthen Project	1,200	325	-	-	-	1,525
3. General and Maintenance Projects	4,415	2,796	2,284	2,310	3,101	14,906
4. Others	8,969	4,945	418	65	64	14,461
Total	20,692	10,610	4,400	2,483	3,165	41,350

The investment projects are the investment plan which will encourage the Company's business growth where the major investment contributes to strategic and value added projects.



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To ensure investors and all stakeholders have equal access to the company's information, IRPC has a duty and responsibility to disclose information accurately, adequately and in a timely manner. Reliable information disclosure is a key indicator of the company's operational transparency that inspire confidence in IRPC among investors and stakeholders.

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General Information and Other Important Information

General 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	Headquarters and Plants 299 Moo 5, Sukhumvit Road, Choeng Noen, Mueang Rayong, Rayong 21000 Tel. 0-3861-1333 Fax. 0-3861-2813 Bangkok Office 555/2 Energy Complex, Building B, Floors 6 th -10 th , Vibhavadi-Rangsit Road, Chatuchak, Chatuchak, Bangkok 10900 Tel. 0-2765-7000 Fax. 0-2765-7001
Website	www.irpc.co.th

References

Securities Registrar	Thailand Securities Depository Co., Ltd. 93 Ratchadaphisek Road, Din Daeng, Din Daeng, Bangkok 10400 Tel. 0-2009-9000 Fax. 0-2009- 9991 Website: www.set.or.th/tsd
Auditor	Mr.Mongkol Somphol CPA No. 8444 Deloitte Touch Tohmatsu Jaiyos Audit Co., Ltd. 11/1 AIA Building, Sathorn Tower, Floors 23 rd -27 th , South Sathorn Road, Yannawa, Sathorn, Bangkok 10120 Tel. 0-2034-0000 Fax. 0-2034-0100

Debenture Registrar (THB)	2020 Series Debentures (IRPC239A, IRPC259A, IRPC229A, IRPC309A, IRPC359A) Kasikorn Bank Public Company Limited 400/22 Phahon Yothin Road, Sam Sen Nai, Phaya Thai, Bangkok 10400 Tel. 02-470-1038
	2021 Series Debentures (IRPC265A, IRPC245A, IRPC285A, IRPC315A, IRPC365A) Bank of Ayudhya Public Company Limited 1222 Rama III Road, Bang Phongphang, Yan Nawa, Bangkok 10120 Tel. 02-296-5696

Common stock

As of December 31, 2021, IRPC had registered capital 20,475,000,000 Baht issued and paid-up capital 20,434,419,246 Baht, with a par value of 1 Baht per share.

Debenture

As of December 31, 2021, IRPC had domestic loans in Thai Baht debentures amounting to Baht 24,000 million as summarized below:

Thai Baht debentures

On August 21, 2020, IRPC was approved by Office of the Securities and Exchange Commission (SEC) to issue and offer debentures under IRPC Public Company Limited's debenture scheme for 2020, totaling no more than Baht 28,000 million ("Debenture Scheme"), within 2 years (Medium Term Note Program: MTN). On September 11, 2020, the company issued 5 tranches of unsubordinated and unsecured debentures with holders' names and a debenture holders' representative, at 1,000 Baht par value, totaling Baht 12,000 million, of which details are as follows:

- (1) Tranche 1 debentures totaling 2,000,000 units, valued at Baht 2,000 million with a fixed interest rate at 3.00% per annum and 3-year maturity, maturity date: September 11, 2023
- (2) Tranche 2 debentures totaling 4,000,000 units, valued at Baht 4,000 million with a fixed interest rate at 3.50% per annum and 5-year maturity, maturity date: September 11, 2025
- (3) Tranche 3 debentures totaling 2,000,000 units, valued at Baht 2,000 million with a fixed interest rate at 2.76% per annum and 2-year maturity, maturity date: September 11, 2022

- (4) Tranche 4 debentures totaling 1,300,000 units, valued at Baht 1,300 million with a fixed interest rate at 3.93% per annum and 10-year maturity, maturity date: September 11, 2030

- (5) Tranche 5 debentures totaling 2,700,000 units, valued at Baht 2,700 million with a fixed interest rate at 4.40% per annum and 15-year maturity, maturity date: September 11, 2035

On May 20, 2021, IRPC issued 5 tranches of unsubordinated and unsecured debentures with holders' names and a debenture holders' representative, at 1,000 Baht par value, totaling Baht 12,000 million, of which details are as follows:

- (1) Tranche 1 debentures totaling 4,000,000 units, valued at Baht 4,000 million with a fixed interest rate at 3.00% per annum and 5-year maturity, maturity date: May 20, 2026
- (2) Tranche 2 debentures totaling 2,000,000 units, valued at Baht 2,000 million with a fixed interest rate at 1.77% per annum and 3-year maturity, maturity date: May 20, 2024
- (3) Tranche 3 debentures totaling 2,000,000 units, valued at Baht 2,000 million with a fixed interest rate at 2.91% per annum and 7-year maturity, maturity date: May 20, 2028
- (4) Tranche 4 debentures totaling 2,000,000 units, valued at Baht 2,000 million with a fixed interest rate at 3.38% per annum and 10-year maturity, maturity date: May 20, 2031
- (5) Tranche 5 debentures totaling 2,000,000 units, valued at Baht 2,000 million with a fixed interest rate at 4.10% per annum and 15-year maturity, maturity date: May 20, 2036

As of December 31, 2021, details of unsecured, unsubordinated debentures in Baht currency of IRPC are as follows:

Debenture	Principal (Million Baht)	Interest rate per annum	Period/ Maturity
IRPC229A	2,000	2.76% interest payable every 6 months	2 years, mature in 2022
IRPC239A	2,000	3.00% interest payable every 6 months	3 years, mature in 2023
IRPC259A	4,000	3.50% interest payable every 6 months	5 years, mature in 2025
IRPC309A	1,300	3.93% interest payable every 6 months	10 years, mature in 2030
IRPC359A	2,700	4.40% interest payable every 6 months	15 years, mature in 2035
IRPC265A	4,000	3.00% interest payable every 6 months	5 years, mature in 2026
IRPC245A	2,000	1.77% interest payable every 6 months	3 years, mature in 2024
IRPC285A	2,000	2.91% interest payable every 6 months	7 years, mature in 2028
IRPC315A	2,000	3.38% interest payable every 6 months	10 years, mature in 2031
IRPC365A	2,000	4.10% interest payable every 6 months	15 years, mature in 2036
Total	24,000		

The above Baht-denominated debentures have been rated by Fitch Ratings (Thailand) Co., Ltd., with the latest credit rating as of March 26, 2021, as A- (tha) with stable outlook.

Dividend Policy

IRPC Public Company Limited

IRPC'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 deemed appropriate by the Board.

Subsidiaries

Each subsidiary will separately determine its own dividend payment, taking into account its operating results, cash flow balances and/or investment plans, and reserve allowances as well as other obligations as deemed appropriate by its board of directors.

Dividend Payment

	2017	2018	2019	2020	2021
Earnings per share (Baht)	0.56	0.38	(0.06)	(0.30)	0.71
Dividend per share (Baht)	0.29	0.19	0.10	0.06	⁽¹⁾ 0.22
Dividend payout ratio	52%	50%	N/A	N/A	31%

Note: ⁽¹⁾ The resolution of the Board of Directors' meeting held on February 8, 2022 approved the 2022 Annual General Meeting of Shareholders to consider and approve the dividend payment for the 2021 operating results at the rate of 0.22 Baht per share.

Juristic Persons whose 10% of shares or more are held by IRPC

No.	Company	Shareholding	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 Tel. 0-2765-7000 Fax. 0-2765-6677, 0-2765-6688 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 Tel. 0-2765-7000 Fax. 0-2765-6677, 0-2765-6688 Type of Business: Marine logistics Remark: Subsidiary of IRPC Oil Co., Ltd	99.99%	30

No.	Company	Shareholding	Paid-up Capital (Unit: Million Baht)
3	IRPC Technology Co., Ltd. Address: 309 Moo 5, Sukhumvit Road, Choeng Noen, Rayong Tel. 0-3802-2835 Type of Business: Vocational school	99.99%	750
4	Innopolymer Co., Ltd. Address: 555/2 Energy Complex, Building B, 6 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok Tel. 0-2765-7000 Type of Business: Production and distribution of non-woven fabric products and medical consumables	60.00%	182
5	IRPC A&L Co., Ltd. Address: 555/2 Energy Complex, Building B, 9 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok Tel. 0-2765-7508, 0-2765-7510, 0-2765-7511 Type of Business: Sale of polymers	57.48%	10
6	iPolymer Co., Ltd. Address: 555/2 Energy Complex, Building B, 9 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok Tel. 0-2117-3994, 06-5717-8856 Type of Business: E-commerce sale of polymers and chemicals	55.00%	120
7	IRPC Polyol Co., Ltd. Address: 555/2 Energy Complex, Building B, 7 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok Tel. 0-2765-6666, 0-2765-7000 Fax. 0-2765-6677, 0-2765-6688 Type of Business: Production and distribution of polyols	50.00%	370
8	Mytex Polymers (Thailand) Co., Ltd., Address: 100/60 Sathorn Nakorn Tower, 29 th Floor, North Sathorn Road, Silom, Bang Rak, Bangkok Tel. 0-2267-1854 Type of Business: Production and distribution of chemicals	50.00%	120
9	Vajira Lab for Society Co., Ltd. Address: 3 Thanon Khao, Wachira Phayaban, Dusit, Bangkok Tel. 0-2244-3952-4 Type of Business: Providing analysis and certification services for medical devices	50.00%	22

No.	Company	Shareholding	Paid-up Capital (Unit: Million Baht)
10	WHA Industrial Estate Rayong Co., Ltd. Address: 777 WHA TOWER, 23 rd - 25 th Floor, Moo 13, Debaratna Road (Bangna-Trad) KM.7, Bang Kaeo, Bang Phli, Samut Prakarn Tel. 0-3895-4543-4 Type of Business: Industrial estate development	40.00%	680
11	IRPC Clean Power Co., Ltd. Address: 299 Moo 5, Sukhumvit Road, Choeng Noen, Rayong Tel. 0-3892-1333 ext. 4810 Fax. 0-3861-2813 Type of Business: Production and distribution of electricity and steam	48.99%	3,362
12	UBE Chemicals (Asia) Public Company Limited Address: 98 Sathorn Square Office Tower, 18 th Floor, North Sathorn Road, Silom, Bang Rak, Bangkok Tel. 0-2206-9300 Fax. 0-2206-9310, 0-2206-9316 Type of Business: Production and distribution of petrochemical products	25.00%	10,739
13	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
14	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 in China	15.00%	8.9 (Million Chinese Yuan)
15	Sarn Palung Social Enterprise Co., Ltd. Address: 555/1 Energy Complex Building A, 10 th Floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok Tel. 0-2537-2971 Type of Business: Supporting execution of social enterprises	15.00%	2.5
16	Rayong Acetylene Co., Ltd. Address: 2/3 Moo 14, Bangna-Trad Road, Km. 6.5, Bang Kaeo, Bang Phli, Samut Prakan Tel. 0-3862-1680 Type of Business: Production and distribution of acetylene	13.04%	115

Note: Only operating companies are shown.

Legal Disputes

Please find details of legal disputes in 2021 Financial Statements Annex, Item 40.

Regularly Contacted Financial Institutions



Regularly Contacted Financial Institutions

TMBThanachart Bank Public Company Limited
3000 Phahon Yothin Rd., Chomphon, Chatuchak, Bangkok 10900

Krungthai Bank Public Company Limited
35 Sukhumvit Rd., Klong Toey Nua, Wattana, Bangkok 10110

Kasikorn Bank Public Company Limited
400/22 Phahon Yothin Rd., Sam Sen Nai,
Phaya Thai, Bangkok 10400

Siam Commercial Bank Public Company Limited
9 Ratchadapisek Rd., Chatuchak, Bangkok 10900

CIMB Thai Bank Public Company Limited
44 Langsuan Building, Langsuan Rd., Lumpini, Pathum Wan, Bangkok 10330

Bank of Ayudhya Public Company Limited
1222 Rama III Rd., Bang Phongphang, Yan Nawa, Bangkok 10120

Government Savings Bank
470 Phahon Yothin Rd., Sam Sen Nai, Phaya Thai, Bangkok 10400

Sumitomo Mitsui Banking Corporation
Q. House Lumpini Building, 1 South Sathorn Rd.,
Thung Maha Mek, Sathorn, Bangkok 10120

Mizuho Bank, Limited
98 Sathorn Square Office Tower 32nd - 35th Floor,
North Sathorn Rd., Silom, Bangrak, Bangkok 10500

Bangkok Bank Public Company Limited
333 Silom Rd., Silom, Bang Rak, Bangkok 10500

Bank of China (Thai) Public Company Limited
179/4 Bangkok City Tower, South Sathorn Rd.,
Thung Maha Mek, Sathorn, Bangkok 10120

Industrial and Commercial Bank of China (Thai) Public Company Limited
622, Emporium Tower, L.11th-13th Floor, Sukhumvit Rd.,
Klong Ton, Klong Toei, Bangkok 10110



“ Under its new vision, IRPC endeavors to provide life-enhancing solutions to satisfy customers’ diverse requirements through its well-managed business operations guided by corporate governance and sustainability principles, with due consideration to stakeholders in order to build a partnership for a better future ”





Section

CORPORATE GOVERNANCE

- Corporate Governance Policy
- Corporate Governance Structure and Important Information about the Board of Directors, Sub-Committees, and Executives
- Report of Key Corporate Governance Activities
- Internal Control and Connected Transactions

As a leading energy and petrochemical enterprise, IRPC adheres to good corporate governance principles and best practices that meet internationally accepted standards.

The company is professionally managed, effective and competitive under the sustainable growth approach. IRPC also ascertains that human rights are respected,

and has announced the Human Rights Policy of IRPC Group (2021 edition) to ensure that the company's business operations is free from human rights violations in all forms, throughout the value chain. As a result, the company in 2021 received the Outstanding Award for Human Rights Role Model Organization for the third consecutive year.



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IRPC has continually revised its corporate governance policies, practices and oversight mechanisms to increase efficiency and ensure compliance in accordance with the Corporate Governance Code for listed companies (CG Code) and other international best practices. All business units are expected to be in full compliance with the corporate governance policy issued by the Board of Directors to guide the company towards sustainable growth.

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Corporate Governance Policy

IRPC's Board of Directors has consistently prioritized Good Corporate Governance, stipulating that the company must announce the Corporate Governance Policy, develop Corporate Governance Handbook, and establish Corporate Governance Code that apply to all members of the Board, IPRC executives and employees. This is to provide practical guidelines on ethical conduct that satisfy national and international standards. Our Corporate Governance Policy is based on good corporate principles and practices of Office of the Securities and Exchange Commission (SEC), the Stock Exchange of Thailand (SET), Corporate Governance Assessment Report of the Thai Institute of Directors (IOD), Organization for Economic Cooperation and Development (OECD), ASEAN CG Scorecard, Dow Jones Sustainability Index (DJSI) and best practices of leading global corporations. These guidelines help bolster confidence in the company among all stakeholders as well as enable proper and effective management and promote corporate competitiveness on the path towards.

Overview of Corporate Governance Policy and Guidelines

Corporate Governance Policy and Guidelines

The Board of Directors intends for IRPC the intention to promote IRPC Public Company Limited and its subsidiaries in the "IRPC Group" to steadfastly operate within the framework of Good Corporate Governance principles in pursuit of operational excellence, transparency, accountability, and benefits to shareholders while making sure stakeholders' interests are protected. To accomplish this aim, IRPC has adopted the SET's six pillars of Good Corporate Governance as practical guidelines to be observed by the Board of Directors, executives, the management, and employees as follows:

1. Creation of Long Term Value
2. Responsibility
3. Equitable Treatment
4. Accountability
5. Transparency
6. Ethics and Code of Conduct

In addition to the six pillars of Good Corporate Governance prescribed of the SET, the Board also adopted the Thai Corporate Governance Code for Listed Companies 2017 (CG Code) issued by the SEC Office as a benchmark, with a view to further improve the company's Corporate Governance Policy and Guidelines. The following principles apply to IRPC's Board of Directors:

- Principle 1:** Establish clear leadership role and responsibilities of the Board to promote sustainable value creation
- Principle 2:** Determine the main sustainability objectives and goals of the business
- Principle 3:** Improve Board effectiveness
- Principle 4:** Recruit capable senior executives and enhance human resource management
- Principle 5:** Nurture innovation and responsible business practices
- Principle 6:** Ensure appropriate risk management and internal control systems
- Principle 7:** Maintain financial integrity and ensure disclosure compliance
- Principle 8:** Encourage shareholder engagement and communication

Policies and procedures for the Board of Directors

1. The Board of Directors

The Board of Directors is appointed by shareholders at the annual general shareholders' meeting. All directors must possess all required qualifications, and have no prohibited characteristics as prescribed by relevant laws and regulations.

The company has introduced a policy of diversity, which is considered as part of the nomination and selection process of the Board of Directors, to ensure its composition is suitably diverse in accordance with the good practice guidelines of the Corporate Governance Handbook and the company's code of business conduct. The nomination and selection process are based on the Board Skills Matrix, encompassing such diverse areas of expertise as engineering, industry, economics, finance, business administration, political science, accounting, law, etc., and gender diversity. Candidates will be considered regardless of their sexual preference, nationality, ethnicity, race or religious faith as diversity and inclusion can contribute to a broad range of perspectives that are crucial to the company's business operations.

The Board of Directors consisted of 15 directors as appropriate to the scale of the company's business operations. The Board had one executive director and 13 non-executive directors. Eight directors qualified as independent directors. Together, the directors contributed to the effectiveness of the Board in the discharge of its duties. Each director had clearly defined role, duties, and responsibilities in accordance with the law, rules, company's regulations, shareholders' resolutions, and good corporate governance principles. The Chairperson of the Board provided oversight to ensure the Board's effectiveness and independence. Details are shown in the report on Important Information about the "Board of Directors." on pages 222-227.

2. Independent directors

The company has determined that the number of independent directors shall be not less than one-third of the total number of members of the Board of Directors. The term of office of the independent director shall be equal to that of the company's executive director, which is not more than three years. They may be re-appointed by the shareholders for not more than

three consecutive terms, or up to a combined total of nine years in office, without exception.

In addition, independent directors must be independent from major shareholders or groups of major shareholders, and the management of the company. The qualifications of the independent director are stricter than minimum requirements imposed by Notification of the Capital Market Supervisory Board regarding shareholding limit in the company at not more than 0.5 per cent. The definition of the independent director has been disclosed in the Good Corporate Governance Handbook and the company's website. Independent directors may speak their minds during Board meetings and have adequate access to the company's financial data and business information to enable them to express their views freely in the best interest of stakeholders and prevent possible conflicts of interest involving the company, the management, executive directors or major shareholders.

3. Director selection and appointment

• Appointment of director to vacant position due to retirement by rotation

The company encourages shareholders to propose a list of candidates who have the qualifications prescribed by the law and as specified by the company for the director selection process. An announcement will be made on the company's website prior to the date of the shareholders' meeting. The Nomination and Remuneration Committee shall select and nominate a list of candidates that meet the qualifications as prescribed by the law and the criteria, for submission to the Board of Directors for approval before the list of nominees go before the annual general shareholders' meeting for consideration and election. The appointment of each director must be approved by more than half of the total votes of the shareholders attending.

Composition and Skills Matrix of the Board of Directors (As of December 31, 2021)

 		Male	12
		Female	2
 		Non-Executive Director	13
		Executive Director	1
		Independent Director	8
  		Engineering	7
		Energy/ Petroleum/ Petrochemical	14
		Business Management	14
		Environment	2
		Finance/ Accounting/ Auditing	3
		Economics	2
		National Security	1
		Legal	3
		Human Resources	1
		Political Science and Social Development	2

- **Appointment of director to vacant position for any reason other than retirement by rotation**

The Nomination and Remuneration Committee shall select and nominate a candidate who has qualifications as prescribed by the law and criteria and put the nominee before the Board of Directors which shall appoint the nominee to fill the vacant director post. The new director shall serve the remainder of the predecessor's term.

- **Appointment of subcommittees**

The Board of Directors has appointed four standing subcommittees: the Audit Committee, Nomination and Remuneration Committee, Corporate Governance Committee, and Risk Management Committee. Each subcommittee consists of members who have suitable expertise for the respective functional requirements according to the company's regulations. Members of these subcommittees are tasked with screening and scrutinizing work assignments from the Board. The qualifications, term of office and scope of responsibilities of subcommittee members shall be in accordance with the charter of their respective subcommittee. All subcommittees report the results of their work assignments or progress status to the Board of Directors' meetings on a regular basis, and annually disclose in form 56-1 One Report. The names of subcommittee members, their scope of responsibilities, their meeting attendance are shown in the report on Important Information. That of the Board of Directors can be found on page 260-262 and "Subcommittees" can be found on page 229-235.

4. Compensation for Directors and Executives

- **Directors' Compensation**

The Board of Directors has established a policy on directors' compensation that is fair and appropriate according to the principles of good corporate governance. The Nomination and Remuneration Committee is responsible for determining compensation guidelines and reviews against companies listed on the SET in similar industries and businesses of comparable size. Directors assigned to serve as members of Sub-Committees receive additional remuneration that corresponds to increased responsibilities. Directors' compensation must be approved by the shareholders' meeting. Directors' compensation consists of two components: monthly cash retainer and meeting allowance. According to a 2021 comparative

survey of directors' compensation of leading companies, the directors' compensation structure, criteria and rate offered to the company's directors remained competitive and appropriate. The Board, therefore, proposed the same directors' compensation package as that of 2020, which was approved at the 2021 general shareholders' meeting. The directors' compensation was disclosed in the section "Directors' Compensation 2021." on pages 263.

- **Compensation of the President and Chief Executive Officer**

The Nomination and Remuneration Committee is responsible for considering the compensation of the President & CEO based on well-defined Key Performance Indicators (KPIs) every year. These indicators included business aspects, Corporate KPIs and balance scorecard, as well as Leadership & Sustainability factors. The performance of the President & CEO will be reviewed thoroughly with clear criteria, transparency and fairness. As a result, the annual compensation increase of the President & CEO will be proposed and approved by the board of directors. on pages 239.

5. Board of Directors meetings

The company schedules the entire year of the Board of Directors' meetings as well as determines clearly defined regular agenda for each of the scheduled meeting to be held on the third Tuesday of the month. Additional special meetings may be held as necessary and appropriate. The Board of Directors shall receive a meeting invitation, draft meeting minutes and agenda and background materials at least 7 days prior to the meeting date. The company shall deliver such information through the secure Board Portal system to all directors for convenience and speed as well as to reduce paper use. In 2021, the Board of Directors held a total of 15 meetings. Details appear in the report "Meetings of the Board of Directors and Sub-Committees." on pages 260-262.

6. Development of directors and executive officers

The Board of Directors recognizes the importance of attending relevant seminars and training courses as part of directors' continuing education and professional development to improve the Board effectiveness. This professional development program also helps prepare executives for job rotation and executive succession planning. Senior executives also undergo performance assessment to get ready to take on new roles and responsibilities. Details appear in the report on "Development of Directors and Executives." on pages 254-255.

7. Board Performance Assessment

The Board of Directors requires an annual performance assessment to be conducted for the Board to review its performance, problems, and obstacles during the year. In 2021, the company prepared a set of assessment forms according to the standards of Good Corporate Governance of the SET and the ASEAN CG Scorecard. The set of six assessment forms are as follows: (1) Self-assessment form of the entire Board of Directors (2) Self-assessment form of individual directors (3) Mutual directors' performance assessment form (two-person cross assessment) (4) Performance assessment form of the company's four subcommittees: Audit Committee, Nomination and Remuneration Committee, Corporate Governance Committee and Risk Management Committee (5) Assessment form of the effectiveness of the Board's meeting preparation (6) Assessment form of the Oversight Committee on Anti-corruption measures.

Results and recommendations based on such assessment were presented to the Board of Directors as input for determining ways to improve the Board effectiveness, and the overall assessment results were disclosed in Form 56-1 One Report. Details appear in the report "Nomination, Development and Assessment of the Performance of the Board of Directors." on pages 255-259.

8. Operational Oversight of IRPC and subsidiaries in the IRPC Group

The company has established the IRPC Group's governance policy and management approach. The IRPC Group Way of Conduct handbook was created to provide a framework of guidelines, practices and operational processes covering all the dimensions of the company and its subsidiaries to ensure consistency and unity of purpose in supervising subsidiaries to implement and achieve common standards across the IRPC Group. Details as show in the report, "Supervision of Subsidiaries and Associated Companies" on pages 265.

9. Outside Interests Policy

The Board of Directors approved rules on outside interests, which apply to the President, CEO, and employees of the company. In addition to clarity and compliance with the principles of good corporate governance, international standards, and conformity to IRPC's nature of business and the practices of its majority shareholders. The rules are as follows:

1. In the event that the President and CEO has been assigned a position external to the company's affairs by royal command or lawful order of the Cabinet, the appointee shall inform the Board for acknowledge as soon as the command or order was received, as the case may be.
2. In the event that the president and CEO have 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, public agency, independent organization, or publicly funded education institutions, the President and CEO shall seek prior approval from the Board.





3. In the event that the President and CEO, or executive officer from the executive vice president level up, has been requested to serve as a director, member of committee, workgroup, specialist, expert, consultant, or any other position at a company or juristic entity external to the company's affairs other than the provision under Rule 2, he or she shall seek prior approval from the Board first. For executive and employee from the manager level down, permission must be obtained from the President and CEO instead.
4. For all executive officers and employees whose outside interests fall under the provision of Rules 1 or 2, they must inform or seek permission from the President and CEO before accepting the offer, as 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, shall be at the discretion of the Board of Directors.

Policies and Practices Relating to Shareholders and Stakeholders

1. Rights of Shareholders

The company respects, upholds and promotes the exercise of shareholders' rights, from the rights to attend the general shareholders' meetings, express opinion freely, vote, propose agendas in advance of the meeting date, appoint or dismiss directors, approve or reject director or auditor's remunerations,

approve or reject profit-sharing/dividends proposal, and right of access to adequate, timely and complete information through a variety of channels to enable shareholders time to make informed decisions. In 2021, the company promoted shareholder rights through the following activities:

1.1 Annual General Meeting (AGM)

In 2021, the company held the 2021 Annual General Meeting of Shareholders on March 31, 2021, at the Bangkok Convention Center, 5th floor, Central Plaza Ladprao, strictly in compliance with preventive measures against COVID-19 in accordance with the order of the Center for COVID-19 Situation Administration (CCSA) and the Bangkok Metropolitan Administration, also ensuring full observance of other relevant laws and regulations.

In addition, the company, for the ninth consecutive year, applied guidelines on Shareholders' Meeting Quality Assessment Program of the Thai Investors Association, Association of Listed Companies, and the Securities and Exchange Commission, focusing on the Thailand Business Council for Sustainable Development (TBCSD) and Thailand Environment Institute Foundation. The main objective is to promote efficient use of resources, energy conservation and reduce impact on the environment. In addition, the meeting was a "Carbon Neutral Event" through activities to offset carbon and greenhouse gas emissions to achieve Carbon Neutral status in accordance with the guidelines of Thailand Greenhouse Gas Management Organization (TGO).

For shareholders' meeting venue, the company took into account shareholders' travel convenience, making sure they have easy access by car, MRT, BTS, and alternative modes of public transport.

In 2021, the company received Excellent rating, scoring full mark of 100 in the assessment against the AGM Checklist of the Thai Investors Association. This reflects the company's determination to organize meetings that satisfy the highest standards of sustainability and good corporate governance. In addition, the company values highly the suggestions made by attending shareholders which are considered for further improvements to meet their requirements.

1.2 Preparation before AGM

- The company requested the Board of Directors to consider holding 2021 AGM notice at the February 2021 Board meeting. The Board agreed and issued AGM notice on February 10, 2021. On the same day, the Board's resolutions on 2021 AGM notice were published in the Stock Exchange of Thailand's information disclosure system, along with the announcement of Record Date on February 24, 2021.
- IRPC encouraged every minority shareholder or group of minority shareholders with at least 4 per cent of all issued shares to propose agenda items and to nominate director candidates in advance from September 3, 2020 to January 31, 2021. This is in line with the Good Corporate Governance Assessment Criteria of the Thai Institute of Directors Association (IOD), stipulating that all Thai listed companies should allow shareholders to propose agenda and nominate directors at least 90 days before the end of the fiscal year. The company issued a letter to notify the Stock Exchange of Thailand and published the said criteria on the company's website: www.irpc.co.th. Nevertheless, no proposal of agenda or nomination of director candidate was made for AGM 2021.
- In the AGM 2021 invitation, the Board of Directors specified seven items on the agenda, each was accompanied by an explanation of its objectives and the Board's comment. (The approval of the 2020 AGM minutes was not included in any of the agenda items because a copy of the AGM 2020 minutes had previously been sent to every shareholder together with IRPC's Shareholder Newsletter Vol. 33/2020 for verification as to the correctness and completeness of the minutes, as well as to report any inaccuracies. No shareholder voiced their concerns or objections, and the minutes were considered approved.
- The company sent out AGM invitation to shareholders in Thai and English, along with other relevant meeting documents by mail. The invitation letters were delivered to all shareholders at least 21 days in advance of the

meeting date as required (the invitations were sent on March 9, 2021) and published on the company's website on March 2, 2021. In addition, the company sent the meeting invitation with barcode for registration and a QR Code for downloading the digital version of Annual Report 2020 (Form 56-1 One Report) and Sustainability Report 2020.

- The company published the public announcement of AGM 2021 in daily newspapers (both Thai and English) for 3 consecutive days (March 22-24, 2021) prior to the meeting date as a reminder to all shareholders.
- To facilitate the registration of institutional investors, the company sent out proxy forms to all institutional investors before the AGM meeting date in case the shareholders were unable to attend the meeting in person and wished to appoint a proxy to attend and vote on their behalf.

1.3 On the Meeting Day

With the long drawn out COVID-19 pandemic, the company took upon itself to strictly observe disease control measures, including setting up screening checkpoints, requiring shareholders to fill out health screening form, providing hand-sanitizer gel, 1.5 meter physical distancing to avoid congestion. Attending shareholders were also asked to check in with Thai Chana application before registering for the meeting and to wear face masks at all times. Use of microphone by shareholders were discouraged. Instead, they were requested to write down any questions they might have on pieces of paper to be delivered by staff members. The AGM was limited to not more than two hours. The company made it a point to uphold the rights of all shareholders. All their questions were addressed and answered. Any questions that could not be fielded during the meeting were answered on the company's website at: www.irpc.co.th

In addition, the company provided appropriate facilities for shareholders, including seniors, wheelchair users and pregnant women to make sure they have convenient access to their special seats. Foreign shareholders were able to follow the proceedings at the meeting with the help of interpreters. The company held the AGM according to the principles of good corporate governance as follows:

- The company allocated sufficient number of welcoming and registration staff as well as registration desks. All shareholders had been informed in the AGM invitation that registration would begin approximately two hours before the meeting.



- A barcode reader was used for registration and vote counting, enhancing the efficiency, accuracy, and speed of the proceedings. Late-arriving shareholders were allowed to enter the conference hall even while the meeting was already underway and were able to vote on the remaining agenda items as long as the votes had not been cast. Calculation of quorum was made based on the number of shareholders present plus those who had just arrived at the discussion of an agenda item.
- In 2021, 15 out of 15 directors were present, accounting for 100 per cent Board attendance). The Chairman of the Board acted as the chairman of the AGM and was joined at the shareholders' meeting by chairpersons of all subcommittees, subcommittee members, the President and CEO as well as executive vice presidents and assistant managing directors and members of the management team were present at the front of the stage to provide clarification and background information and field questions from shareholders.
- An auditor from Deloitte Touche Tohmatsu Jaiyos audit firm (Mr. Mongkol Somphol), together with legal advisors (Mr. Manit Suthaporn and Ms. Veeranuch Thammaworanakupt of Virawong, Chinawat and Partners), were on hand for legal consultation. Two shareholders (Col. Suthep Uankaew and Mr. Vuthidej Vainakorn) volunteered to verify vote count at the AGM to ensure transparency.
- The AGM 2021 was attended by a total of 1,171 shareholders, with a combined 12,529,805,200 shares, representing 61.32 per cent of the total issued shares, which exceeded one-third of the number of shares issued.
- Before introducing the first agenda item, the chairman informed the meeting of the voting method and vote counting process with clarity.
- During the AGM meeting, the chairman ascertained that every shareholder was entitled to equal opportunity to pose questions (in writing) and speak their mind in the allotted time. The chairman also assigned relevant directors and executive officers to field questions and resolve their issues with utmost clarity, and made sure questions, answers, suggestions, and opinions were recorded in the minutes with accuracy and completeness for the benefit of shareholders who were unable to attend the meeting in person.
- On the agenda for director appointment, IRPC allowed shareholders to vote to appoint directors individually or as a panel of directors.
- The chairman announced the AGM resolution on each agenda clearly, complete with details on the number of votes: Agree, Disagree or Abstain, with results projected on a screen.
- The chairman strictly led the meeting through all agenda items and in the order indicated in the invitation letter. No impromptu items were allowed.

1.4 Handling of Conflicts of Interest at Meetings

- During the shareholders' meeting, if any director has vested interest in a particular agenda item, he or she must inform the meeting of a potential conflict of interest and leave the meeting. Consequently, the director in question cannot vote on the said agenda item.

1.5 Post-AGM Procedures and Disclosure of Shareholders' Meeting Resolutions

- The quality of meeting minutes is of utmost importance to IRPC. The company requires that minutes be thoroughly recorded in full detail, covering names of directors and executive officers attending, matters discussed in each agenda item, voting process, vote-display method, questions from shareholders, and answers provided by the company's directors or executives, along with AGM resolutions and voting results, complete with breakdown of number of votes Agree, Disagree, or Abstain on each agenda item. All these procedures must be in line with the company's Good Corporate Governance Principles and the law.
- As soon as the meeting concluded, IRPC published the AGM 2021 resolution of each agenda item in Thai and English on its website and via the SET Portal on the same day (March 31, 2021). Copies of the minutes of AGM 2021 were completed within 14 days (on April 12, 2021) after the meeting and were published in the Shareholders Journal No. 34/2021 and delivered to all shareholders by post. Any shareholders who seek to amend or dispute the minutes content, if any, were given until June 30, 2021 to notify the company's secretary to take corrective actions. Shareholders with no objections would otherwise be considered as certifying the minutes of the AGM.

2. Equitable treatment of shareholders

IRPC upholds the fundamental rights of all shareholders, be they major shareholders, minority shareholders institutional investors or foreign shareholders, and ensure fair, equitable and non-discriminatory treatment with equal treatment, fairness, and non-discriminatory treatment in the following matters:

2.1 The Right to Vote

- IRPC only issues one class of shares. The one-share-one-vote rule applies.

2.2 Proposing Additional Meeting Agenda Items and Nominating Directors

- IRPC encouraged minority shareholders or minority shareholder groups with a combined shareholding of not less than four per cent of issued shares to propose additional items for the shareholders' meeting's agenda and to nominate candidates for the position of director at the AGM 2021. The minority shareholders could submit their candidates between September 3, 2020 and January 31, 2021 under the criteria and procedures published on the company's website. All shareholders were also informed through the SET's Portal.

2.3 Facilitating Shareholders at the Meeting

For the AGM 2021, IRPC took steps to provide convenience to all shareholders, from selecting a spacious venue to comfortably accommodate shareholders attending, with easy access to public transport. Welcoming staff were on hand to facilitate shareholders, including the seniors and wheelchair users. Arrangement was made for a reserved meeting hall, complete with video conference system that was linked up to the main meeting hall. Security was in place along with contingency plan for in case of emergency. Foreign shareholders followed the AGM proceedings with the aid of interpreters.

2.4 Appointment of Proxy

- In the event that shareholders were unable to attend the AGM in person, they could appoint a proxy to exercise all the rights of shareholders, including voting on their behalf, using Proxy Form A or B enclosed with the invitation letter. To facilitate the process further, the IRPC



had included a list of the documents and proof required, along with detailed instruction. By following these instructions carefully, the proxy should encounter no trouble at the meeting. Shareholders could assign any person to attend and vote on their behalf. The one-share-one-vote rule applies. Shareholders could download the proxy appointment Form A, B or C from the company's website.

- In the event that shareholders were unable to attend the AGM in person and would like to appoint a proxy or authorize an independent director to act as their proxy to propose agenda items at the AGM 2021. IRPC indicated in the attachment to the AGM 2021 invitation to 7 people: Mr. Anusorn Sangnimnuan, Mr. Woothisarn Tanchai, Mr. Somnuk Bomrungsalee, Ms. Siriwan Chierapong, Air Marshal Boonsuib Prasit, Mr. Jumpol Sumpaopol and Mr. Sukrit Surabotsopon, to serve as proxies, together with proxy appointment letters. The company also enclosed other relevant documents, such as a location map, names and biodata of director nominees, the company's independent director qualifications, and the company's regulations (relevant to the AGM) as well as the power of attorney.
- The company also made available duty stamps free of charge for shareholders' appointment of proxies to ensure the legality of their documents.

3. Stakeholders' Roles

IRPC strives for excellence as an effective business operator with management prowess and good corporate governance oversight, to create benefits for shareholders, with due regard to all stakeholders. The company also insists on fairness in its business conduct as well as transparency and accountability. All of these are enshrined in the Corporate Governance Policy and Anti-Corruption Policy observed by the IRPC Board of Directors, the management and employees, inspiring confidence among its stakeholders on the path towards sustainable growth.

3.1 Guidelines for Treatment of Stakeholder Groups

Shareholder/Investor and Analyst

IRPC respects the fundamental rights of shareholders and treats all shareholders with equality with the aim to create best value for the shareholders, who are entitled to the rights to attend the Annual General Meeting (AGM), to vote, propose

the agenda items, and nominate director candidates to sit on the company's Board of Directors. The company also organizes company visits by shareholders and welcome their opinions and suggestions. Available communication channels include the company's website: www.irpc.co.th, e-mail: ir@irpc.co.th, and cg@irpc.co.th.

IRPC also holds quarterly press conferences attended by analysts to discuss its operating results. The company organized the Opportunity Day in cooperation with the SET to provide investors access to corporate information as well as communication channels. (Details are shown in Information Disclosure and Transparency on Page 209-211).

Customer/ Consumer

IRPC takes upon itself to conduct its business with utmost integrity, transparency, and dedication to deliver products with quality standards that meet or exceed customer expectations. We are at the ready to provide valuable advice, introduce innovations to develop new products that satisfy internationally accepted standards. The company also emphasizes information technology system development to enable efficient and quick access to various database systems, with customer support that provides advice and helps resolve technical problems as well as builds good customer relationships. All the customer-facing operations are interactive, with channels of communication to receive customer feedback, such as customer satisfaction questionnaire, that helps the company serve them better.

In 2021, with the long-drawn out COVID-19 crisis, IRPC implemented the following customer-related activities:

- IRPC organized the "We Care by IRPC" project with partners, including Success Plast Co., Ltd., a manufacturer and distributor of corrugated plastic sheets, and RMC Intergroup Co., Ltd., a manufacturer, and distributor of PP BOARD, to donate plastic beds for field hospitals and waiting centers to alleviate the problem of hospital bed shortage as the number of people who contracted the virus disease surged. The project helped ease the burden of hospitals and their hard-working medical personnel.
- IRPC also held a seminar on to discuss how businesses may survive and thrive at Polimaxx Webinar 2021.
- The company hosted the 2021 Thank You party for its customers in an Online Event.

Supplier, Competitor and Creditor

IRPC strictly adheres to the principles of procurement with transparency and fairness. The company's business relationships with its suppliers are based on mutual concern for social and environmental wellbeing of communities and the need to mitigate impacts, in accordance with good corporate governance principles. IRPC maintains close communication with its suppliers and collaborates with them to establish good practices, including campaign against offering or accepting bribery and to encourage them to join Collective Action Against Corruption (CAC) for SMEs, advocating human rights policy and encouraging key suppliers to participate in corporate governance promoting activities, like PTT Group CG Day, and Supplier Conference.

Supplier IRPC and its subsidiaries underscore equal treatment and ethical conduct in mutually beneficial relationships with suppliers in strict compliance with the law and agreed-upon rules to move towards building a lasting partnership.

In 2021, the procurement department applied digital technology for sustainable procurement management as part of the main strategies to continually develop the procurement system and its processes to meet the requirements of IRPC units in its procurement and interaction with external suppliers by improving efficiency and streamlining the processes as follows:

- Electronic "Zycus" (i-Supplier Module) which allows new suppliers to register and undergo screening whether they meet qualifications as suppliers, or for existing suppliers to edit and update their information, such as product information or description of services to keep them accurate, complete, and up to date.
- Assessment of key suppliers through the Zycus system (iRisk module) in accordance with the ESG assessment dimensions to jointly develop sustainability across the supply chain in line with IRPC's sustainability practices.
- IRPC also prioritizes the supplier payment system. The company's procurement department in collaboration with

the accounting and finance departments together with banks, deployed a Blockchain network in financial-related activities, including IRPC Electronic Letter of Guarantee System or i-LGs, which is a system that suppliers can use to electronically instruct a bank to issue a letter of guarantee, without having to travel to the bank. The bank then issues a letter of guarantee and notify the company, thus significantly speeding up the entire process. IRPC's i-LGs system is connected to 18 banks in Thailand.

- Blockchain Solution for Procure-to-pay or B2P is a payment system for goods and services. The system, developed in cooperation with Siam Commercial Bank Public Company Limited and Digital Venture Company, receives e-invoices from suppliers for verification, checking them against purchase orders and goods receipts in an Automated 3-way Matching. Through this system, IRPC can electronically transfer money to the suppliers on the date such payments become due, instead of paying invoices with checks. Suppliers no longer have to travel to receive the checks at the company.

The ins and outs of supplier network





In addition, in case suppliers registered for the e-Tax Invoice system of the Revenue Department, they can also use e-Tax Invoices in their transactions with IRPC in lieu of submitting the original tax invoices to IRPC.

Competitor: IRPC's treatment of its competitors is in line with the international framework of free competition and in compliance with laws governing trade competition. The company treats competitors 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.

Creditor: 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 in public knowledge in any manner that could cause damage to its creditors. 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 without delay and

work with the creditor to find a suitable solution based on reasonableness. The company is committed to maintaining lasting relationships with all creditors.

Employee

Employees are a major contributing factor to the IRPC's success. With this in mind, the company is fully committed to creating a human resource management system based on fair performance assessment. Employees can expect to have the opportunity to grow along their career paths through training programs to broaden their knowledge and capabilities. The company seeks to promote safe work environment that meet the high internationally accepted standards as well as positive corporate culture and work atmosphere. IRPC determines reasonable and fair remuneration and welfare benefits to retain quality employees in the long term. The company also respects employees' rights and privacy, promotes workplace safety, health and hygiene, and provide adequate protective equipment. The company has implemented a wide range of human resource management activities, such as:

- IRPC conducts employee feedback survey once a year. Results from such survey are assessed to form the basis of company-wide human resource management planning with a view to continually improve employee engagement. Employee engagement is one of the management's performance indicators.



- IRPC established Performance Management System (PMS), using PKIs to ensure fairness and explainability. The company established a salary structure comparable to companies in the same industry in order to retain qualified personnel. Criteria for promotion of employees are based on fair assessment of their performance. IRPC also developed detailed job description specifying knowledge and skills required for each position for use to design training programs to help employees meet the qualifications required by their positions.
 - IRPC set human resource management approach to Upskill & Reskill through the “IRPC Brighter Bee online learning system”.
 - The company established an Individual Development Plan (IDP) between employees and their supervisors to create incentives for self-improvement and appropriate career path planning.
 - IRPC implements both Top Down and Bottom Up communication approaches, with the meeting of Management Committee is held weekly while that of the vice-president level is held monthly. The company also organizes the “President’s Town Hall” on a quarterly basis, or when there is a major event or when the company wants to communicate with employees on matters, such as operating results, policies, or a shift in direction of the company. Employees are given the opportunity to ask questions and exchange views.
 - The company set a fair compensation policy that corresponds to the company’s short- and long-term operating results. At the beginning of each year, guidelines for determining KPIs at the enterprise, departmental and individual levels will be agreed upon. Employees’ performance will be assessed using KPIs and Competency, and the payment of Variable Bonuses for senior executives will be based on their performance.
 - IRPC improved welfare benefit structures, such as medical expenses.
- In 2021, with COVID-19 continuing to spread unabated, IRPC set up its own COVID-19 surveillance and monitoring center in an effort to supervise and coordinate an effective response to the pandemic through regular communication with employees. The company also introduced a plan to prevent the spread of the virus among its employees, implementing measures, including keeping the company’s Management Committee updated and taking precautions to better protect employees as follows:
- IRPC provided all employees with essential protective personal protective equipment, such as face masks, gel sanitizer as well as close monitoring of employees’ health and measures to promote workplace hygiene.
 - The company instructed employees to work from home on rotational basis so as to reduce congestion in the workplace, thus minimizing the chance of contracting COVID-19 while still being able to continue working under the contingency plan.

- IRPC took proactive preventive measures by offering employees Rapid Antigen Test Kits (ATK).

In addition, IRPC upholds human rights and fully supports its employees' freedom of association. Employees of IRPC and its subsidiaries have formed eight labor unions, including an executive union, to represent them in collective bargaining and to ensure fair treatment. The company encourage union activities and provide communication channel for unions to reach out to all employees via the Intranet.

Community, Society and Environment

IRPC strictly follows its policy to conduct its business with a sense of responsibility towards community wellbeing, people's quality of life, and the environment. In parallel to its business operations, the company seeks to prevent and mitigate impacts to communities and the environment along with social projects aimed at driving sustainable growth. See details of corporate responsibility towards communities, society, and the environment in "Creating Shared Values" on page 140-145 and "Sustainability Management in Environmental Dimension" on page 146-149.

Public Sector

IRPC regards the public sector as one of its key stakeholders. To avoid actions that could lead to non-compliance or impropriety, the company has disclosed the policy on its engagement with the public sector in the Good Corporate

Governance Handbook and business ethics. The company is committed to being in full compliance by obtaining all required business licenses, permits and benefits correctly and completely, while avoiding actions that conflict with good corporate governance principles in dealing with government officials or government bodies. IRPC adheres to its anti-bribery guidelines and will not offer bribes to public officials in exchange for convenience or business interests.

4. Disclosure and Transparency

Disclosure

IRPC endeavors to disclose adequate, reliable, and timely its information in accordance with the Notification on information disclosure guidelines for listed companies of the Stock Exchange of Thailand. Material information that may have an impact on investment shall be disclosed via the SET Portal before being revealed to any specific person or to the public through other means. The company will not provide trade secrets, inaccurate information, or estimates, projections, or promotional materials beyond the necessity of making investment decisions.

IRPC has established channels for information disclosure or sources of information through the company's website: www.irpc.co.th in the Investor Relations section, and via the SET Portal, offering all stakeholders equal access. In 2021, the company implemented information disclosure activities as follows:



The Personal Data Protection Act B.E. 2562 (2019) ("PDPA") seminar was held by IRPC for the board of directors.

- (1) The company submitted financial reports to the Securities and Exchange Commission (SEC) and the SET on time. The auditor expressed unqualified opinion on all entries.
- (2) The company disclosed information in the annual registration statement/annual report (form 56-1 One Report), including financial statements, good corporate governance policy and business ethics, corporate social responsibility policy, minutes of the shareholders' meeting, list of majority shareholders, material news filings with the SET, company news in the media, online news bulletin, among other things. Investors may learn more about IRPC via its website: www.irpc.co.th or contact the Investor Relations Department directly.

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 clearly presented in the annual report.
- (4) The company also disclosed directors and executive officers' shareholding information as per the company's policy. Such information disclosure conformed to rules and procedures prescribed by the SEC Office and SET.
- (5) The SEC Office and SET never ordered the company to amend any of its financial statements.
- (6) The company's current auditor was appointed by shareholders at the 2021 Annual General Shareholders' Meeting. This certified public accountant was fully qualified and possessed none of the prohibitions under the SET rules. The audit fees and non-audit fees were presented to and approved by shareholders at the AGM.
- (7) The company's financial statements were certified in its entirety by the auditor with unqualified opinion.
- (8) Information about the company's directors and executive officers, including their names, current positions, education, experience, ownership of shares in the company, photos, directorship at other listed companies, and date of commencement in the current positions have been disclosed and published on the company's website.

- (9) The company published the Corporate Sustainability Report 2021, detailing its management approaches and economic, social, and environmental performance. Copies of the Corporate Sustainability Report were delivered to shareholders, along with the Annual Report, and were also available on the company's website.
- (10) IRPC also presented a Communication on Progress (COP) report to the UN Global Compact (UNGC) as the company has been a party to the global sustainability initiative since 2011. Since 2014 the company has submitted 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 communicated with stakeholders via print media, radio, television, and other public relations channels.

Disclosure to investor and the media

IRPC published annual strategic communication plan for information disclosure to each stakeholder groups, adhering to principles of good corporate governance principles with regard to disclosure of information.

In 2021, the company's management met on regular basis with shareholders, securities analysts, investors, and members of the media through various activities that are adapted to suit the current situation, to discuss the company's operating results. The meetings took place at forums, such as Analyst Meeting, Roadshows in Thailand and abroad. Other meetings with retail investors can be summarized as follows:

Summary of activities to disclose information to shareholders and investors in 2021

Investor Relations Activities in 2021	Number of times
Roadshows to meet investors 11 times consisting of:	
- International Roadshow	1
- Domestic Roadshow	10
IRPC Electronic Conferencing (E-Meeting) Quarterly Analyst Conference Call	4
Quarterly Analyst Meeting	4
Company Visit (Appointment)	13
Opportunity Day Activity	
- In cooperation with the Stock Exchange of Thailand (Quarterly)	4

Overview of interactions with the Media in 2021

Activity	(Number of time) 2021
1. Press conference/ Interview	6
2. News releases/ News photos	65
3. TV/ Radio	46
4. Website (www.irpc.co.th)	17
5. Social Media (Facebook)	19,373 Page Followers



Business ethics

IRPC establish Code of Business Conduct, comprising principles and good practices, to provide guidelines for its business operations. This Code of Business Conduct is applicable to the Board of Directors, executive officers, and all employees. The Board and executive officers must lead by example, discharging their duties with honesty, integrity, fairness, transparency, and accountability so that a culture of good corporate governance may thrive and take roots.

Corporate Governance and Code of Business Conduct Handbook

The company has published Corporate Governance and Code of Business Conduct Handbook with the approval of the Board of Directors. The current handbook, in its third edition, contains the principles of corporate governance, code of business conduct and guidelines for the Board of Directors, executives, and employees, and code of conduct and guidelines on treatment of stakeholders as well as code of business conduct and guideline on business practices, respecting and compliance with laws, regulations, standards, including international human rights principles, political neutrality, anti-money laundering and counter terrorism financing, fair competition and anti-monopoly, safety and occupational health and environmental quality standards, internal control, internal audit and risk management, insider information, confidentiality of trade secrets, information for news media, opinions given to third parties, information

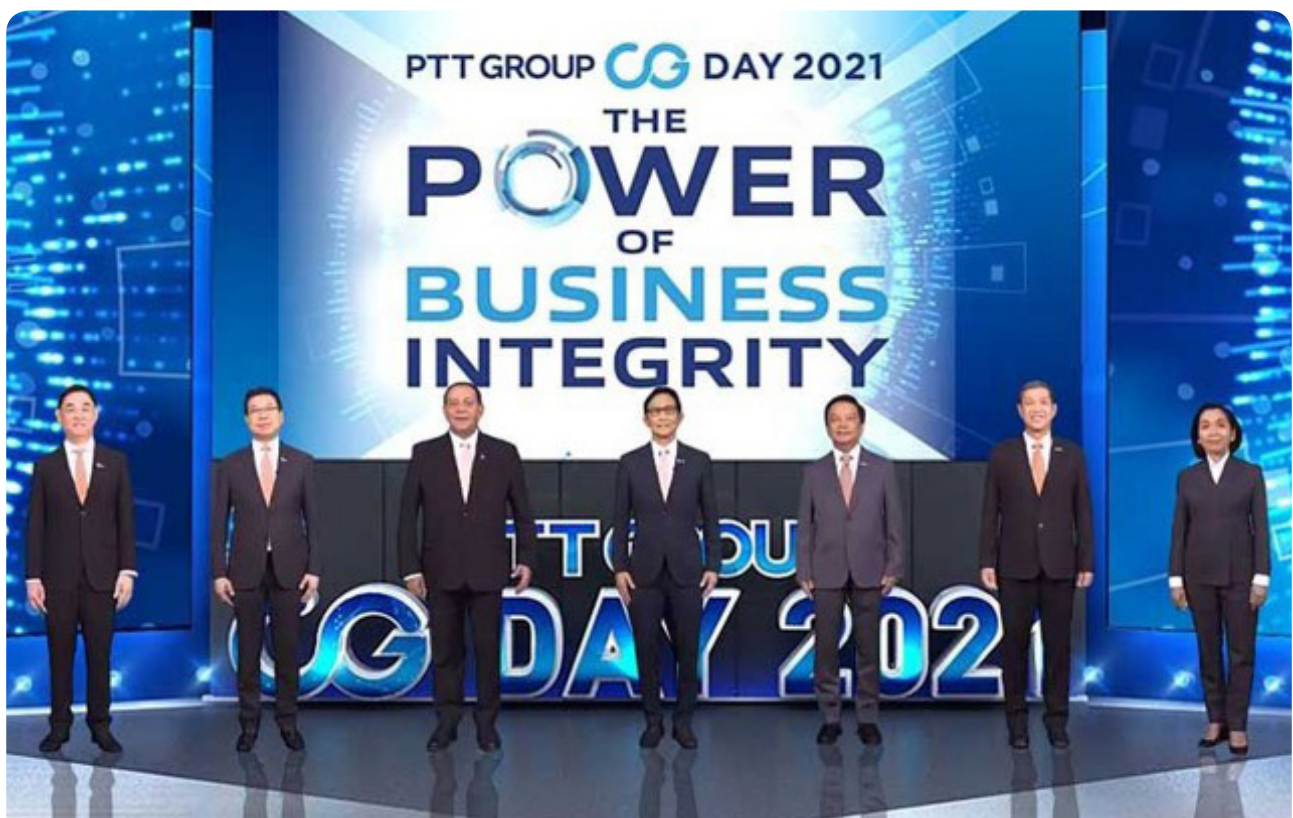
disclosure, vested interests and conflicts of interest, giving and accepting gifts, money or other benefits, etc.

Copies of the Corporate Governance and Code of Business Conduct Handbook were delivered all directors, executives, and employees of IRPC and subsidiaries within IRPC Group. They must read and sign a form to “acknowledge and pledge to observe” the handbook in guiding principle of operation and to implement them consistently. Furthermore, the handbook was also published on the company’s website to make it accessible to all stakeholders and members of the general public.

The IRPC Corporate Governance and Code of Business Conduct Handbook is available at <https://www.irpc.co.th/corporate/>

Communicating and promoting compliance with the Corporate Governance and Code of Business Conduct Handbook

This is to enhance knowledge, understanding and emphasizing the importance of corporate governance to employees at all levels. The company has organized awareness campaigns and educational activities, such as corporate governance workshops as part of new employees’ orientation, CG Conference to instill in them positive mindset and standard of behavior in accordance with the principles of transparency, fairness and accountability, PTT Group CG Day 2021, No Gift Policy campaign, and Anti Corruption, etc.



Significant developments in corporate governance policy, procedures and governance system in 2021

In 2021, the company implemented corporate governance activities to further develop, standardize and strengthen corporate governance system by reviewing policy, principles, and relevant procedures in accordance with the rules, notifications, and guidelines for good corporate governance of the SEC Office and SET on a regular basis as well as implementing the Corporate Governance Plan in 2021, approved by the Corporate Governance Committee, as follows:

Changes and Important Developments relating to the Reviews of Corporate Governance Policy, Guidelines and Governance Systems or Charter of the Board of Directors

In 2021, the Corporate Governance Committee approved the revised corporate governance policy, along with relevant

key workplans, which were submitted to the Board of Directors for approval, as follows:

- Policies and guidelines on anti-graft and anti-corruption of IRPC Public Company Limited and its subsidiaries (IRPC Group)" (Revised Edition 2021)
- Policies and guidelines on corporate compliance of IRPC Public Company Limited and its subsidiaries (IRPC Group)" (Revised Edition 2021)
- Human rights Policy of IRPC Public Company Limited and its subsidiaries (IRPC Group)" (Revised Edition 2021)
- Diversity and Inclusion Policy (D&I Policy)" of IRPC Public Company Limited and its subsidiaries (IRPC Group)" (Revised Edition 2021)
- GRC Policy and integration approach
- Performance appraisal of the Board of Directors and Sub-Committees for 2020 and Performance assessment form of the Board of Directors and Sub-Committees to be used as an assessment form for the performance of the Board of Directors in 2021
- Approval of the Corporate Governance (CG) Work Plan and the Compliance Work Plan for 2022
- Approval of the Corporate Social Responsibility, Community and Environment Work Plan for 2022
- Approval of the Sustainability Management Plan for 2022



IRPC and IRPC Oil Company Limited have received certificate of accreditation and membership extension of the Thai Private Sector Collective Action Coalition Against Corruption (CAC).

- Director Orientation for all members of the Board of Directors to attend training at Thirakup Law Office on “Knowledge and Guidelines on Personal Data Protection Act (PDPA)”

Reviews of Corporate Governance Policy and Guidelines

IRPC promotes full compliance with good corporate governance guidelines to build confidence among all stakeholder groups. In 2021, the company followed up on the matter to ensure its corporate governance policy was translated into practice at IRPC and its subsidiaries as follows:

- Examine, analyze, and assess the company's compliance with corporate governance principles, which are compared with domestic and international benchmarks, such as DJSI criteria, Corporate Governance Report of Thai Listed Companies (CGR), Thai Institute of Directors Association (IOD), AGM Checklist, Thai Private Sector Collective Action Against Corruption (CAC), to develop, improve and update the company's policies and best practices, etc.
- Establish an E-Compliance digital library of laws and rules relevant to the company's business operations
- Prepare the annual report on the disclosure of conflicts of interest

Creating corporate governance mindset and awareness in 2021

IRPC has taken steps to enhance awareness and understanding of good corporate governance, disseminate knowledge, principles, concepts and practices among the executives, employees, suppliers, customers, and personnel of its subsidiaries, to lay the groundwork for a shift towards sustainable development as follows:

Anti-Corruption Activities

- IRPC Oil Company Limited has received certificate of accreditation and membership of the Thai Private Sector Collective Action Against Corruption (CAC).
- Join the online National Anti-Corruption Day 2021 activities, Facebook Live event of the anti-corruption organization under the concept of “Engage Children to Build the Nation.” Led by Mr. Chawalit Tippawanich, IRPC Chief Executive Officer and President, the management team demonstrated their commitment that “IRPC does not accept corruption in any form.”
- The Executive Vice President, Office of Corporate Affairs, was invited as speaker at a panel discussion on “Cooperation in Preventing Corruption” organized by Office of the NACC, a training program for the development of newly appointed NACC officials, Class 31.
- The management and employees achieved 100 per cent conflicts of interest reporting for the seventh consecutive year.



Human rights promotion activities

- The Executive Vice President, Office of Corporate Affairs, invited to speak at a panel discussion on “Corporate Strategies and Policies on Business and Human Rights” organized by the Rights and Liberties Protection Department, Ministry of Justice.
- The Executive Vice President, Office of Corporate Affairs, invited to speak and share experience on human rights affairs as IRPC was awarded Human Rights Role Model Organization 2020 at the award presentation in 2021 held at Department of Rights and Liberties Protection, Ministry of Justice.
- Participate in online discussion “Bangkok Pride 2.0, COVID-19 Recovery Towards LGBTQI Inclusion” to promote the implementation of universal human rights concerning LGBT people organized by the SEC Office in collaboration with the Canadian Embassy in Thailand, and the APCOM Foundation.
- Assign ERM Siam to conduct a comprehensive assessment of risks and impacts on human rights, with various stakeholder groups participating in the assessment.
- IRPC’s Office of Corporate Affairs, together with the Strategic Planning and Sustainability Department and ERM Siam Company Limited, organized a workshop on Human Rights Due Diligence, with participation of relevant departments and customers/ suppliers/ contractors who are interested.

Activities to raise corporate governance awareness

- Together with companies in the PTT group organize PTT Group CG Day 2021 under the concept “The Power of Business Integrity” in an online event using 100 per cent Virtual Conference in keeping with the New Normal lifestyle and to prevent the spread of COVID-19. The event aimed to showcase the PTT Group’s solidarity striving to drive business growth guided by the principles of good corporate governance and operational transparency, and to encourage PTT Group’s personnel to be aware of the campaign against graft and corruption in all forms. The corporate governance principles must be established internally at the company’s level and externally in the wider society while knowledge exchange must be encouraged to raise the corporate governance standards within the PTT Group to meet internationally accepted standards.
- Organize IRPC CG DAY 2021 activities to campaign, promote and create corporate governance awareness and mindset as well as code of business conduct, respect for the human rights by combining the Supplier Conference and CG Conference activities under the concept “Synchronization for the Life Balance” as follows:
 - CG Conference: Announcement of the commitment by executives of IRPC and IRPC Group to conduct business guided by good corporate governance. The event was joined by stakeholders, such as



the Department of Industrial Works, Rayong Provincial Industry Office, Rights and Liberties Protection Department of the Ministry of Justice, suppliers, customers, communities, banks, financial institutions, securities companies in Thailand, Thai Institute of Directors Association (IOD), executives and employees of PTT Group, representatives of Bangchak Plc., and representatives from employee unions and executive unions. The event featured a lecture by Ms. Ruenwadee Suwanmongkol, Secretary-General of the SEC Office, on “Human Rights, Equality and Gender Diversity – Challenges or Opportunities for Business?”

- Supplier Conference: The main focus of the event was on the new procurement process, using digital systems, or “Sustainable Procurement with Harmony of Digital Life,” to facilitate and ensure supplier satisfaction. Participants also attended a panel discussion on “How Human Rights Help Grow Business,” featuring speakers: Dr. Seree Nonthasut, United Nations Committee on Economic, Social and Cultural Rights; Ms. Nareelak Phaechaiyaphum, Director of the International Human Rights Division, Ministry of Justice; Mr. Thanyakorn Krititayawut, Director of the Global Compact Network Association of Thailand (GCNT); Ms. Lalana Kongthorarin, Emergency Room Physician and President of Let’s Be Heroes Foundation; and Ms. Arisara Suthasut, IRPC Executive Vice President, Office of Corporate Affairs.

- Raise awareness among employees through CG E-learning using infographics. In 2021, three topics were covered: (1) Who are IRPC’s stakeholders? (2) What are UNGC & GCNT? and (3) Whistleblowing and No Gift Policy
- Together with the risk management unit prepared a Control Self-Assessment (CSA) for 2021 for 63 VP-level executives and above (100%), whereas the assessment results for Corporate Governance was completed by 96.14 per cent of the top executives.
- Organize training for IRPC Cubic Academy project for the seventh consecutive year, with the objective to enhance corporate development and create a society of continuing education to promote better understanding of business ethics and instill a sense of social responsibility among employees. This can then be expanded to include suppliers, customers, and stakeholders on the path towards sustainable growth together. The project featured discussion on knowledge and lessons learned by wellknown speakers. Highlights from 2021 activities include: “CG: CREATE for Digizen” by linking each seminar or training course to IRPC’s 6 principles of good corporate governance (or CREATE) as follows:
 - Creation of Long-Term Value course on “Overcoming Crisis in the Age of Disruption, Adapt Quickly, Act Fast” by Mr. Winradit Kolsartsenee, General Manager of Walt Disney (Thailand) Co., Ltd., viewed by 656 people, with overall audience satisfaction score of 87.48 per cent.



In the Supplier Conference, the company unveiled the new digital procurement procedures to boost the convenience of partners and vendors.

- Responsibility course on “Dharma, We Can (do), Society Benefits” by Mr. Seksan Sapsuebsakul, or Mor Bee, a wellknown seance; and Mr. Lee Ayu Chupa, owner of the coffee brand “Akha Ama”, as speakers, viewed by 592 people, with overall audience satisfaction score of 90.65 per cent.
- Equitable Treatment course on “Business Is Neither Female or Male” by Ms. Jareeporn Jarukornsakul, Chairperson of the Board of Directors and Group Chief Executive Officer WHA Corporation Public Company Limited, or WHA Group, viewed by 665 people, with overall audience satisfaction score of 87.42 per cent.
- Accountability course: “Smart Materials & Energy Solutions” on October 22, 2021 by Mr. Chawalit Tippawanich, IRPC Chief Executive Officer and President, viewed by 729 people, with overall audience satisfaction score of 91.17 per cent.
- Transparency course “Cultivate, Stay Alert, Prevent” on November 16, 2021 by Dr. Mana Nimitmongkol, Secretary General of the Anti-Corruption Organization (Thailand), viewed by 586 people, with an overall satisfaction score of 91.75 per cent.
- Ethics course on “How to Take Down the Bad Guy in the World of Social Network” by Pol. Col. Siriwat Deepho, Deputy Spokesman of Royal Thai Police, viewed by 604 people, with overall audience satisfaction score of 91.75 per cent.

Networking Activities

- Join the declaration of intent on prevention and mitigation of climate change impacts at the “GCNT Forum 2021: “Thailand’s Climate Leadership Summit: A New Era of Accelerated Actions” with General Prayut Chan-o-cha, Prime Minister and Minister of Defense, presiding over the opening ceremony.
- Together with the Global Compact Network Association of Thailand or GCNT, organized the program “We Shift, World Changes” Episode: SDGs Talk Goal 8: Decent Work and Economic Growth through the success story of IRPC College of Technology, to present the committee’s policy in driving sustainability goals and supporting the government’s policy to develop vocational manpower to meet the demand of the EEC project.
- Together with SHIFT and GCNT, organized workshop on IRPC’s Case Study in Business and Human Rights.
- IRPC attended TCFD training course & SDGs Workshop for Beginners, in-depth course for developing sustainable business strategies, and disclosure in accordance with TCFD (Task Force on Climate-Related Financial Disclosures) guidelines in accordance with the GRI, CDP and SDGs standards, organized by the Stock Exchange of Thailand.



Corporate Compliance

In 2021, IRPC revised its Corporate Compliance due to two main factors: (1) the COVID-19 pandemic, and (2) the introduction of New Organization with Agile Human (NOAH), for management transformation to reduce operating costs in all aspects of the company's operations. This involves full reviews of business model, operating model, procedures, processes, regulations, and introduction of modern technologies to enhance efficiency to achieve two goals: long-term cost reduction and more streamlined management structure and workforce that align with business strategies based on cost competitiveness.

In order to consistently meet myriad international standards, IRPC provides oversight for compliance as well as encourages further development. In 2021, the company set goals, work plans and compliance oversight indicators for short- and long-terms by focusing on the implementation of the operational supervision plan on compliance as follows:

1. Formulation of policies, procedures, handbook and guidelines relating to Personal Data Protection Act (PDPA) as follows:

- Develop policy and personal data protection guidelines, Procedure Manual (PM) and Checklist relating to guidelines on handling of personal data, covering vulnerable work groups along with the development of PMs for relevant work units, and a Data Subject Right System that focuses on supporting the exercise of rights of the data subject quickly and efficiently. A Data Protection Officer was established and a PDPA Center established to run

the system and handle matters relating personal data protection in compliance with the law.

- Establish a Personal Data Protection Committee and appoint a PDPA Data Champion Team to ensure that each of the relevant work groups has one member who coordinator, monitor personal data protection activities and report progress status to the PDPA Center and the Data Protection Officer. This is to ensure required actions are achieved according to plans so that the management and the Board of Directors are informed on this matter. Personal data protection compliance calls for participation of personnel in all units of the organization to drive further development and systematic management making use of technology enhance efficiency. Awareness campaigns and training programs are provided by the company through on-line PDPA Corporate Training Program to ascertain those personnel whose jobs require them to protect personal data and relevant personnel are capable to perform their task correctly in compliance with the personal data protection law.
- IRPC stepped up its preparedness in anticipation of the enforcement of the data protection law, with full cooperation from all units in the company, from the Board of Directors, the management and employees. The company has since achieved full compliance in personal data protection, and together with the Thailand Productivity Institute, IRPC is now sharing its success in this matter with other organizations. (Read more at <https://www.ftpi.or.th/2021/69815>)



2. Establishment of E-compliance Library of compliance-related information from all operations within IRPC, using digital systems in aggregating, storing and assessing conformity, complete with search functions.

Relevant laws or regulations that are updated and stored in the system are assessed for conformity by various units of IRPC. The introduction of the digital systems helps improve the operational oversight by providing accurate, complete data that is always up to date, as well as helping identify relevant personnel and issues and linking them to compliance requirements with a high level of accuracy. The digital systems also facilitate communication with relevant personnel to assign them to perform tasks to achieve compliance. IRPC intends to further improve the efficiency of the E-Compliance system with a view to promote wider use within the company.

3. Compliance Communication and Awareness and development of Compliance Oversight

IRPC has promoted corporate compliance through awareness campaigns, including as part of new employees' orientation. They are asked to acknowledge and comply with the company's corporate governance policy and corporate governance handbook along with other corporate policies. Employees and their supervisors also undergo training on observance of relevant handbooks, including on matters such as corporate governance and regulatory compliance, as practical guidelines in doing their jobs. These are considered part of fundamental training programs. In 2021, the company organized activities relating to training programs and communication campaigns as follows:

- Training and communicating PDPA handbook and other rules, such as anti-monopoly, internal control measures to prevent corruption and bribery.
- Disseminating news and public relations about Corporate Compliance through various channels.

- Communicate basic knowledge of Governance, Risk Management & Internal Control, Compliance (GRC).
- Establish a Common Set of Assurance Function Information (GRC share drive) so that relevant employees can access and share information, integrating GRC information to support all three core GRC units.

To integrate GRC, IRPC established in 2021 a workgroup and engaged consultants to advise on suitable operational adjustments to achieve compliance with various standards.

4. Governance, Compliance Evaluation, Reporting and Stakeholder Engagement

IRPC stresses the importance of good corporate governance and compliance that drive efficiency enabling the company to achieve business goals and meet stakeholder expectations. The company provides oversight for implementation of the approved GRC plan, and report to the Corporate Governance Committee and Risk Management Committee at specified intervals. In addition, the company also takes into consideration valuable suggestions from all relevant units to continually improve the efficiency of its operations.

To strengthen Alignment & Synergy internally and externally, IRPC has worked closely with PTT Public Company Limited and its group companies. The company's achievement in corporate compliance was recognized by the Society of Corporate Compliance and Ethics (SCCE), which requested an article from IRPC on its successful implementation of corporate compliance for publication in its magazine to exchange knowledge and share lessons learned among its compliance and ethics members around the world. This recognition is beneficial and encourages the company to further develop its limited personnel specialized in these matters to improve their capabilities and gain wider experience in order to enable IRPC to achieve higher international standards and make positive contribution in this field.

Corporate Governance Structure and Important Information about the Board of Directors, Sub-Committees, and Executives

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 the annual operation result of the Company and consider meeting agenda as stipulated by law, including approval of the financial statement.

Report



Sub-Committee

Audit Committee

is appointed by the Board and the Sub-Committee shall comprise of at least 3 independent directors, having duty to audit financial statement and to give advice on internal audit procedures. The Board shall have at least 1 member who has adequate knowledge and experience in auditing the accountability of the 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 selecting candidates for directorship, Sub-Committee, President and Chief Executive Officer, including to determine fair remuneration.

Appointment

Board of Directors

The Board of Directors consists of 15 members. The duty is to oversee all corporate operations to ensure the compliance to policies, directions, and targets that 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's vision **"To Shape Material and Energy Solutions in Harmony with Life"** by formulating short-and long-term strategic plan to assure that the Company's growth will be in line with targeted direction



Independent Directors

is independent from major shareholders or group(s) of major shareholders and the Company executives. The director's duty is to express their opinions freely under the assigned tasks to protect benefit of all shareholders and stakeholders equally. As of the end of 2020, 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 on some occasions.



Chairman

The Board of Directors elects 1 member as a chairman, to support and promote the performance of the Board at the highest extend of the responsibility assigned, to oversee and monitor management results of the Board and Sub-Committees to ensure 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 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 appointed 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 and Chief Executive Officer

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

President and Chief Executive Officer

is appointed by the Board of Directors

Senior Executive Vice President

is appointed by the Board of Directors. The duty is to manage work under responsibility, policy, and target assigned by the President and Chief Executive Officer.

Management Committee

The duty is to manage and ensure the 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 and Chief Executive Officer
- Senior Executive Vice President
- Executive Vice President

Company Secretary

is appointed by the 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.

Corporate Governance Structure and Important Information about the Board of Directors, Sub-Committees, Executives, Employees and Others



Corporate Governance Structure

The management structure, or organizational structure, of IRPC Public company Limited comprises shareholders, the Board of Directors, and the management team led by the President and 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 company's management structure, which upholds the relationships between the shareholders, the Board, and the management. This brings about the corporate competitiveness, long-term value for shareholders, with due consideration given to all stakeholders in an equitable, fair and socially responsible manner, along the pathway towards sustainable growth.

According to corporate governance best practice, a company's shareholders appoint the Board of Directors to provide corporate governance oversight on their behalf. The Board articulates the company's vision, give business direction, formulates policies, sets goals, devises strategic plans and approves annual budgets for the management

to implement and achieve the pre-determined goals. At the same time, the Board provides supervision to ensure operational transparency, efficiency, maximum benefits for shareholders and returns on their investment. The company makes profits, grows sustainably and employees are well taken care of and receive fair compensation.

Board of Directors

The Board of Directors consists of 15 directors, appropriate for the size, type and complexity of IRPC business. As of December 31, 2021, the board consisted of 14 directors. (One director resigned on May 1, 2021, resulting in one vacancy). The current directors can be classified as follows:

- Thirteen non-executive directors (93 per cent of the Board of Directors)
- One executive director (President and Chief Executive Officer)

Of these 14 directors, eight qualify as independent directors (more than 50 per cent of the Board) and two are female directors (14 per cent of the entire Board). Professional profiles of the Board of Directors appear under "Board of Directors" Page 28-44

Board of Directors as of December 31, 2021

No.	Name	Position		Date of appointment/ Term	
1.	Mr. Kris Imsang	Chairperson		December 2, 2017	1 st term
				April 3, 2019	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
				July 3, 2020	3 rd term
3.	Mr. Somnuk Bomrungsalee	Independent Director	Chairman of the Audit Committee	April 9, 2014	1 st term
				April 4, 2017	2 nd term
				July 3, 2020	3 rd term
4.	Mr. Anusorn Sangnimnuan	Independent Director	Chairman of the Risk Management Committee	August 27, 2016	1 st term
				April 4, 2017	2 nd term
				July 3, 2020	3 rd term
5.	Air Marshal Boonsuib Prasit	Independent Director	Chairman of the Corporate Governance Committee	April 3, 2019	1 st term
6.	Mr. Ekniti Nitithanprapas	Director	Risk Management Committee	November 17, 2015	1 st term
				April 4, 2017	2 nd term
				July 3, 2020	3 rd term
7.	Ms. Siriwan Chierapong	Independent Director	Audit Committee	April 3, 2019	1 st term
8.	Mr. Jumpol Sumpaopol	Independent Director	Audit Committee	October 16, 2019	1 st term
				July 3, 2020	2 nd term
9.	Mr. Sukrit Surabotsopon	Independent Director	Risk Management Committee	January 20, 2021	1 st term
10.	Ms. Peangpanor Boonklum ⁽¹⁾	Director	Risk Management Committee	January 20, 2021	1 st term
				March 31, 2021	2 nd term
11.	Asst. Prof. Dr. Chaiyaporn Puprasert ⁽²⁾	Independent Director	Corporate Governance Committee	March 31, 2021	1 st term
12.	Mr. Supot Laosuarpha ⁽³⁾	Director	Corporate Governance Committee	March 31, 2021	1 st term
13.	Mr. Chansak Chuenchom ⁽⁴⁾	Director	Nomination and Remuneration Committee	October 1, 2021	1 st term
14.	Mr. Chawalit Tippawanich	Director/ President and Chief Executive Officer	Risk Management Committee	December 1, 2020	1 st term
				March 31, 2021	2 nd term

Notes: With the approval of the Annual General Meeting of Shareholders or the Board of Directors, new directors were appointed to replace those who had retired, or resigned in 2021 as follows:

⁽¹⁾ Ms. Peangpanor Boonklum was appointed director, member of the Risk Management Committee, effective on January 20, 2021, replacing Mr. Chansin Treenuchagron, director, chairperson of the Board, who resigned, effective January 1, 2021.

⁽²⁾ Asst. Prof. Dr. Chaiyaporn Puprasert was appointed independent director and member of the Corporate Governance Committee, effective on March 31, 2021, replacing Mr. Nuttachat Charuchinda, who completed his term on March 31, 2021.

⁽³⁾ Mr. Suphot Laosuarpha was appointed director and member of the Corporate Governance Committee, effective on March 31, 2021, replacing Mr. Charerie Buranakanonda, who completed his term on March 31, 2021.

⁽⁴⁾ Mr. Chansak Chuenchom was appointed director, member of the Nomination and Remuneration Committee, effective on October 1, 2021, replacing Mr. Noppadol Pinsupa, who resigned as director, member of the Nomination and Remuneration Committee on October 1, 2021.

⁽⁵⁾ Mr. Wattanapong Kurovat resigned as director, member of the Nomination and Remuneration Committee on May 1, 2021.

Authorized Directors

Four directors are authorized to act on behalf of the company pursuant to the company's certificate dated February 4, 2022: (1) Mr. Chansak Chuenchom, (2) Mr. Kris Imsang, (3) Mr. Chawalit Tippawanich, and (4) Ms. Peangpanor Boonklum. For the authorization to be legally binding, two of these four directors must co-sign and affix the IRPC seal.

Composition and Qualifications of the Board

1. The Board of Directors shall consist of five but not more than 15 directors.
2. Independent directors shall account for at least one-third of all directors, and there shall be at least three of them on the Board.
3. Director shall not be older than 70 years of age.
4. Director shall serve a 3-year term, after which he or she may be re-appointed in accordance with legal provisions, up to three consecutive terms, or a combined total of nine years. There shall be no exceptions.
5. The following limitations shall apply to Board members who hold directorships in state enterprises and/or other companies listed on the Stock Exchange of Thailand:
 - (1) Up to three state enterprises and/or juristic persons whose shares are held by a state enterprise.
 - (2) Holding directorships in no more than 3 companies listed on the Stock Exchange of Thailand.

However, the combined total of directorships under (1) and (2) shall not exceed five.

6. Directors shall be experts in their respective fields. Their combined expertise shall satisfy the needs of IRPC. 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 their professional accomplishment recognized by businesses of comparable size as that of IRPC.
7. Directors shall possess all 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 relevant laws. They shall also be free from any questionable traits that render them unfit for supervising IRPC's business operations.

8. Directors shall possess all the required qualifications but none of the prohibitions pursuant to the Cabinet Resolution dated January, 24, 2011 Re: Appointment of high-ranking government officials to serve as directors in state enterprises or juristic persons whose shares are held by state enterprises.
9. Directors shall possess positive character traits and personality conducive to corporate governance oversight that adds value to IRPC, such as professional integrity, ethical standard, independence, assertiveness, creativity, duty of care and duty of loyalty, dedication and good social standing.
10. For former IRPC directors, their past performance, dedication, and valuable suggestions and recommendations that benefited the company shall also be considered.

Independent director

In accordance with corporate governance principles adopted by IRPC, at least one-third of the Board of Directors shall be independent directors. Both independent directors and IRPC's directors shall serve a 3-year term. Independent director retiring by rotation may be reappointed by shareholders; however, they may only serve up to three consecutive terms, or a combined total of nine years. There shall be no exception.

Independent directors shall possess the expertise and qualifications of independence pursuant to notifications of the Capital Market Supervisory Board and as stipulated by the Board of Directors. According to company's policy, independent directors shall hold no more than 0.5 per cent of IRPC's issued shares; this requirement is stricter than the not more than one per cent shareholding prescribed by the Securities and Exchange Commission. The definition of an IRPC independent director has been disclosed in the Corporate Governance Handbook and on the company's website. Independent directors shall be free to speak their minds at Board meetings. They shall attend meetings

regularly and have access to sufficient financial and business information, enabling them to express their thoughts independently in the best interests of stakeholders. In so doing, they shall also prevent conflicts of interest between IRPC, the management, directors or majority shareholders.

As of December 31, 2021, there are eight independent directors, which account for more than half of the Board (more than the legal requirement of at least one-third). 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 Marshal Boonsuib Prasit	Independent director
5. Ms. Siriwan Chierapong	Independent director
6. Mr. Jumpol Sumpaopol	Independent director
7. Mr. Sukrit Surabotsopon	Independent director
8. Asst. Prof. Dr. Chaiyaporn Puprasert	Independent director

Independent directors have duties and responsibilities as follows:

1. 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 observe best practices prescribed by the SET, SEC Office and other regulatory agencies.
2. Motivate and encourage fellow directors and the company's executive officers to perform their duties responsibly, carefully, and honestly in compliance with relevant laws, company's objectives and Articles of Association, Board and shareholders' resolutions as well as rules prescribed by regulatory agencies.
3. Encourage the company to adopt and implement corporate governance principles and best practices in earnest.
4. Ascertain that the company has appropriate and efficient internal control and risk management systems.
5. Supervise the implementation and disclosure of the company's policies on reporting of connected transactions and those involving related persons or stakeholders, along with disclosure of major events. Provide useful information to shareholders, including material changes that may affect the company's stock prices, in accordance with the conditions and timeline requirements of the Stock Exchange of Thailand.

6. Provide independent suggestions and opinions to the Board of Directors to the best interests of the company, minority shareholders and other stakeholders.
7. Perform any other tasks assigned by the Board of Directors, without compromising their ability to perform their duties with independence.
8. Independent directors shall meet among themselves at least once a year.

If an independent director position becomes vacant, IRPC shall nominate a qualified individual who fits the definition of an independent director to fill the position as well as maintain the minimum proportion of independent directors on the Board as required by the Capital Market Supervisory Board and corporate governance best practices. If another director on the Board later qualifies as an independent director, meeting the requirements, that director shall be eligible to serve as an independent director. In practice, however, IRPC will still ask the Nomination and Remuneration Committee to scrutinize such director's qualifications.

Appointment and Removal of Directors

The following is a summary of director appointment and removal procedures:

Appointment of Directors

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 candidates shall go before the annual general meeting of shareholders for election under the following criteria:
 - (1) To pass a resolution, a majority vote of the shareholders attending the meeting and casting their votes is required
 - (2) Each shareholder has votes equal to the number of shares they hold. The one-share-one-vote rule applies.
 - (3) Shareholders may cast their votes for individual candidates or for the entire group of candidates slated in each election as shareholders deem appropriate. Each candidate, individual or as part of a slate of candidates, shall receive all the applicable votes of a shareholder under (1) as their votes are indivisible.

- (4) Candidates with the highest number of votes are to be appointed directors up to the number required at any given election. If candidates receive equal votes, which makes the number of successful candidates exceed that of directors to be appointed, the chairperson of the meeting shall exercise the casting vote.
2. The Board shall elect one of its members as the chairperson and may also select one or more of its members to serve as the vice-chairperson(s). Their duties shall be as prescribed in the company's Articles of Association and as assigned by the chairperson.
3. The Board shall appoint the President and Chief Executive Officer, in accordance with the established procedures and regulations. The President and CEO shall also serve as a director and secretary to Board.
4. If any director position becomes vacant for any reason other than retirement by rotation, the Board shall select a qualified person without any of the legal prohibitions as a director at its next meeting unless the remaining term of the outgoing director is less than two months. The new director shall only serve the remainder of the term of their predecessor. Such director must secure at least three-quarters of the votes of the remaining directors.
5. If the Board no longer has a quorum as a result of directors vacating their positions, the remaining directors may exercise the only Board's authority they have left to call a meeting of shareholders to elect new directors to fill the vacancies. Such director election shall be held within one month from the date the Board failed to muster a quorum. New directors elected to fill vacancies may serve out the remaining terms of their predecessors.
6. Newly appointed director shall attend a director orientation within three months from their respective date of appointment to familiarize themselves with necessary and pertinent information.

Removal of Directors

1. Directors shall vacate office after completing a term of three years; however, they may be re-elected.
2. In addition to vacating office by rotation, directors shall vacate office upon death, resignation, or disqualification, or having prohibited characteristics as stipulated by law. They shall also be removed when the shareholders' meeting has passed a resolution to remove them, or they may be removed by a court order.

3. Director wishing to resign shall tender their resignation letter to the company. The resignation shall take effect on the date the resignation letter is delivered to the company.

Board's Duties and Responsibilities

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

1. Articulate IRPC's vision, direction, and strategies in a way that supports sustainable growth while balancing economic, social, and environmental factors. Board members shall freely express their views. They shall value all information that might prove beneficial to the process of establishing business direction. The Board shall weigh potential financial and non-financial risks to ascertain the management can efficiently implement the defined vision, direction, and strategies to accomplish the goals.
2. 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. Establish reliable accounting, financial reporting, and auditing systems. It shall also supervise assessment of internal control and internal audit, ensuring their efficiency and effectiveness.
4. Weigh 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 as well as identify business opportunities that may arise from these risks.
5. Monitor all potential conflicts of interest and address such issue as soon as it occurs. It shall review all significant business transactions, focusing on maximizing benefits to shareholders and all stakeholders.
6. Create an appropriate system or mechanism to determine fair compensation for IRPC's senior management, taking into accounts IRPC's operating results and business plans, creating short- and long-term incentives.

7. Approve the President and CEO's directorships in other companies. As for other senior executive officers' directorships in other companies shall be approved by the President and CEO. The appointment of IRPC executives to serve on the boards of subsidiaries or joint venture companies according to the proportion of its shareholding or a shareholders' agreement, falls within the Board's purview.
8. Determine the components and operational goals for the President and CEO's performance review, with due consideration to IRPC's business plans and the Balanced Scorecard management approach. Moreover, the Board shall regularly evaluate the performance of the President and CEO, whose compensation is linked to the performance review results, creating short- and long-term incentives.
9. 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. Lead by example with regard to work ethic that aligns with IRPC's corporate governance and social responsibility guidelines.
11. Advocate the full range of anti-graft and anti-corruption activities and promote sound corporate governance.
12. Appoint a qualified individual to serve as company secretary to assume duties and responsibilities set forth in the Securities and Exchange Act and other relevant laws.

Authority of the Board of Directors

1. Approve vision, strategies, short- and long-term business plans, and critical policies, such as corporate governance policy, risk management policy, trade competition policy, anti-corruption policy, connected transaction policy, and disclosure policy.
2. Approve financial procedures, investments, investment approach, financial targets, action plans, and annual budgets.
3. Approve procurements that exceed the President and CEO's authority.
4. Approve investment projects and important operations under as required by law, objectives framework, company's Articles of Association and shareholders'

resolutions, and oversee the effective implementation of the established policies and work plans.

5. Approve transactions under the criteria set forth by the Securities and Exchange Act and relevant regulations, such as connected transactions or asset acquisition or disposal.
6. Approve payments of interim dividends to shareholders and annual employees' salary adjustments and bonuses.
7. Approve determination of components and goals for the President and CEO's performance review and compensation.
8. Approve the President and CEO serving as director in other organizations; and
9. Approve executive officers' directorships in IRPC subsidiaries or joint ventures under shareholders' agreements or the in proportion to shareholding.

Authority of shareholders

Unless otherwise stipulated by law, the following shall require approval from shareholders in a resolution passed by at least three-quarters of all shareholders attending and eligible to vote:

1. Sale or transfer of the whole or essential parts of the business to other parties.
2. Purchase or acquisition of a business of another (private) company.
3. Making, 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. Amending the Memorandum of Association or Articles of Association.
7. Increase or decrease of IRPC's registered capital or the issuance of debentures; and
8. Merger or dissolution of IRPC

Authority of the Chairman

IRPC stipulates that the Chairperson and the President and CEO shall not be the same individual to ensure a clear separation of powers between policymaking and policy execution. This separation also enhances the leadership role of the Board of Directors in providing management oversight. The Chairperson's duties and responsibilities are as follows:

1. Call Board meetings, preside over the Board and shareholders' meetings.
2. Approve and determine items on the agenda together with the President and CEO.
3. Attend Board and shareholders' meetings, ensure their meetings are in compliance with IRPC's Articles of Association, encourage directors and shareholders to express their views freely based on the information duly provided.
4. Promote the exercise of rights and equitable treatment of shareholders.
5. Encourage directors to fulfill its duties and responsibilities to the best of its ability under the framework of good corporate governance, and to support the President and CEO.
6. Supervise and monitor the performance of the Board and its committees to ensure that IRPC's objectives are accomplished; and
7. Exercise the casting vote at Board meetings in the event of equality of votes.



Sub-Committees

In keeping with corporate governance principles, the Board of Directors has appointed four standing committees to oversee critical matters in their separate specialized fields 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 review financial statements to ascertain whether they are indeed reliable. Its current members are:



- | | |
|---|---------------------------------|
| 1) Mr. Somnuk Bomrungsalee (Independent Director) | Chairman of the Audit Committee |
| 2) Ms. Siriwan Chierapong (Independent Director) | Audit Committee |
| 3) Mr. Jumpol Sumpaopol (Independent Director) | Audit Committee |

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

- | | |
|----------------------------|---|
| 1) Mr. Somnuk Bomrungsalee | Chairman of the Audit Committee |
| Period | Experience in reviewing financial statements |
| Nov. 2018 - Present | Audit Committee Megachem (Thailand) Public company Limited |
| Dec. 2017 - Present | Chairman of the Audit Committee IRPC Public Company Limited |
| 2) Ms. Siriwan Chierapong | Audit Committee |
| Period | Experience in reviewing financial statements |
| Apr. 2019 - Present | Audit Committee IRPC Public Company Limited |
| 3) Mr. Jumpol Sumpaopol | Audit Committee |
| Period | Experience in reviewing financial statements |
| Oct. 2019 - Present | Audit Committee IRPC Public Company Limited |

Office of Corporate Internal Audit and Secretary to the Audit Committee

Mr. Prasitsak Sawasduang

was appointed as Manager of Office of Corporate Internal Audit and the secretary to the Audit Committee since January 1, 2021 - Present (Mr. Prasitsak Sawasduang's professional profile appears under Executive Profiles Page 53)

The Audit Committee has assigned Office of Corporate Internal Audit to audit the company's operations as well as the conduct of the management and employees to ensure they 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 Office of Corporate Internal Audit is independent and reports directly to the Audit Committee.

Term of Office

1. The Audit Committee members' term of office shall be equal to that of their directorship (Not more than 3 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 a combined total of nine years. There shall be no exceptions.
3. In the event of a director vacating office, due to any reason, the company shall provide explanation 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 its members fell short of the required number.

Duties and Responsibilities

1. Review the accuracy and adequacy of IRPC's financial reports, ensuring that they meet accounting standards stipulated by law.
2. Examine IRPC's internal control, internal audit systems, and risk management process for suitability, sufficiency, and effectiveness.
3. Review and ensure IRPC is in compliance with the laws governing securities and stock exchange as well as other regulations relevant to the company's business.
4. Examine 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 the reasonableness of such transactions in the best interests of IRPC.
5. Select and nominate an independent auditor; determine the fee of auditor appointed to audit the company's financial statements as well as to remove auditor in the event of incompetence, negligence, or misconduct; and attend a meeting with the auditor in the absence of the senior management at least once a year.

6. Ascertain that the independent auditor and Internal Audit's scopes of responsibility and auditing plans are complementary to each other to reduce auditing redundancies.
7. Approve auditing plans and offer opinions on the budget and workforce of Office of Corporate Internal Audit.
8. Appoint, transfer, or dismiss the manager of Office of Corporate Internal Audit and ensure the independence of the Office of Corporate Internal Audit.
9. Oversee the efficiency and effectiveness of IT systems relevant to internal control and risk management.
10. Prepare the Report of the Audit Committee, which is a part of the annual report.
11. Access the information needed to review and investigate relevant persons within the scope of its duties and responsibilities of the Audit Committee under IRPC's Articles of Association.
12. Report to the Board of Directors upon detecting transaction or action that may give rise to material impact to IRPC's financial status or operating results so that appropriate measures can be taken to mitigate or resolve it. Events that require reporting include:
 - (1) Conflict of Interest.
 - (2) Corrupt practices, misconducts, or abnormalities or serious faults in the internal control system.
 - (3) Violations of securities and exchange laws, regulations of the Stock Exchange of Thailand, or other rules relevant to IRPC's business.

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

13. Perform other tasks assigned 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 as follows:



- 1) Mr. Woothisarn Tanchai (Independent Director) Chairman of the Nomination and Remuneration Committee
- 2) Mr. Chansak Chuenchom (Director) Nomination and Remuneration Committee
(Mr. Wattanapong Kurovat, member of the Nomination and Remuneration Committee, resigned on May 1, 2021)

Ms. Arisara Suthasut, Executive Vice President, Office of Corporate Affairs, and company secretary acting as the secretary to the Nomination and Remuneration Committee from October 1, 2019 - Present.

(Ms. Arisara Suthasut's professional profile appears under Executive Profiles Page 52)

Term of Office

1. Nomination and Remuneration Committee members' term of office shall be equal to their directorship's term of office. (Not more than 3 years)
2. Member of the Nomination and Remuneration Committee who retires by rotation may be re-appointed by the Board of Directors. (Not more than three consecutive terms, or a combined total of up to nine years. There will be no exception)

Duties and Responsibilities

Part 1 Nomination

1. Review and make recommendations for the structure, size, and composition of the Board of Directors and Sub-Committees based on the size, type, and complexity of IRPC's business. In doing so, the committee ensures that the Board is transparent and free from the influences of shareholders with controlling power and inspires confidence in external parties. Its proposal shall be submitted to the Board of Directors and/or the shareholders' meeting for approval.
2. Review the qualifications of each director candidate. The following criteria shall apply:
 - 1) The Board of Directors shall consist of directors who have necessary skills knowledge, capabilities

but none of the prohibitions stipulated by law and other relevant regulations, including the Corporate Governance Handbook and Articles of Association.

- 2) Directors serving on the Board shall have positive general characteristics, including integrity, responsibility, ability to make informed decisions, maturity, assertiveness, unconventional thinking, independent viewpoints, principled and high professional standards, as well as diversity in terms of knowledge, experience, age and gender mix.
- 3) Directors serving on the Board shall possess skills that suit the business needs and requirements of IRPC. It is in IRPC's best interest if the candidates are on the lists of competent professionals certified or recommended by a government agency.
- 4) Directors serving on the Board shall be able to dedicate their time fully to the position. Their directorships in other companies must satisfy the following requirements:
 - (1) Up to three state enterprises or juristic persons whose shares are held by a state enterprise.
 - (2) Holding a directorship in not more than three companies listed on the Stock Exchange of Thailand, provided that the total number of directorships under (1) and (2) not exceeding five entities.
3. Review the qualifications of each independent director candidate, to ensure suitability, taking into account corporate governance principles, 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 relevant regulations.

4. Propose the criteria and procedures for nominating incoming directors to the Board for approval.
5. Recommend appropriate director candidates in the event of a vacancy or retirement by rotation to the Board or shareholders at a shareholders' meeting for approval.
6. Nominate suitable members of the Board to serve on subcommittees. Such nomination must be endorsed or approved by the Board.
7. Vet candidates for the positions of the President and CEO in the best interest of IRPC. The nomination and appointment of the President and CEO are subject to the Board's approval.
8. Determine the President and CEO's duties, responsibilities, and performance targets. Leadership, social responsibility, implementation of strategies, financial performance, relationships with the Board and the management, succession planning, positive corporate image, etc., shall serve as the criteria for the annual review of the President and CEO's performance and determination of compensation, subject to the Board's approval.
9. Evaluate the President and CEO's performance against defined criteria as well as to determine the annual adjustments of salary, pension, bonus, welfare package and other monetary and non-monetary benefits. The proposal shall be subject to the Board's approval.
10. Review the succession planning for the positions of the President, CEO and other upper management positions to prepare for when they retire or if any of them being unable to perform their duties to ensure business continuity

Part 2 Director Compensation

1. Propose the compensation components and criteria of directors and subcommittees, such as retainer fees, bonus, meeting allowance and monetary and non-monetary benefits that are adequate and fair, commensurate to the size of IRPC's business. Such compensation packages shall provide good incentives and enable the company to retain

high-caliber directors, which are aligned with shareholders' best interest. Director compensation must be approved by the shareholders' meeting.

2. Determine the criteria and components of the President and CEO's compensation based on suitability, adequacy and fairness to motivate the President and CEO to create value-added to IRPC sustainably. The compensation package is designed to retain a highly effective leader. The President and CEO's compensation shall be subject to the Board's approval.
3. Where necessary, the committee may engage external consultants to give advice on the appropriate compensation for directors and the President and CEO. IRPC shall bear the expenses.
4. Perform other tasks assigned by the Board.

Director Nomination Process

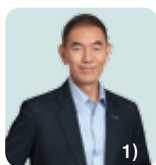
The Nomination and Remuneration Committee reviews and selects suitable candidates to fill vacant positions at the Board or one of the Sub-Committees based on desired qualifications specified by the Board under the following criteria:

1. The nominees shall possess suitable knowledge, experiences, and abilities that will benefit IRPC, especially in the business or industrial sectors where IRPC belongs. At the same time, the candidates shall also satisfy the Board's requirements for diversity and inclusion in alignment with the company's business direction.
2. The committee shall consider the Board's skills matrix and diversity in terms of gender, age, fields of expertise, experience and hard and soft skills as well as sustainability factors. Director candidates, if appointed, should be able to perform their role efficiently and complement the Board with their unique knowledge, competencies, experience, and diversity for the benefit of IRPC. Information from the State Enterprise Policy Office's Directors' Pool and the Thai Institute of Directors Association (IOD) shall also be taken into consideration.
3. The nominees shall possess all the desired qualifications 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' record of accomplishment, 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 requirements 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, regarding state enterprises' anti-corruption guidelines that seeks to limit the appointment of high-ranking government officials to serve as directors at 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 no longer meet these requirements, the committee shall nominate additional individuals to replace them to maintain the proportion prescribed in the Board's 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 a combined total of not more than nine years.
7. The committee shall reach out to qualified candidates before nomination to ascertain that such persons would be willing and ready to accept a directorship at IRPC if appointed.
8. The committee shall present a list of nominees who meet the criteria, along with their qualifications and reasons for their nomination, to the Board of Directors. With Board's approval, the list shall go before the shareholders' meeting for approval. The Board shall have the authority to appoint a new director in the case of appointment to fill a vacancy that occurs.
9. For appointments to Board's committees, the Nomination and Remuneration Committee shall consider candidates with appropriate knowledge and abilities, the composition of each committee, and directorship criteria, such as Board skills matrix/Board diversity, and their independence credentials, for submission 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) Air Marshal Boonsuib Prasit (Independent Director)



2) Mr. Chaiyaporn Puprasert (Independent Director)



3) Mr. Supot Laosuarpha (Director)

Chairman of the Corporate Governance Committee
Corporate Governance Committee
Corporate Governance Committee

Ms. Arisara Suthasut, Executive Vice President, Office of Corporate Affairs and company secretary serves as the secretary to the Corporate Governance Committee from October 1, 2019 - Present.
(Ms. Arisara Suthasut's professional profile appears under Executive Profiles Page 52)

Term of Office

1. Members' term of office shall be equal to that of their directorships (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 a combined total of nine years. There shall be no exceptions.

Duties and Responsibilities

1. Review and advise the Board of Directors on establishment of CG Framework that is aligned with IRPC's operational structure, in line with international best practices.
2. The committee shall prescribe corporate governance policy and guidelines as well as other pertinent matters of significance, such as the Code of Ethics and the Code of Conduct, sustainability management, social, community, and environmental responsibility, anti-bribery and anti-corruption drives, and policies related to governance, risk management, and compliance management (GRC), to ensure compliance with the principles, standards, and requirements of listed company regulators, such as the Stock Exchange of Thailand and Securities and Exchange Commission, as well as those of nationally and internationally recognized organizations, so as to support IRPC's strategies and goals. The committee shall also review and revise these policies and guidelines periodically.
3. Determine guidelines, oversight and monitoring mechanisms to ensure IRPC's operations are in compliance with defined policies and practices so as to continually improve and strengthen corporate governance.
4. Review compliance with corporate governance policy and guidelines as well as other pertinent matters of significance.
5. Approve methods for assessing the performance of the Board and its committees. The committee also reports assessment results to the Board of Directors and shareholders every year.
6. Give advice, suggestions and recommendation pertaining to corporate governance guidelines to the Board of Directors.
7. Perform other tasks assigned by the Board.



4. Risk Management Committee

The Risk Management Committee shall consist of at least three directors who are petroleum or petrochemical experts. The committee is tasked with formulating risk management policy, risk management plan and procedures across the entire company that are aligned with IRPC business plan and strategies. Its current members are:



- | | |
|---|---|
| 1) Mr. Anusorn Sangnimnuan (Independent Director) | Chairman of the Risk Management Committee |
| 2) Mr. Sukrit Surabotsopon (Independent Director) | Risk Management Committee |
| 3) Mr. Ekniti Nitithanprapas (Director) | Risk Management Committee |
| 4) Ms. Peangpanor Boonklum (Director) | Risk Management Committee |
| 5) Mr. Chawalit Tippawanich (Director) | Risk Management Committee |

Mr. Somkiat Lertritpuwadol, Executive Vice President Corporate Strategy Planning and Business Development serves as secretary to the Risk Management Committee from February 2019 - Present.

(Mr. Somkiat Lertritpuwadol's professional profile appears under Executive Profiles Page 49)

Term of Office

1. Risk Management Committee member's term of office shall be equal to that of their directorship (Up to three years).
2. Members who complete their terms of office may be reappointed, subject to the Board's discretion. But they may serve no more than three consecutive terms, or up to a combined total of nine years. There shall be no exceptions.

Duties and Responsibilities

1. Formulate suitable, effective policy and give recommendations on the management of risks associated with IRPC's business operations.
2. Provide oversight for enterprise-wide risk management, starting with identification of risks based on internal and external factors. All units shall conduct risk assessment and rank those risks based on impact and likelihood of them happening, so appropriate risk management measures can be taken.
3. Develop risk management systems and promote effective use of risk management tools, such as derivatives, futures and hedging, etc.
4. Supervise, monitor and review the corporate risk management to ensure its effectiveness as well as assessing compliance with the risk management framework.
5. Report risk management assessment results and risk mitigating activities to the Board on a regular basis, and in the case of risk event that may adversely affect IRPC's operations, report to the Board immediately.
6. Provide support for establishment and continuing development of risk management that is constantly in alignment with IRPC's business plan.
7. Give advice on risk management for investment projects or activities with considerable technical complications, long-term obligations, and are potentially exposed to significant risks.
8. Disclose the report of the Risk Management Committee in the annual report.
9. Perform other tasks assigned by the Board.

Management and Management-Level Committees

At IRPC Public Company Limited, the highest-ranking person is the President and Chief Executive Officer. The President and CEO oversees the management of all IRPC's operations under the guidance of the Board of Directors. He acts in the best interest of the company and shareholders. The President and CEO reports any material change in the management structure to the Board for review and approval.

In 2021, IRPC implemented the New Organization with Agile Human (NOAH) initiative to restructure the organization in line with business needs, with emphasis on effective cost management to achieve lower and competitive costs as well as a lean workforce structure suitable for IRPC's mission. Under this management strategy, IRPC introduced a program to Upskill/Reskill across all employee levels, improvement in performance assessment and incentive reward programs, such as performance rating linked to annual salary adjustments and variable bonuses, along with Employee Joint Investment Program (EJIP), and recruitment drives to attract talents to join IRPC. NOAH consists of five modules: Module A, Module B, Module C, Module D and Module E. Progress status of the project was at 82 per cent, according to the action plan.

The President and Chief Executive Officer

Mr. Chawalit Tippawanich has served as President and Chief Executive Officer from December 1, 2020.

Duties and Responsibilities

1. Ensure that the company operates in compliance with the law, its objectives and Articles of Association, Board's policies, and shareholder resolutions.
2. Take charge of the management staff, employees, and personnel, including matters relating to hiring, appointments, work regulations, salary scales, wages, welfare benefits, transfers, removals, dismissals, reshuffles, pay adjustments, promotions, disciplinary actions under the Board's policy framework.
3. Implement policies, strategic plan, business plan in accordance with IRPC's vision and mission under the operational framework approved by the Board of Directors, with efficiency and in the company's best interest.
4. Approve investment budgets, procurements, operating expenses under the business plan and within the annual budget approved by the Board.
5. Manage cashflows, investment projects, budgets, and risk management plans and procedures under the guidelines and within the scope of authority granted by the Board.
6. Review IRPC's operating results and consider proposing interim or annual dividend payment (if any), which must be approved by the Board or the shareholders' meeting.
7. Evaluate the company's performance and report progress status of the implementation of the business plan to the Board on a quarterly basis.
8. Lead by example with integrity and compliance with code of ethics and business conduct.
9. Provide leadership and serve as a role model to encourage and motivate employees to adopt the IRPC corporate culture and develop positive mindset. The President shall also be a good communicator to inspire confidence and enhance the corporate image, with emphasis on environmental stewardship, social responsibility and community development as well as work safety and occupational health for the company's employees.
10. Implement IRPC's anti-corruption and anti-bribery guidelines
11. Ascertain that IRPC stays committed to achieving the UN Sustainable Development Goals (SDGs) and Good Global Corporate Citizenship.
12. Undertake to support the company's operations in every way within the scope of authority granted by the Board.

Senior Executive Officers

IRPC's six senior executive officers according to the Securities and Exchange Commission's definition, as of January 1, 2022, consist of:

(Details of the executive profiles appear under "Management Committee" Page 46-53)

Name	Position
1. Mr. Chawalit Tippawanich	President and Chief Executive Officer/ Secretary of the Board of Directors
2. Mr. Woravuth Sivapetranart	Acting Senior Executive Vice President, Innovation and Operation Excellence/ Senior Executive Vice President, Petrochemical and Refinery Operation
3. Mr. Somkiat Lertritpuwadol	Senior Executive Vice President, Corporate Strategy Planning and Business Development
4. Mrs. Nidcha Jirametthanakij	Senior Executive Vice President, Corporate Accounting & Finance
5. Ms. Wanida Utaisomnapa	Senior Executive Vice President, Corporate Commercial and Marketing
6. Mr. Poramet Junwichit	Senior Executive Vice President, Corporate Organization Effectiveness

Note: Mr. Veerawat Srinoradithlert Executive Vice President, Management and Organizational Potential Development and Acting Executive Vice President, Innovation and Operations for Excellence, resigned on April 30, 2021

Duties and Responsibilities

1. Implement the President and Chief Executive Officer's policies and goals.
2. Determine and align the strategic plans, objectives, and primary goals of their respective functions with IRPC's vision and mission. These shall serve as guidelines for implementation by employees.
3. Ensure the accomplishment of predetermined goals, objectives and short- and long-term strategic plans within the management framework under the organizational structure within the scope of their assignments.
4. Provide advice, support, assist, and find solutions to problems for their team. They shall also create motivation and a work environment that maximize employees' performance efficiency.
5. Encourage personal development among employees in order to realize their potential for their own and the company's benefits.

6. Foster the company's sustainable growth under good corporate governance principles, with due regard to environmental stewardship and social responsibility.
7. Lead by example and serve as IRPC DNA Role Model for their subordinates.

Management Committee

To bolster systematic operational efficiency and strengthen connections and good coordination within IRPC and in its interaction with joint ventures and subsidiaries, the President and CEO established the Management Committee (MC), consisting of the President and CEO, senior executive vice presidents and executive vice presidents of all business units. the Executive Vice President, Corporate Affairs serves as the secretary to the Management Committee.

With weekly meetings scheduled for Mondays for the entire year, the Management Committee met 50 times in 2021.

Auxiliary Risk Management Committees at Management Level

In addition to the Risk Management Committee of the Board of Directors, IRPC has established the following auxiliary risk management committees, workgroups and risk agents to monitor enterprise-wide risk management activities and ensure greater efficiency in the company's overall risk management and internal control systems:

1. Risk Management and Internal Control Committee (RMCC)
2. Hedging Committee
3. Risk Manager, who is responsible for managing the overall risk of a business unit.
4. Risk Owner, who is responsible for risk management and development of risk management plan.
5. Risk Agent, who coordinates risk management planning within a unit or project, and reports risk management progress status or performance to the respective departmental or project manager to ensure appropriate, sufficient risk management that corresponds to risks at the unit level

Duties and Responsibilities

- 1) Review and evaluate investment management, investment budgeting and support the operations of IRPC and its subsidiaries.
- 2) Scrutinize important business matters that require the Board's approval. 3) Evaluate the company's key operations based on accurate and complete information.
- 4) Keep abreast of latest developments within the company as well as national and international situations and events that may impact the company's business operations.
- 5) Monitor progress status of the implementation of company's key strategies. 6) Consider and approve budgets for major investment projects that are within the President and CEO's approval authority.
- 7) Review human resource management policy with a view to further develop its management mechanisms.
- 8) Scrutinize operational risk management.

- 9) Evaluate Overseer environmental, social and governance (ESG) activities.
- 10) Review safety and occupational health and environmental activities and provide solutions to problems. Foster awareness and the importance of coordination among units in matters, such as handling of complaints or incidents, etc.
- 11) Follow up on internal audit results and solutions proposed by the Audit Committee to bring about enterprise-wide improvements.
- 12) Monitor the progress and performance of IRPC and its subsidiaries and offer recommendations.
- 13) Present relevant and function-specific information to ensure that the President and CEO or other senior executive officers make well-informed decisions.

Management-Level Committees and Working Groups

The President and CEO established other committees and working groups as appropriate to IRPC's strategic plan and current situation. These groups help manage, advance, evaluate and carry out specific tasks as follows:

- 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 IRPC vision and missions enabling them to achieve predetermined 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 and resolved, ensuring transparency and bringing about helpful solutions for both IRPC and surrounding communities.
- 3) The Environmental Management Committee (EMC) oversees environmental management and corporate social responsibility programs, ensuring their alignment with the quality, security, safety, health, environmental and energy management (QSSHE) policy.
- 4) Vice President meetings are scheduled for the last Friday of each month. This meeting keeps executive officers up to date on every aspect of the company's operations. ness issues, workforce issues, among other things. Matters of significance will be presented to the MC meeting.

Compensation

Compensation of the President and Chief Executive Officer

The Nomination and Remuneration Committee determines the President and CEO's compensation based on well-defined, transparent, fair, and reasonable criteria, taking the role's duties, responsibilities, and performance review as well as IRPC's operating results into consideration. The proposal for the compensation of the President and CEO is then submitted to and approved by the Board.

Determination of compensation of the President and CEO follows the procedural steps that correspond with the performance appraisal as follows:

1. The Nomination and Remuneration Committee proposes the 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 and CEO of the performance review criteria.
3. The Nomination and Remuneration Committee conducts performance appraisal of the President and CEO based on the established criteria throughout the year. The committee takes into account key components of the overall

performance, such as problem-solving skills, communication in crisis situations, community relations, environmental stewardship, response to corporate governance issues, and corporate image management, etc., within the context of the company's business outlook and the challenges it faces.

4. The Nomination and Remuneration Committee presents the results of the President and CEO's performance review, along with the proposed annual compensation adjustments, to the Board for approval in December.

Management Compensation

IRPC annually evaluates the performance of executive officers at all levels. Its Performance Management System (PMS) consists of three components:

1. Key Performance Indicators (KPIs)
2. Competency; and
3. Desired Behavior

In 2021, there were six senior executive officers, according to the SEC's definition, including one senior executive who resigned during the year. They received a combined total of Baht 41.97 million in monthly salaries, bonuses, and provident fund contributions as follows:

(Unit: Million Baht)

Compensation Components	2018 (18)	2019 (7)	2020 (7)	2021 (6)
Cash				
Salary	81.45	40.05	33.59	30.85
Bonus	39.05	12.87	15.3	6.70
Others				
Provident Fund Contribution	7.53	3.31	4.66	4.42
Total	128.03	56.23	53.55	41.97

In 2021, five executive officers received compensation from serving as directors of IRPC A&L Company Limited (a subsidiary), totaling Baht 1.93 million.

Director and Executives' Shareholding Report

Directors' shareholding as of December 31, 2021

No.	Name	As of Dec. 31, 2020 Shareholding Percentage/ Number of shares	As of Dec. 31, 2021 Shareholding Percentage/ Number of shares	Number of Shares Increased (Decreased) During the Year	WARRANT/ NVDR/ TSR/ DW (2021)	Notes
1.	Mr. Kris Imsang	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	
2.	Mr. Somnuk Bomrungsalee	0.00024% 50,000	0.00024% 50,000	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	
3.	Mr. Anusorn Sangnimnuan	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	
4.	Mr. Woothisarn Tanchai	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	
5.	Air Marshal Boonsuib Prasit	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	
6.	Mr. Ekniti Nitithanprapas	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	
7.	Ms. Siriwan Chierapong	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	
8.	Mr. Jumpol Sumpaopol	None	None	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	

No.	Name	As of Dec. 31, 2020 Shareholding Percentage/ Number of shares	As of Dec. 31, 2021 Shareholding Percentage/ Number of shares	Number of Shares Increased (Decreased) During the Year	WARRANT/ NVDR/ TSR/ DW (2021)	Notes
9.	Mr. Chawalit Tippawanich	0.00220% 450,000	0.00220% 450,000	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	
10.	Mr. Sukrit Surabotsopon	N/A	None	No Change	None	New Director from January 20, 2021
	Spouse	N/A	None	No Change	None	
	Minor child	N/A	None	No Change	None	
11.	Ms. Peangpanor Boonklum	N/A	None	No Change	None	New Director from January 20, 2021
	Spouse	N/A	None	No Change	None	
	Minor child	N/A	None	No Change	None	
12.	Asst. Prof. Dr. Chaiyaporn Puprasert	N/A	None	No Change	None	New Director at AGM meeting March 31, 2021
	Spouse	N/A	None	No Change	None	
	Minor child	N/A	None	No Change	None	
13.	Mr. Supot Laosuarpha	N/A	0.00024%	No Change	None	New Director at the AGM meeting March 31, 2021
	Spouse	N/A	50,000	No Change	None	
	Minor child	N/A	0.00024%	No Change	None	
14.	Mr. Chansak Chuenchom	N/A	None	No Change	None	New Director from October 1, 2021
	Spouse	N/A	None	No Change	None	
	Minor child	N/A	None	No Change	None	
Directors who completed term/ resigned during the year						
1.	Mr. Chansin Treenuchagron	None	None	No Change	None	Resigned as the company's Director from January 1, 2021
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	

Directors' shareholding as of December 31, 2021

No.	Name	As of Dec. 31, 2020 Shareholding Percentage/ Number of shares	As of Dec. 31, 2021 Shareholding Percentage/ Number of shares	Number of Shares Increased (Decreased) During the Year	WARRANT/ NVDR/ TSR/ DW (2021)	Notes
Directors who completed term/ resigned during the year						
2.	Mr. Charrie Buranakanonda	0.00027% 55,000	0.00027% 55,000	No Change	None	Completed term on March 31, 2021
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	
3.	Mr. Nuttachat Charuchinda	None	None	No Change	None	Completed term on March 31, 2021
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	
4.	Mr. Wattanapong Kurovat	None	None	No Change	None	Resigned as Director from May 1, 2021
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	
5.	Mr. Noppadol Pinsupa	None	None	No Change	None	Resigned as the company's Director from October 1, 2021
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	

Executives' Shareholding as of December 31, 2021

No.	Name	As of Dec. 31, 2020 Shareholding Percentage/ Number of shares	As of Dec. 31, 2021 Shareholding Percentage/ Number of shares	Number of Shares Increased (Decreased) During the Year	WARRANT/ NVDR/ TSR/ DW (2021)	Notes
1.	Mr. Chawalit Tippawanich	0.00220% 450,000	0.00220% 450,000	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child	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	
	Minor child	None	None	No Change	None	

No.	Name	As of Dec. 31, 2020 Shareholding Percentage/ Number of shares	As of Dec. 31, 2021 Shareholding Percentage/ Number of shares	Number of Shares Increased (Decreased) During the Year	WARRANT/ NVDR/ TSR/ DW (2021)	Notes
3.	Mr. Somkiat Lertritpuwadol	0.00193% 395,580	0.00193% 395,580	No Change	None	
	Spouse	0.00008% 15,900	0.00008% 15,900	No Change	None	
	Minor child	None	None	No Change	None	
4.	Mrs. Nidcha Jirametthanakij	0.00122% 250,000	0.00122% 250,000	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	
5.	Ms. Wanida Utaisomnapa	0.00103% 210,440	0.00103% 210,440	No Change	None	
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	
Executives who completed term/ resigned during the year						
1.	Mr. Veerawat Srinoradithlert	0.00005% 10,579	0.00005% 10,579	No Change	None	Resigned as executive from April 30, 2021
	Spouse	None	None	No Change	None	
	Minor child	None	None	No Change	None	

As of December 31, 2021, and during the past 5 years, no directors, or executive officers of IRPC 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:

- (1) Dishonesty or gross negligence.
- (2) Disclosure or dissemination of false information or statements that may cause misunderstanding, or concealing essential facts that ought to be disclosed, which may have affected the decisions of shareholders, investors, or concerned parties; or
- (3) Unfair conduct or taking unfair advantage of investors in the trade in stocks, derivatives, or futures or having taken part in or supported such misconducts.

Director of Subsidiaries as of December 31, 2021

1. IRPC Oil Co., Ltd.

Name	Position (s)
1 Mr. Chawalit Tippawanich	Chairman
2 Mrs. Nidcha Jirametthanakij	Member
3 Miss Wanida Utaisomnapa	Member
4 Mr. Woravuth Sivapetranart	Member
5 Mr. Somkiat Lertritpuwadol	Acting Managing Director

2. IRPC Polyol Co., Ltd.

Name	Position (s)
1 Mr. Chawalit Tippawanich	Chairman
2 Mrs. Nidcha Jirametthanakij	Member
3 Mr. Woravuth Sivapetranart	Member
4 Miss Wanida Utaisomnapa	Member
5 Mr. Sergiusz Stefanowski	Member
6 Mr. Rafal Zdon	Member
7 Mr. Waldermar Franz Preussner	Member
8 Ms. Soh Bee Hong	Managing Director

3. IRPC Technology Co., Ltd.

Name	Position (s)
1 Mr. Chawalit Tippawanich	Chairman
2 Mr. Somkiat Lertritpuwadol	Member
3 Miss Arisara Suthasut	Member
4 Mr. Surachai Toaphicharttrakul	Member
5 Mrs. Suchinda Ploymontree	Member
6 Mr. Phothiwat Paopongchuang	Managing Director

4. IRPC A&L Co., Ltd

Name	Position (s)
1 Mr. Chawalit Tippawanich	Chairman
2 Mrs. Nidcha Jirametthanakij	Member
3 Miss Wanida Utaisomnapa	Member
4 Mr. Woravuth Sivapetranart	Member
5 Mr. Payom Boonyoung	Member
6 Mr. Soji Sakamoto	Member
7 Mr. Hideyuki Tokimasa	Member
8 Mr. Dai Yamashita	Member
9 Mr. Takayuki Mano	Member
10 Mr. Somkiat Lertritpuwadol	Acting Managing Director

5. Rakpasak Co., Ltd.

Name	Position (s)
1 Mr. Somboon Sadsin	Chairman
2 Mr. Surachai Toaphicharttrakul	Member
3 Mr. Chokchai Olansirikul	Member
4 Mr. Panutat Kiatananchai	Managing Director

6. iPolymer Co., Ltd.

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

Positions of Directors and Executives in Subsidiaries/ Associated Companies/ Related Companies as of December 31, 2021

No.	Name	Com- pany	Subsidiaries				Joint Ventures			Associated Companies			Related Companies				
		IRPC PLC	IRPC Oil Co., Ltd.	IRPC Technology Co., Ltd.	IRPC A&L Co., Ltd.	iPolymer Co., Ltd.	IRPC Polyoil Co., Ltd.	WHA Industrial Estate (Rayong) Co., Ltd.	Mytex Polymers (Thailand) Co., Ltd.	PTT Energy Solutions Co., Ltd.	UBE Chemical (Asia) PLC	IRPC Clean Power Co., Ltd.	PTT PLC	Sport Services Alliances Co., Ltd.	PTT Oil and Retail Business PLC.	The Energy Complex Co., Ltd.	PTT Tank Terminal Co., Ltd.
1	Mr. Kris Imsang	x											//		/		x
2	Mr. Somnuk Bomrungsalee	/															
3	Air Mshl. Boonsuib Prasit	/												x			
4	Mr. Anusorn Sangnimnuan	/															
5	Mr. Woothisarn Tanchai	/															
6	Mr. Jumpol Sumpaopol	/															
7	Miss Siriwan Chierapong	/															
8	Mr. Ekniti Nitithanprapas	/															
9	Mr. Sukrit Surabotsopon ⁽¹⁾	/															
10	Miss Peangpanor Boonklum ⁽²⁾	/											//			/	
11	Asst. Prof. Dr. Chaiyaporn Puprasert ⁽³⁾	/															
12	Mr. Supot Laosuarpha ⁽⁴⁾	/															
13	Mr. Chansak Chuenchom ⁽⁵⁾												//			x	
14	Mr. Chawalit Tippawanich	/, //	x	x	x	x	x			x	/		//				
15	Mr. Chansin Treenuchagron ⁽⁶⁾																
16	Mr. Charcie Buranakanonda ⁽⁷⁾																
17	Mr. Nuttachat Charuchinda ⁽⁸⁾																
18	Mr. Wattanapong Kurovat ⁽⁹⁾																
19	Mr. Noppadol Pinsupa ⁽¹⁰⁾																
20	Mr. Woravuth Sivapetranart	//	/		/		/	/				/					
21	Mr. Somkiat Lertritpuwadol	//	/	/	/	/		/	x			/					
22	Mrs. Nidcha Jirametthanakij	//	/		/	/	/	/	/		/	/					
23	Miss Wanida Utaisomnapa	//	/		/		/		/		/						
24	Mr. Veerawat Srinoradithlert ⁽¹¹⁾	//															
25	Mr. Poramet Junwichit ⁽¹²⁾	//															

Notes: X = Chairman / = Director // = Executive

1. Mr. Sukrit Surabotsopon was appointed as a director on January 20, 2021
2. Miss Peangpanor Boonklum was appointed as a director on January 20, 2021
3. Asst. Prof. Dr. Chaiyaporn Puprasert was appointed as a director at the AGM meeting on March 31, 2021
4. Mr. Supot Laosuarpha was appointed as a director at the AGM meeting on March 31, 2021
5. Mr. Chansak Chuenchom was appointed as a director on October 1, 2021
6. Mr. Chansin Treenuchagron resigned as the chairman on January 1, 2021
7. Mr. Charcie Buranakanonda completed his term at the AGM on March 31, 2021
8. Mr. Nuttachat Charuchinda completed his term at the AGM on March 31, 2021
9. Mr. Wattanapong Kurovat resigned as the director on May 1, 2021
10. Mr. Noppadol Pinsupa resigned as the director on October 1, 2021
11. Mr. Veerawat Srinoradithlert resigned as management on April 30, 2021
12. Mr. Poramet Junwichit has been appointed as Senior Executive Vice President, Corporate Organization Effectiveness on January 1, 2022

Human Resources

Human Resources Management

Human Resources Management in accordance with business strategy

IRPC is well aware of the change and business competition, full of challenges from diverse industries into the future. Therefore, the Company strived to develop and enhance the organization's competitiveness in various dimension continuously from year 2020 such as competitive cost, speedy business operation, fast and precise decision making. The company has come up with the project to strengthen organizational performance called New Organization with Agile Human: NOAH with the major goals of cost and waste (Lean) reduction in work process and regulation by integrating new technology to enhance work efficiency. In addition, the company has also performed the following adjustment and transformation in various dimensions:

- Modernization of the organizational structure and manpower rate to collaborate with the future business mission, including the cultivation of "Agile way of work" implementation.
- Enhancement of existing skills (Upskill), and new skill building (Reskill), this includes an up-to-date on digital and technology knowledge, similar to, the midset of

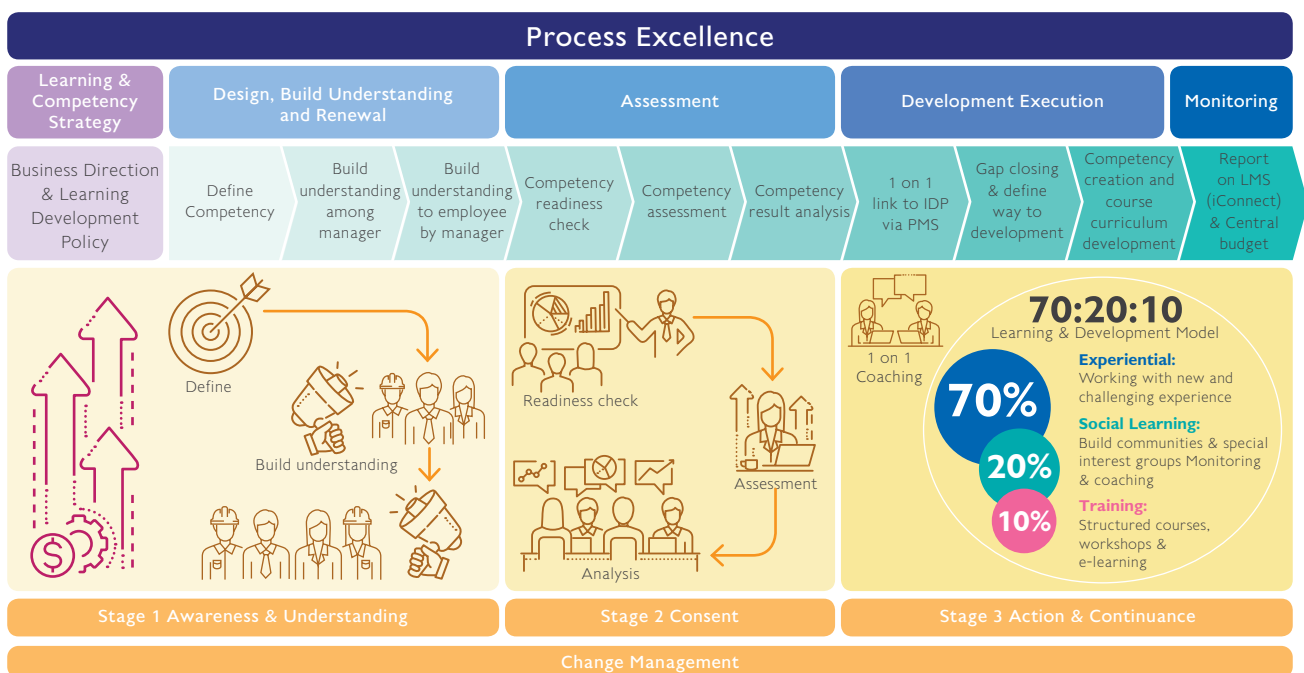
creativity and customer centric, which will make them ready for the coming future business

- Recruitment and Selection Improvement, this is to increase good people, knowledge, experiences, to drive the company to the current and future goals and objectives

The Development of Human Resource Management

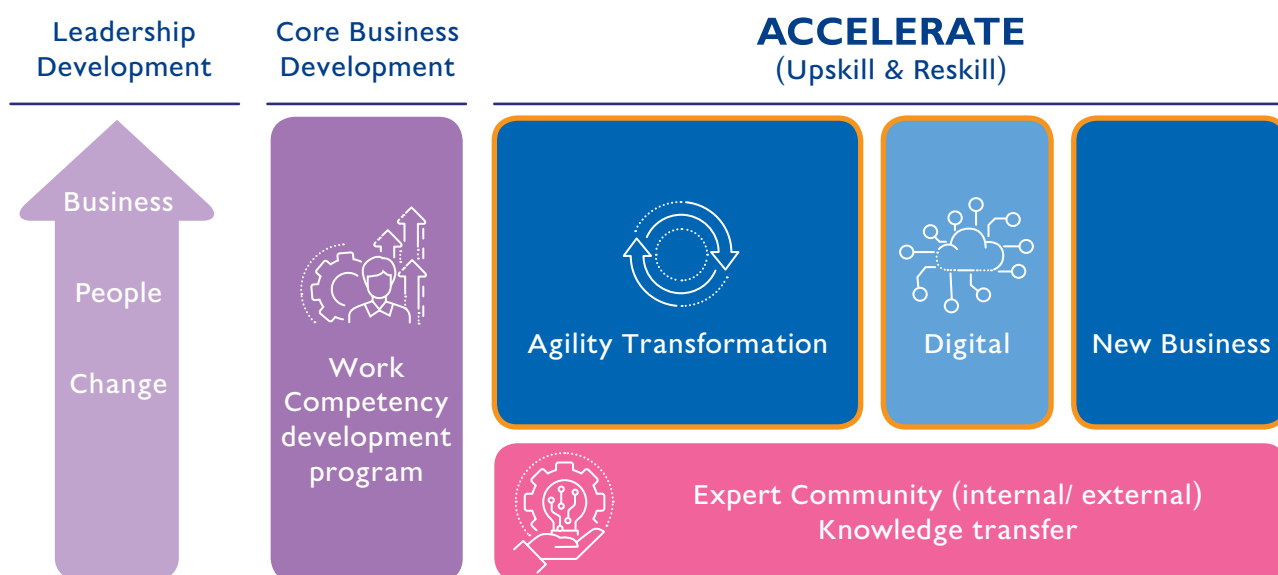
Employee's competency development

In order for IRPC to be competitive in the industry, the Company has set up a leadership competency system and work competency to be the model to collaborate with company strategy. The company applied 70:20:10 Model for Learning and Development to develop employee's skill and use as guidelines for employee's competency and behaviors' development in all levels to meet business's requirements. The company has set up the curriculum for all employee levels and various careers, by cooperating with leading institute and organization to develop content, method of learning, teaching and action learning including job rotation and on-the-job training. Furthermore, the Company has improved the knowledge management system to be up-to-date and to be easily access to various courses and curriculum via online systems connected to external institute and organizations.



Preparing our People for the Future

The management has developed a potential management group (Management Pool) and has prepared a Succession Planning for high levels management, leading our business. The company has planned for driving current and future business continuously and effectively by set up a plan for knowledge and competency as follows:



Development of Human Resource Operation System

Human Resource management has been redesigned to support more precise and effective working method including digitalization via i-Connect Platform which connect all HR operational systems thru Web/Mobile Application. IConnect provide convenience and speed, "Any where, Any time, Any Device", collect, analyse, design and develop HR system precisely. Furthermore, the Company also coordinate with health service provider to develop an application for reimbursement and medical expense verification including health data anyalysis to organize employees' health promotion activities.

Employee Engagement

IRPC has set up the structure and compensation including fringe benefits which is corresponding to the employee's roles and responsibilities for a good quality of life. During COVID-19 Pandemic, IRPC has taken measure to ensure its employees and family's safety by supporting them to get vaccine from both government and private sectors, and to provide necessary protective equipments such as marks, and alcohol sprays. IRPC also monitors employee's health and work welfare closely and encourage work from home regime to reduce infection by implementing e-conference system. IRPC setup a preparatory working committee, a 24-hours surveillance monitoring & controlling the spread. Also, the Covid-19 War Room is the operation center which keeps the employees update on COVID situation regularly and provide a mobile application for employee to do a daily location check in.

Number of employees

As of the end of 2021, IRPC and its subsidiaries have a total of 5,232 employees, includes 5,028 employees of IRPC Public Company Limited and 204 employees of its subsidiaries, namely IRPC Oil Co., Ltd., IRPC A&L Co., Ltd, IRPC Technology Co., Ltd., and iPolymer Co., Ltd. With details as follows:

Department	Number of Employees (person)
1. Department under the President and CEO	65
2. Accounting and Finance	128
3. Commercial and Marketing	209
4. Corporate Strategic Planning	89
5. Management and Organization Development	278
6. Petrochemical and Refinery Operation	2,698
7. Innovation and Operation for Excellence	1,561
Total IRPC PCL employees	5,028
Total Subsidiaries' employees	204
Total number of employees	5,232

Employee Remuneration

The Company and its subsidiaries paid remuneration for their employees, comprising salary and wages, overtime, bonus, provident fund, and social security contributions, employee benefits, and others for year 2021 in the amount of Baht 9,285 million.



Other Important Information

Company Secretary

In compliance 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 Office of Corporate Affairs as company secretary, tasked with performing the duties outlined in the law and notifications of the Capital Market Supervisory Board.

Duties and Responsibilities

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

- 1) Provide directors with preliminary advice on matters relating to laws, regulations, company's Articles of Association, monitor corporate compliance, and report material changes to the Board.
- 2) Organize Board and shareholders' meetings in accordance with the law, IRPC's Articles of Associations, and customary practices.
- 3) Record the minutes of Board and shareholders' meetings and ensure compliance with or execution of Board and shareholders' resolutions.
- 4) Oversee that information and data are disclosed to regulators in conformity with rules and regulations.
- 5) Prepare and catalog important documents, the Board of Directors' roster, meeting notices, meeting minutes, the company's annual reports, shareholders' meeting invitations, shareholders' meeting minutes, directors and management's conflicts of interest reports, and other tasks prescribed by the Capital Market Supervisory Board and relevant laws.
- 6) Prepare information and reports pertaining to the Board and corporate governance, which are needed to apply for membership, certification for good corporate citizenship and compliance with national and international standards;
- 7) Implement anti-corruption activities in accordance with the Board's policies and measures;

- 8) Acquire information, build knowledge base, and adopt best practices relating to the company secretary's duties and responsibilities, and on keep abreast of corporate governance at national and international levels, and apply them as appropriate. The company secretary also attends training programs and workshops to stay up to date on changes and trends in laws, regulations and evolving corporate governance management approaches.
- 9) Facilitate one- and two-way communication channels for the discussion and dissemination of information on good governance with IRPC's stakeholders, including investors, shareholders, the media, and the public.



Ms. Arisara Suthasut
has served as Company Secretary
since October 1, 2019
(Ms. Arisara Suthasut's professional profile
appears under Executive Profiles Page 52)

Person Assigned the Direct Responsibility of Supervising Accounting Preparation

IRPC appointed Mr. Surachai Toaphicharttrakul as the person supervising accounting on August 1, 2013, who is professionally qualified in accordance with the Stock Exchange of Thailand's notifications. Mr. Surachai Toaphicharttrakul is currently the Account Manager. He received a Master's degree in Business Administration (Accounting for Planning and Control) from Kasetsart University and has passed training for continuous knowledge development in accounting for not less than six hours per year, in compliance with the requirements of the Department of Business Development's notification.

(Mr. Surachai Toaphicharttrakul's professional profile appears under the Management Committee Professional Profiles Page 53)

Head of Internal Audit

The Audit Committee appointed Mr. Prasitsak Sawasduang as Manager of the Corporate Internal Audit Office and secretary to the Audit Committee since January 1, 2021, to assist it with meeting appointments, meeting agenda, accompanying documents, and recording meeting minutes, as well as implementing the Audit Committee's policies. (Mr. Prasitsak Sawasduang's professional profile appears under Executive Profiles Page 53)

Head of Compliance

IRPC has assigned Ms. Arisara Suthasut, Executive Vice President Office of Corporate Affairs to oversee corporate compliance to promote and facilitate oversight for corporate compliance, including ensuring that IRPC executives and employees and those of its subsidiaries abide by relevant laws and regulations.

(Ms. Arisara Suthasut's professional profile appears under Executive Profiles Page 52)

Head of Investor Relations and Contact Information

Finance and Investor Relations Manager

Ms. Kanyamas Rithidej

Contact Investor Relations via one of the following channels:

E-mail: ir@irpc.co.th

Telephone: 02-765-7380

Fax: 02-765-7379

Appointment and Remuneration of the Auditor

• IRPC Public company Limited

The Audit Committee nominated Deloitte Touche Tohmatsu Jaiyos Audit Company Limited (Deloitte) as the 2021 auditor for IRPC. The nomination was approved at the 2021 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 the year 2021 was 3,100,000 Baht, which was the same rate for 2020. This fee, however, did not include other accrued expenses, such as travel allowances, etc., but not exceeding 120,000 Baht, which were billed to IRPC according to customary practice.

(Unit: Baht)

Fee	2020 (Auditor: Deloitte)	2021 (Auditor: Deloitte)
1. Audit fee	3,100,000	3,100,000
2. Non-audit fee	1,223,085	600,000
	Fees for **	Fees for **
	1. Expenses for compliance with the jointly agreed procedures in accordance with the requirements of the Office of the Board of Investment (BOI)	1. Additional work to support the audit of large corporation's financial statements
	2. Financial advisor's fee	

• Subsidiaries and Joint Ventures

Deloitte Touche Tohmatsu Jaiyos Audit Co., Ltd. "Deloitte" also proposed the audit fee of 1,155,000 Baht for IRPC's five subsidiaries and one joint venture company.



“

The Board of Directors plays an instrumental role in formulating policies and strategies to improve competitiveness, to establish corporate culture and positive value that must be observed by all. The Board also provides oversight for internal control, risk management and other matters that are beneficial for further development of the organization in order to build confidence among all stakeholders.

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Report on Key Corporate Governance Activities

Summary of the Board Performance in the Past Year

Nomination, Director Development and Board Performance Assessment

1) Nomination and Appointment of Directors and the Top Management

Independent directors

Details about the company's independent directors, their duties and responsibilities appear under "Independent Director."

Director nomination

The Board's policy mandates that members of the Board of Directors must come from diverse backgrounds. Priority is given to needed competencies that will strengthen and complement the composition of the Board. Individuals with qualifications, experience, and expertise are considered regardless of their gender, religion, or ethnicity. Further details on this matter appear under "Composition and Qualifications of the Board of Directors." on page 224

As for the nomination of director candidates, IRPC considers 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 endorsed by the Nomination and Remuneration Committee and approved by the Board or shareholders (as the case may be).

Details about the methods and procedures of director nomination appear under "Nomination and Remuneration Committee." on page 231-233

Separation of Board Chairman and President/CEO

The Public Limited Company Act does not prohibit one person from simultaneously holding both the positions of Chairman of the Board of Directors and CEO. However, the Board's key roles and responsibilities are to determine directions of the company, formulate policies and monitor the management's performance. Having the CEO, who heads company's management team, to also chair the Board could give rise to dominance that undermines the Board's ability to function effectively. Such arrangement could also result in the Board being blindsided by the CEO who may conceal vital information or present selective information, or exercising power as chairman to make decisions that benefit the management, etc.

To ensure good corporate governance and separation of powers for checks and balances, the Board of Directors of IRPC Public company Limited has mandated that its Chairman and CEO of the company cannot be the same person, and their roles are separate and distinct.

Further details about the duties and responsibilities of the Board chairman and the CEO appear under "Authority of the Chairman" and "Duties and Responsibilities of the President and Chief Executive Officer," on page 236 respectively.

President and CEO 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 and CEO of the company also serves as a member of the Board in accordance with the company's regulations and legal procedures. The candidate must possess the necessary experience, knowledge and a profound understanding of the petroleum and petrochemical businesses, in addition to a good reputation, leadership, and a record of accomplishment of corporate governance compliance. Candidates for senior executive vice president positions must be subjected to scrutiny of the Nomination and Remuneration Committee and approval of the Board as well.

CEO Succession Planning According to IRPC's Succession Plan Management, IRPC senior executive vice presidents are selected to undergo the IRPC Group's executive development program. Upon completion, their leadership skills will be assessed by a top consultancy firm. The company will take into account the results of the assessment to further develop their potential. When there are upper management job openings, they will be nominated and appointed under applicable criteria and procedures.

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 executive positions, preparing candidates for upper management positions. Succession planning also helps IRPC manage risks, ensures business continuity, and give top talents the incentive to grow with the company.

IRPC has a systematic executive succession plan in place and the Nomination and Remuneration Committee is kept up to date with periodic reporting on progress status. Succession planning refers to continuous processes of assessment and development to unlock the full potential of senior executive officers and get them ready to take

on future challenges of consistently achieving strategic objectives and long-term goals of the company. This crucial undertaking is implemented in accordance with the following procedural steps:

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

2) Development of Directors and Executive Officers

The company firmly believes in continuing development of directors and executives by providing them with plenty of opportunities to grow professionally. In 2021, the following activities were implemented:

Director Orientation

In order for newly appointed directors to gain knowledge and understanding of the company's businesses and to assume the roles and responsibilities as the company's directors in accordance with the law and international corporate governance best practices. In 2021, the company



made arrangement for newly appointed directors to attend a director orientation before the first Board meeting. The President and CEO always makes himself available to provide new directors with an introductory briefing, and handed out information regarding organizational overview, rules and regulations, and various handbooks. In 2021, four new directors attended the orientation, namely (1) Ms. Peangpanor Boonklum, Director, (2) Asst. Prof. Chaiporn Puprasert, Independent Director, (3) Mr. Supoj Laosuapha, Director, and (4) Mr. Chansak Chuenchom, Director.

Development of Directors and Executive Officers

IRPC encourages its directors and executive officers to partake in training programs that enable them to familiarize themselves with the company's management style, industry overview and roles and responsibilities of a director. Every director has attended the orientation (for further details please refer to Directors' Biographies Page 28-44). The company secretary also coordinated with the directors to find time for them to attend new training sessions organized by the Thai Institute of Directors Association (IOD). Thirakupt Law Office also hosted a workshop for directors and executive officers on "Knowledge and Practices Relating to Personal Data Protection Act (PDPA)."

3) Board Performance Assessment and Performance Review of the President and CEO

Board performance assessment

IRPC's Board of Directors requires an annual performance assessment to be conducted for the board to review its performance, identify problems and obstacles during the year. In 2021, assessment forms were prepared according to the standards of Good Corporate Governance of the Stock Exchange of Thailand and the ASEAN CG Scorecard. The six assessment forms are: (1) Self-assessment form of the entire Board of Directors (2) Self-assessment form of individual directors (3) Director's mutual performance assessment form (2-person cross assessment) (4) Sub-Committee performance assessment forms, for the Audit Committee, Nomination and Remuneration Committee, Corporate Governance Committee, and Risk Management Committee (5) Board of Directors' meeting effectiveness assessment form (6) Board of Directors' anti-corruption oversight assessment form.

2021 Performance Assessment of the Board of Directors and Sub-Committees

1) Board of Directors' Performance

Assessment topic	Assessment score 2020	Assessment score 2021
1. Board Structure and Board Qualifications	97.80%	98.33%
2. Roles and responsibilities of the Board of Directors in formulating important business policies	93.99%	97.02%
3. Board guidelines	95.77%	97.86%
4. Meeting of directors	98.15%	99.43%
Total score	96.43%	98.16%

2) Individual Directors' Performance (self-assessment)

Assessment topic	Assessment score 2020	Assessment score 2021
1. Director's Qualifications	96.00%	97.71%
2. Responsibility for one's own decisions and actions able to explain decisions	97.44%	99.52%
3. Responsibility for performing duties with adequate capacity and efficiency.	96.92%	97.62%
4. Equal and fair treatment of stakeholders and can have an explanation	95.90%	98.57%
5. There is transparency in operations that can be monitored, and information is disclosed.	98.08%	99.64%
6. Having a vision to create added value for the business in the long run	95.90%	95.71%
7. Having ethics/ business ethics	98.72%	99.76%
Total score	96.99%	98.36%

3) Mutual Assessment of Directors (cross-assessment)

Assessment topic	Assessment score 2020	Assessment score 2021
1. Board Qualifications	98.31%	99.86%
2. Responsibility for one's own decisions and actions able to explain decisions	97.95%	99.52%
3. Responsibility for performing duties with adequate capacity and efficiency.	97.54%	98.83%
4. Equal and fair treatment of stakeholders and can have an explanation	98.46%	99.52%
5. There is transparency in operations that can be monitored, and information is disclosed.	98.27%	100%
6. Having a vision to create added value for the business in the long run	95.96%	98.81%
7. Having ethics/ business ethics	98.59%	99.76%
Total score	97.86%	99.47%

4) Sub-Committees' Performance

4.1) Risk Management Committee

Assessment topic	Assessment score 2020	Assessment score 2021
1. Board structure	98.33%	100%
2. Board policy	98.75%	99.05%
3. Guidelines of the Board of Directors	98.89%	99.05%
4. Preparing and conducting meetings	100%	100%
Total score	98.99%	99.52%

4.2) Nomination and Remuneration Committee

Assessment topic	Assessment score 2020	Assessment score 2021
1. Board structure	100%	100%
2. Board policy	100%	100%
3. Guidelines of the Board of Directors	99.71%	97.50%
4. Preparing and conducting meetings	100%	100%
Total score	99.79%	99.38%

4.3) Corporate Governance Committee

Assessment topic	Assessment score 2020	Assessment score 2021
1. Board structure	93.33%	100%
2. Board policy	88.57%	99.05%
3. Guidelines of the Board of Directors	91.43%	99.05%
4. Preparing and conducting meetings	92.50%	100%
Total score	91.46%	99.52%

4.4) Audit Committee

4.4.1) Assessment of the Audit Committee by the Chairman

Assessment topic	Assessment score 2020	Assessment score 2021
1. Independence in the performance of duties	100%	100%
2. Review of financial statements	100%	100%
3. Consideration of connected transactions	100%	100%
4. Review of the internal control system	75.00%	100%
5. Reviewing to ensure the company implement risk assessment	100%	100%
6. Review to ensure compliance with the rules of the SEC and SET.	100%	100%
7. Other operations as assigned	75.00%	100%
8. Regular reporting of performance to the Board	100%	100%
Total score	93.75%	100%

4.4.2) Assessment of the performance of the whole Audit Committee

Assessment topic	Assessment score 2020	Assessment score 2021
1. Structure and composition of the Audit Committee	96.67%	100%
2. Roles and Responsibilities	100%	100%
3. Relationship with Internal Auditors and Auditors	100%	100%
4. Relationship with Management	100%	100%
5. Reporting	100%	100%
6. Quality Control	95.83%	100%
Total score	98.75%	100%

4.4.3) Assessment of the performance of the individual audit committee

Assessment topic	Assessment score 2020	Assessment score 2021
1. Business knowledge	91.67%	95.56%
2. Expertise in performing duties	100%	100%
3. Powers and duties assigned	100%	100%
4. Independence and fairness	100%	100%
5. Understanding of duties and responsibilities	97.62%	99.06%
6. Operations and meetings	99.07%	98.52%
Total score	98.06%	98.85%

5) Evaluation of the Board's Meeting Effectiveness (Assessing Company Secretary)

Assessment topic	Assessment score 2020	Assessment score 2021
1. Meeting preparation	96.62%	97.71%
2. Meeting process	94.46%	98.29%
Total score	95.54%	98.00%

6) Assessment form for the committee in overseeing anti-corruption measures

Assessment topic	Assessment score 2021
1. Anti-Corruption Policy and Intent	have
2. Corruption risk assessment in various businesses	have
3. Mechanism for receiving complaints and managing corruption	have
4. Reporting and joining the Anti-Corruption Network	have
Total score	Prepare all items

Performance Review of the President and CEO

The Board of Directors has stipulated that the performance review of IRPC's President and CEO shall be conducted annually by the Nomination and Remuneration Committee. The Board then determines the remuneration of the President and CEO based on the results of this review; however, these results are considered private and confidential that cannot be disclosed. The review criteria are based on the President's job components and goals. They reflect the president's performance in a tangible, transparent, fair, and commensurate with his responsibilities. The review consists of 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. Board of Directors' Assessment
3. Outstanding Management/Crisis Management

In 2021, the Board of Directors approved the President and CEO's performance review criteria at Board Meeting No. 2/2021 on February 9, 2021. In addition to challenging short-term strategic objectives and long-term goals, these criteria include key performance indicators relating to financial and non-financial outcomes, corporate responsibilities towards communities, society, and the environment, and the President's crisis management skills. Having acknowledged these criteria, the President and CEO showed his remarkable business acumen, steering IRPC through these challenging times and achieved the predetermined goals. He demonstrated his outstanding leadership and overcame adverse impacts on the company and its stakeholders with decisive, well-executed actions to achieve success.

Every director took part in the assessment of the President and CEO's performance, ensuring transparency and fairness. Their participation reflected IRPC's continuing transformation towards corporate excellence. The President and CEO excelled at both parts of the review. Compensation for the President and CEO was comparable to his peers in the same or similar industries. Compensation The President and CEO's compensation was reported as per criteria prescribed by the SEC Office in the management structure under "Executives' Compensation."

Meeting attendance and remuneration of individual Board members

Board and Sub-Committee Meetings

The Board of Directors holds its meetings according to predetermined schedule covering the entire year, to address clearly defined regular agenda that have been fixed in advanced

Together, the Chairman and the President and CEO determine agenda items based on a review of proposed 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 status of an ongoing investment project and corporate performance. The Board also follows up on its previous decisions and resolutions to ensure that policies and strategies are properly executed.

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 effectively. With Board Portal, Board members may access IRPC's essential documents, supporting documents for the Board and Board committees' meetings, materials for director development and learning programs, and a library containing current news and vital information for directors as well as searchable archive. Meeting invitations are sent out accompanied by agenda, along with background information (seven business days in advance to allow directors enough time to prepare for the meeting).

At every meeting, directors with personal stake or conflict of interest in an agenda item must disclose it and recuse themselves or abstain from voting on the item in question. In accordance with the Corporate Governance Policy, the Chairman provides ample opportunities for directors to express their opinions freely. All questions are answered and clarified before a vote is called. The Board's resolution is passed by a simple majority, or in the case of a special resolution (as per IRPC's regulations) is passed by at least two-thirds of all directors present. Meeting minutes cover directors' opinions and observations. Minutes are presented to the Board at the next meeting for review and

approval. Once approved, minutes and relevant documents are electronically stored and classified for reference that can be accessed by authorized persons according to their level of security clearance.

In 2021, the Board of Directors held 15 meetings, physical as well as e-meetings, consisting of three physical meeting and 12 e-meetings. Of these, one a was held to determine or review the direction, strategy, and business plan of the organization (BOD-STs) as a special agenda, two meetings were held among independent directors, and one was a Board of Directors meeting in the absence of the management. In keeping with corporate governance principles, directors gave suggestions that were beneficial to the company, and freely discussed the management's work. The Board meeting requested the management to take suggestions and recommendations for consideration or implementation, and report back to the Board periodically.

At the meetings of independent directors (on May 24, 2021 and October 19, 2021), topics discussed included IRPC's research and development, production efficiency planning, marketing planning and logistics planning, organizational

potential development, implementation of NOAH project and succession planning, etc.

Meeting of the Board of Directors in the absence of the management (on July 20, 2021) covered a range of topics of great potential benefits to IRPC, such as human resource management to develop future-proof skill sets for growth amid changing trends in the years ahead, asset management to create added value, strategic planning and research and development in line with the country's economic stimulation policy, large project management and corporate integrity and business ethics, etc.

The Board as a whole attended 100 per cent of its meetings in 2021. Individual directors attended an average of more than 93 per cent of the meetings. The table below summarizes the attendance rates of the Board of Directors and Sub-Committees:



Meeting Attendance of the Board of Directors and Sub-Committees in 2021

(Unit: times)

Name	Board of Directors	Board without Executives	Independent Directors	Audit Committee	Risk Management Committee	Corporate Governance Committee	Nomination and Remuneration Committee	2021 Shareholders Annual General Meeting
	(14 members) Number of meetings: 15	(13 members) Number of meetings: 1	(8 members) Number of meetings: 2	(3 members) Number of meetings: 11	(5 members) Number of meetings: 14	(3 members) Number of meetings: 6	(3 members) Number of meetings: 8	(15 members) Number of meetings: 1
1. Mr. Kris Imsang	15/15	1/1	-	-	-	-	1/1	1/1
2. Mr. Woothisarn Tanchai	15/15	1/1	2/2	-	-	-	8/8	1/1
3. Mr. Somnuk Bomrungsalee	15/15	1/1	2/2	11/11	-	-	-	1/1
4. Mr. Anusorn Sangnimnuan	15/15	1/1	2/2	-	13/13	2/2	-	1/1
5. Air Marshal Boonsuib Prasit	15/15	1/1	2/2	-	-	4/4	4/4	1/1
6. Mr. Ekniti Nitithanprapas	14/15	1/1	-	-	14/14	-	-	1/1
7. Ms. Siriwan Chierapong	15/15	1/1	2/2	11/11	-	-	-	1/1
8. Mr. Jumpol Sumpaopol	15/15	1/1	2/2	10/11	-	-	-	1/1
9. Mr. Sukrit Surabotsopon	14/14	1/1	2/2	-	14/14	-	-	1/1
10. Ms. Piangpanor Boonklam	14/14	1/1	-	-	12/13	1/1	-	1/1
11. Asst. Prof. Dr. Chaiyaporn Puprasert	12/12	1/1	2/2	-	-	4/4	-	-
12. Mr. Supot Laosuapha	12/12	1/1	-	-	-	4/4	-	-
13. Mr. Chansak Chuenchom	3/3	1/1	-	-	-	-	2/2	-
14. Mr. Chawalit Tippawanich	15/15	-	-	-	14/14	-	-	1/1
Directors who retired and resigned in 2021								
15. Mr. Chansin Treenuchagron ⁽¹⁾	-	-	-	-	-	-	-	-
16. Mr. Nuttachat Charuchinda ⁽²⁾	3/3	-	-	-	1/1	-	-	1/1
17. Mr. Charcrie Buranakanonda ⁽³⁾	3/3	-	-	-	-	2/2	-	1/1
18. Mr. Wattanapong Kurovat ⁽⁴⁾	5/5	-	-	-	1/1	-	-	1/1
19. Mr. Noppadol Pinsupa ⁽⁵⁾	12/12	-	-	-	-	1/1	4/4	1/1

Note : ⁽¹⁾ Mr. Chansin Treenuchagron, director, chairman of the Board, resigned, effective January 1, 2021.

⁽²⁾ Mr. Nuttachat Charuchinda, independent director, completed his term on March 31, 2021.

⁽³⁾ Mr. Charcrie Buranakanonda, independent director, completed his term on March 31, 2021.

⁽⁴⁾ Mr. Wattanapong Kurovat, director, resigned, effective May 1, 2021.

⁽⁵⁾ Mr. Noppadol Pinsupa, resigned, effective October 1, 2021.

Individual Directors' 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. Directors' compensation shall consist of two components: 1) monthly cash retainer and 2) meeting allowance (no other compensation is to be paid, monetary or otherwise).
2. Directors' compensation amounts shall be based on their respective directors' responsibilities and performance and IRPC's operating results. They shall be comparable to those of their peers in companies of similar size and business risks, in order to attract and retain 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. In this regard, the compensation amounts proposed for 2021 were comparable to the mean monthly compensation according to the 2020 survey of directors' cash retainer of the IOD in December 2020.
3. The scope of duties and responsibilities of the Board and Board committees shall also be considered.
4. The compensation amount for the Board Chairman and Sub-Committee chairpersons shall be approximately 30 per cent higher than that of a director.
5. Members of Board's committees: the Audit Committee, Nomination and Remuneration Committee, Risk Management Committee, and the Corporate Governance Committee, shall be entitled to meeting allowance based on the actual number of meetings they attend.
6. Compensation for the Board and its committees shall be subject to the approval of shareholders at the AGM.

The proposed compensation packages for 2021 were presented to the Annual General Meeting of Shareholders (AGM), held on March 31, 2021. The meeting resolved to approve compensation amounts for the Board and its committees, which were the same amounts offered in 2020, as follows:

Directors	Monthly Compensation/ Person	Meeting Allowance/ Person
1. Board of Directors		
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 that may be appointed by the Board in the future		
Chairman	None	60,000 Baht
Director	None	45,000 Baht

Director Bonuses

The Nomination and Remuneration Committee also proposed director bonuses, which were based on IRPC's performance. In 2020, as IRPC reported a loss, the committee proposed that no director bonuses be awarded based on the 2020 operating results, and the Board of Directors approved the proposal. At the AGM 2021, held on March 31, 2021, shareholders voted not to award directors bonuses based on the 2020 operating results. The compensation of individual directors is detailed in the table below.

2021 Compensation of Individual Directors

(Unit: Baht)

	Name	Compensation	Meeting allowance Board of Directors	Meeting allowance for Sub-Committees	Total
1.	Mr. Kris Imsang ⁽¹⁾	711,290	900,000	45,000	1,656,290
2.	Mr. Woothisarn Tanchai	540,000	675,000	480,000	1,695,000
3.	Mr. Somnuk Bomrungsalee	540,000	675,000	660,000	1,875,000
4.	Mr. Anusorn Sangnimnuan	540,000	675,000	900,000	2,115,000
5.	Air Marshal Boonsuib Prasit	540,000	675,000	420,000	1,635,000
6.	Mr. Ekniti Nitithanprapas	540,000	630,000	630,000	1,800,000
7.	Ms. Siriwan Chierapong	540,000	675,000	495,000	1,710,000
8.	Mr. Jumpol Sumpaopol	540,000	675,000	450,000	1,665,000
9.	Mr. Sukrit Surabotsopon	512,419	630,000	630,000	1,772,419
10.	Ms. Piangpanor Boonklam	512,419	630,000	585,000	1,727,419
11.	Asst. Prof. Dr. Chaiyaporn Puprasert	406,452	540,000	180,000	1,126,452
12.	Mr. Supot Laosuapha	406,452	540,000	180,000	1,126,452
13.	Mr. Chansak Chuenchom	135,000	135,000	90,000	360,000
14.	Mr. Chawalit Tippawanich	540,000	675,000	630,000	1,845,000
15.	Mr. Chansin Treenuchagron	-	-	-	-
16.	Mr. Nuttachat Charuchinda	135,000	135,000	60,000	330,000
17.	Mr. Charcrie Buranakanonda	135,000	135,000	90,000	360,000
18.	Mr. Wattanapong Kurovat	180,000	225,000	45,000	450,000
19.	Mr. Noppadol Pinsupa	405,000	540,000	225,000	1,170,000
Total		7,859,032	9,765,000	6,795,000	24,419,032

(No other compensation or benefit were paid to directors, monetary or otherwise)

Note: (1) Mr. Kris Imsang reimbursed his compensation to PTT Public Company Limited compliance with the PTT's President Employment Agreement.

Supervision of Subsidiaries and Associated Companies

Supervisory Mechanisms

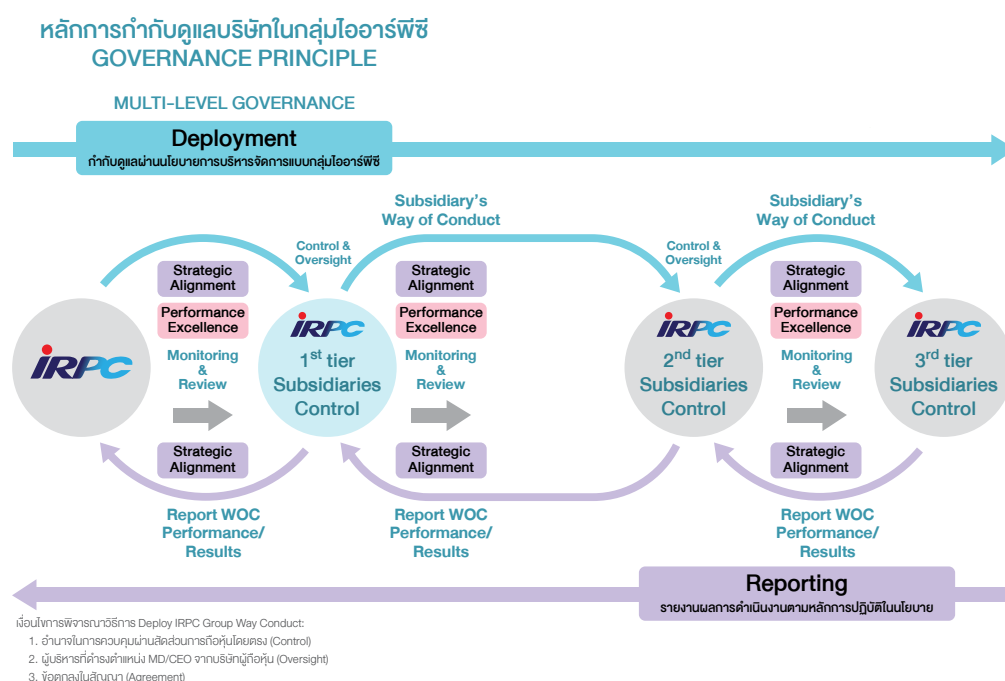
In addition to corporate governance oversight under the leadership of IRPC President and CEO and other senior executive officers, the company's Board of Directors oversees the management of subsidiaries, associated companies and joint ventures through IRPC representatives whom the company nominates, with the IRPC Board of Directors' approval, to serve as directors or executives of these companies. (Further details on this subject appear in "Shareholding Structure" section (Page 97). The decisions on significant investments and business decisions that these representatives make require the approval of the Investment Board, the Executive Board, or the Board of Directors, as the case may be. These representatives must also submit progress reports to the Board of Directors periodically.

In 2021, in order to rationalize the management and supervision of subsidiaries in a more transparent manner and ensure they are systematically in alignment with IRPC's key policies and the PTT Group Way of Conduct 2020, IRPC announced the IRPC Group Way of Conduct Policy on August 4, 2021. The company also introduced IRPC Group Way of Conduct Handbook to establish IRPC's Governance Principles consisting of:

- 1) **Key Strategic Positions**, IRPC has a policy to appoint IRPC executives and employees to key strategic

positions in companies in which it has controlling interest, in accordance with the mutual agreement within IRPC Group, shareholders' agreements, shareholding structure, or business terms and conditions.

- 2) **Rules and Regulations, and Policies**, including various instructions, with a view to establish a linkage between governance oversight in accordance with IRPC's policies and implementation of such policies to achieve results.
- 3) **Reporting Line and Performance Management** This requires companies within the IRPC Group to report on performance and performance assessment in accordance with the IRPC Way of Conduct, one of the group's key governance principles. Reporting on progress status of policy implementation is required by these subsidiaries' respective management and/or the Board of Directors. Such management approach must be established to drive efficiency and effectiveness, to be measured against IRPC's clearly defined performance indicators.
- 4) **Multi-level Governance** IRPC Group operates a diverse range of businesses, each with its own complexity and characteristics. To ensure IRPC Group's management approach is applied consistently



and systematically linked across the group, IRPC has established a hierarchical governance oversight, or Multi-level Governance. This calls for cooperation among companies within the group to observe common operating standards to achieve sustainable business goals based on the corporate values "I-SPIRIT." The Multi-level Governance is implemented through the introduction of IRPC Group Way of Conduct to subsidiaries over which IRPC has the authority to supervise through IRPC executives serving as CEOs of these companies. Thus, these subsidiaries must observe the IRPC Group's management approach with a view to pass on the IRPC governance oversight to their respective subsidiaries (grandchild companies).

- 5) **Management Committee** Committees serving the Board of Directors and the Management, such as the Corporate Governance Committee, the Management Committee (MC), as well as specialized committees, play a pivotal role in driving IRPC Group Way of Conduct. As consultative and planning bodies, these committees are required to report on the outcomes of the IRPC Group Way of Conduct to the Corporate Governance Committee or the Management Committee or executive committees, as instructed by IRPC President and CEO to monitor the operational efficiency and effectiveness on a regular basis.

Monitoring Corporate Governance Policy Compliance and Practices

1) Supervision of the use of insider information

IRPC emphasizes the need to control how insider information of the company and its subsidiaries is used as part of our commitment to equitable treatment of shareholders. The company has set a policy to prevent insider trading and imposed the blackout period since 2020. This is in order to control non-public price sensitive information, and to prevent directors, executives, employees, and related persons from using information that has not been disclosed to the SET or general public, for personal gain or to benefit others, directly or indirectly. The guidelines on this matter are summarized below:

- (1) Directors, executives (according to the SEC Office's definition), employees who have access to insider information (those working in accounting, finance, company secretary, Internal Audit Office, investor relations, corporate strategy, investment management, risk management, and Office of Corporate Affairs) are prohibited from trading in IRPC's securities for a period of 30 days prior to and within 48 hours of public disclosure of the quarterly or annual financial statements. The company secretary shall make advance announcement regarding persons who are subject to the Blackout Period.
- (2) IRPC's directors and executives wishing trade in the company's securities have a duty to notify the company secretary at least one day prior to such engaging in such transaction. In case the company secretary wishing to trade in the company's securities, he or she must notify the chairman of the Board of Directors or the President and CEO accordingly.
- (3) Directors, executives (according to the SEC Office's definition) and auditors of the company have a duty to prepare and disclose reports on changes in securities holdings of themselves, their spouse, and minor children, in accordance with the rules and procedures prescribed by the SEC Office within three business days from the date of purchase, sale, transfer or acceptance of transfer of such securities.
- (4) Directors and executives (according to the SEC Office's definition) must report changes in their interests and their personal background information in accordance with the reporting procedures for personal interest declaration within seven business days from the date of such changes. The report must be submitted to the company secretary for examination by the chairman of the Board of Directors and chairman of the Audit Committee.

2) Conflict of Interest Prevention

IRPC requires that its directors, executives, and employees, as well as those of its subsidiaries, joint ventures, and companies in which IRPC has 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.

Conflict of Interest Report

IRPC mandates that all IRPC Group executive officers and employees must report all their (potential) conflicts of interest with the company to the Corporate Governance Committee. Reporting is done via online system for seven consecutive years (since 2015). This is in addition to disclosing its directors' and executives' conflicts of interest according to the regulations of the SEC Office to promote transparency and anti-corruption operational mindset.

In 2021, the company saw a 100 per cent adoption of the online reporting system from executives and employees across all levels.

Reporting Conflict of Interest of Directors, Executives and Related Persons

Every director submits a conflict 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.

3) Reporting Securities Holding

To supervise the use of insider information, it is mandatory for Board members and executive officers, including their lawful 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 in accordance with 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, the company's policy requires Board members and executives to disclose/report/purchase/sale/transfer/changes in holdings of IRPC securities to the Board at the monthly Board meeting. Such reporting requirement is an integral part of every board meeting's agenda.

The company has never been warned of such matters from the regulators and in 2021 Board members collectively held less than 25 per cent of the company's issued shares, in compliance with regulations of the Stock Exchange of Thailand.

4) Connected Transactions

Related/Connected Transactions Policy

IRPC and its subsidiaries operate an integrated petrochemical and refining business, belonging to the same industrial sector as the PTT Group. Transactions between IRPC and other companies within the PTT Group are conducted on arm's length basis, from the exchange of crude oil and petrochemical products, related services, and other activities that support each other's day-to-day operations. The prices and terms and conditions of these transactions are no different from those agreed upon with companies outside the PTT Group. There is no transfer of mutual benefits. IRPC examines every connected transaction carefully, rationally, and independently, in its own best interest.

Measures for Related/Connected Transactions

IRPC complies with the regulations of the Securities and Exchange Commission and Stock Exchange of Thailand regarding connected transactions. The Board of Directors appropriately considered the items that may give rise to conflicts of interest to ensure that the transaction is fair, transparent, and reasonable. The directors, employees, or any person with conflicts of interest are not allowed to attend the meeting or vote on that agenda. In addition, the Audit Committee is also responsible for the review and audit of connected transactions made between the company, its subsidiaries, and related persons or companies on a quarterly basis. The objectives are to eliminate conflicts of interest that might occur and ensure the best interests of the company.

Policy on Future Connected Transactions

IRPC's future connected transactions will be normal business transactions. The company bases its decisions primarily on reasonable and fair pricing. This is to ensure shareholders and all stakeholders receive fair and equitable treatment in accordance with the Corporate Governance Policy, in compliance with the regulations of Office of the Securities and Exchange Commission and the Stock Exchange of Thailand on connected transactions.

5) Whistleblowing

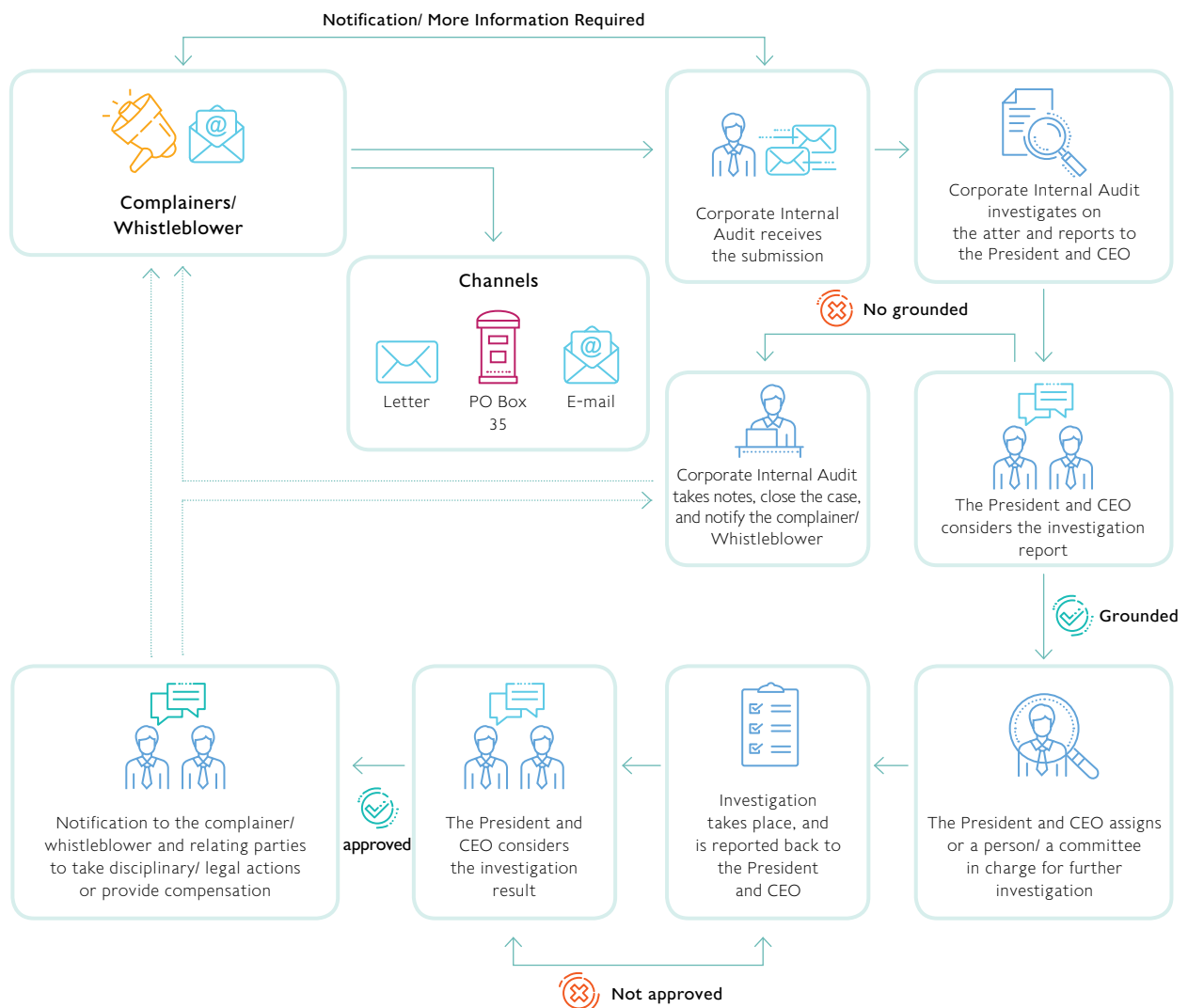
IRPC Board of Directors has established the Whistleblowing Policy by providing channels for whistleblowing and receiving complaints from internal and external whistleblowers. The company accepts submissions about any activity that violates the law or code of conduct, or any corrupt practice or inappropriate conduct of any person at any level, from directors, executive officers to employees of IRPC or subsidiaries, stakeholders, or parties related to IRPC's businesses. The policy also clearly specifies the investigation procedures to ensure impartiality and transparency. All whistleblowers and witnesses will be offered protection.

Whistleblowing and Complaint Channels

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



Complaints and Whistleblowing Process



The investigative procedure begins with the Office of Corporate Internal Audit. This department is solely 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 on a monthly and quarterly basis, respectively. In practice, the Corporate Internal Audit has the power to determine whether each whistleblowing submission merits further investigation. Once investigation is completed and any person found to have committed wrongdoing will be subject to disciplinary actions in accordance with the company's regulations. All whistleblowers and witnesses will be afforded protection.

In 2021, the Internal Audit Office received submissions through the following channels:

Time Period	Complaint Channel			Category of Complaint			
	CEO	Auditor @irpc.co.th	PO Box 35, Sun Tower Postal Office	Employee's conduct	Operation	Suggestion	Corruption
Total	6	3	24	5	20	7	1

6) Corporate Governance Compliance in Other Matters

Anti-Corruption

IRPC operates its business with integrity, adheres to its code of conduct and is in compliance with the law and international anti-corruption and anti-bribery best practices. The company endeavors to eliminate corruption, bribery, and coercion in all forms by building knowledge and promoting understanding in the matters among personnel at all levels as well as throughout the supply chain. The company also set up convenient, appropriate channels to receive complaints along with efficient complaint handling process. IRPC has implemented and continued to refine its anti-corruption measures as follows:

- The Board of Directors has set out concrete anti-corruption policies and practices, such as anti-graft, anti-corruption, anti-bribery policies, no-gift policy. These policies apply to every person at every level of IRPC and the IRPC Group. Training and occasional campaigning are used to raise awareness. These policies are published 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 its partners. Many of these activities have been ongoing between 2016 and 2021.

- The Audit Committee includes corruption risk management and assessment on its corporate internal audit agenda. The committee also requires corruption risks to be controlled, monitored, assessed, and reported to the Board on a regular basis.

Details of anti-corruption activities in 2021 appear under "Creating Corporate Governance Awareness and Mindset in 2021" Page 214.

Human rights

The Company respects and treats employees, communities, and related parties in the supply chain in accordance with international human rights principles and human rights law. The company affords freedom and equality to individuals, which are guaranteed and protected by Thai and international laws. It never violates or conspires in the violation of human rights, directly or indirectly. IRPC respects human dignity and provides equal opportunity regardless of ethnicity, religion faith, gender, skin color, disability, or social status.

The Board of Directors has announced the latest Human Rights Policy of IRPC Group, the 2021 revised edition, already disclosed on the company's website, to ensure that the company's business operations are free from human rights violations in all aspects. In addition, strategies have been developed to integrate respect for human rights into the value chain. The key words for this campaign are Protect, Respect and Remedy, which will be implemented through communication, awareness campaigns, and networking activities.



IRPC's new vision embraces respect for human rights, which reflects the deepening of our commitment to steer the Company towards a business growth path that gives due consideration to people's livelihood and environmental wellbeing.

It is our sincere belief that by sharing our human rights principles and practices with business partners, suppliers and customers throughout the supply chain, we can create a powerful network that contributes to stable growth and sustainable development at the enterprise and national levels.



Mr. Chawalit Tippawanich

President and Chief Executive Officer

**SHAPE WHAT'S GOOD
FOR TOMORROW**



The company has extended human rights protection to its own employees and those of contractors to ensure full compliance with labor law, decent working conditions and appropriate welfare benefits in accordance with the company's regulations. The same safety training and safety measures apply to IRPC's employees and those employed by the contractors. Safety handbook will be issued during factory maintenance to ensure safety measures are strictly observed by external personnel and visitors. Safety units shall submit situation reports covering regular working hours and after hours, along with complaints relating to environmental impact on communities at the Management Committee on a weekly basis so that decisions can be made to prevent, mitigate, or remedy problems appropriately and in a timely manner as well as to prevent recurrence.



IRPC conducts due diligence to assess the risks associated with human rights, for which company has already addressed adequately. In addition, there are community and environmental risk assessment processes and appropriate remedial processes in they are adversely impacted by the company's activities. This includes a round-the-clock complaint receiving channels and on-call personnel that can be dispatched to investigate incidents and address the situation. Information on activities that may potentially impact communities will be disclosed to the public prior to and while they are underway.

Thanks to its dedication to human rights issues and regular activities, IRPC was awarded the title of the Private Sector Winner of the Human Rights Role Model Organization for the third consecutive year.

Details of 2021 human rights activities appear under "Creating Corporate Governance Awareness and Mindset in 2021" Page 215.

Further details about the Human rights management appear on the company's website <https://www.irpc.co.th/sustain/>

Labor

The Company respects fundamental rights and personal freedoms under Thai labor laws and conventions of the United Nations International Labor Organization. Its treatment of employees conforms to labor laws. It encourages employees to exercise their freedom of

association as per labor relations law and complies with relevant government regulations. IRPC never uses its power to coerce employees to enter into an agreement that deprives them of their fundamental labor rights, and 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 regardless of ethnicity, religion, gender, or skin color. The company promotes equal opportunity and decent work, liberty, and human dignity.

Environment

Through the company's environmental protection measures and guidelines, IRPC expresses its firm commitment to environmental stewardship and to prevent any environmental impact that its operations may cause. The company conducts an environmental impact assessment before investing in a project or business. It applies appropriate technologies to bolster its environmental protection measures and methods. The company also encourages the development of eco-friendly innovations and technologies. IRPC always promotes awareness of environmental stewardship, occupational health and safety for employees and the entire supply chain. Details of environmental activities appear under "Sustainability Management in Environmental Dimensions" Page 146-159.





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IRPC has continually improved and further developed the internal control system, encompassing all business activities and operational processes with a view to improve operational effectiveness, wise use of resources and stewardship of company's assets as well as the overall corporate compliance.

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Internal Control and Connected Transaction

Internal control

The Board's views on the internal control system

IRPC Public Company Limited has implemented internal control in accordance with the internationally-accepted COSO Internal Control – Integrated Framework to achieve objectives in 3 areas: Operations, Reporting, and Compliance. The management and the internal control unit have created an internal control assessment form in accordance with the rules prescribed by the Securities and Exchange Commission (SEC) as well as reviewed and given opinions on recommendations made by the Audit Committee before reporting to the Board of Directors at Meeting No. 1/2022 of January 18, 2022, also attended by independent directors and the Audit Committee. The Board was of the opinion that the Company's internal control system was sufficient and appropriate, and no significant deficiencies detected that could compromise the ability of the internal control system to achieve its objectives. The Company has put in place appropriate procedures and competent personnel to ensure efficient and effective implementing internal control, accurate and reliable reporting, and conduct businesses in full compliance with relevant laws and regulations. That is to safeguard the Company and its subsidiaries' assets against fraud or abuse by directors, executives, or employees as well as to prevent transactions with potential conflicts of interest involving related parties.

The Company's internal control system has undergone constant revision and updating to correspond with changing external and internal contexts. In 2021, the Company further developed its internal control system and summarized internal control outcomes for publication in its annual report in accordance with COSO (The Committee of Sponsoring Organizations of the Treadway Commission) framework, which consists of five internal control components as follows:

1. Control Environment

The Board and the management promote a corporate culture that nurtures talent and integrity of the Company's employees. This not only enables the Company to effectively and sustainably align business operations to its vision and mission, but also to foster business ethics and corporate governance through the establishment of sound and appropriate internal control environment as follows:

The Board and the management have set good corporate governance policy, compliance policy, internal control policy, anti-corruption policy, personal data privacy (PDP) policy, and code of conduct, requiring employees at all levels to submit conflict of interest declaration form electronically every year. There is also ethics self-assessment form for executives and employees to complete, along with the introduction of corporate governance handbook (revised edition), prescribing best practices in various fields that executives and employees must sign to acknowledge, uphold, and implement.

The Board, independent from the management, is tasked with overseeing the Company's overall business operations and giving opinions on the strategic direction underpinning the business and operational plans as well as monitoring the Company's operating results and the performance of directors on a regular basis to ensure corporate objectives are met.

IRPC organizes itself along the business group and business function structures to enable efficient corporate management focusing on the unwavering strategic direction of the entire group of companies. Segregation of duties in critical functions is designed to ensure checks and balances. In addition, approval authority regarding the Company's business operations and transactions is subject to review on a regular basis. The Company also formulated an overall short- and long-term human resource development plans with clearly defined qualifications for individual positions and put in place succession planning

and implemented Leadership Development Program. Systematic and standardized performance assessment process was established, together with regular performance monitoring to ensure fair rewards that provide incentives for employees to discharge their duties effectively.

IRPC has adopted the internationally accepted “Three Lines of Defense model” of enterprise risk management and sound internal control. Staff and managers (First Line), internal control unit, compliance unit and other auxiliary units (Second Line), and the Office of Corporate Internal Audit (Third Line) are required and encouraged to apply the model continuously and consistently, from risk identification and determination of control activities to risk monitoring and assessment. In this regard, the First Line of Defense plays the most crucial role in ensuring success and efficiency of internal control.

2. Risk Assessment

The Board and the management attach foremost importance to risk management to build confidence and provide assurance as to the achievement of the Company's short- and long-term goals. The Risk Management Committee (RMC) and Risk Management and Internal Control Committee (RMCC), established by the Board, are chaired by the Chief Executive Officer and the President, respectively. These committees provide oversight for appropriate and effective risk management and internal control as well as strict implementation of enterprise-wide risk management under the following management approaches:

IRPC has adopted ISO 31000 (2018) and COSO Enterprise Risk Management (2017) and formulated a risk management policy to provide guidelines for the management of risks that could potentially threaten the Company's ability to achieve its objectives. Such risk management approaches comprise corporate risk management, functional risk management as well as project risk management, taking into account the corporate goals, changing internal and external factors, including opportunity for fraud and corruption. Such enterprise risk management standards also provide risk management approaches, coupled with risk review process and performance monitoring of risk management plan implementation on a regular basis to ensure risks stay at acceptable levels.

The Company requires the submission of a quarterly summary report on enterprise risk management to the Risk Management and Internal Control Committee, and a monthly

enterprise risk management report to the Risk Management Committee. For functional risk management, a summary report is required at respective line/functional team meetings. For Star KPI-aligned risks, a quarterly summary report on KPIs and risk management is required at the VP meeting.

IRPC has adopted the Business Continuity Management System (BCMS) in accordance with ISO 22301 (2019) to enable the Company to conduct contingency planning and respond effectively to emergency situations to ensure business continuity, mitigate impacts, and preserve the corporate public image and reputation.

3. Control Activities

IRPC has put in place effective control activities with a view to establish sound internal control to minimize risks that threaten the Company's ability to achieve its objectives. Such control activities include creation of rules, policies, regulations, handbooks, and procedures in written form, defining managers' scope of authority and duties and employees' job descriptions at each level, along with determination of authority to approve business transactions, and regular operational reviews to ensure compliance with rules, policies, regulations, and operational handbooks. In addition, the Company has formulated policies and guidelines with regard to transactions with actual or potential conflicts of interest to ensure transparency, accountability, and fairness of all transactions and to ascertain that they are approved in the best interests of the Company.

IRPC has implemented Continuous Control Monitoring System (CCMS) for purchase/procurement and payments as well as sales and receipts as a tool to effectively monitor business operations and detect irregularities, in line with the segregation of duties concepts.

The Company has developed the Control Self-Assessment (CSA) form to cover its key operations, such as the enterprise-wide internal control self-assessment form and process-specific internal control self-assessment form. These self-assessment forms help executives develop comprehensive and broad-based approach to control activities to minimize risks in various operational processes.

IRPC has established Project Governance guidelines to improve efficiency and effectiveness of project management by requiring relevant committees and business units to thoroughly review information on investment projects at all

stages of implementation, with regard to risk assessment and risk management approaches. The Company is also developing IRPC Way of Conduct to provide oversight, supervision and monitoring of companies within IRPC Group. This year, the Company announced the IRPC Group's management policy.

IRPC achieved ISO 27001 certification for information security management to provide assurance of the Company's efficient and effective IT security management.

The Company has developed Personal Data Privacy Policy, appointed a working group and data protection officer as well as upgraded its IT system to enhance its personal data control process, including alerting relevant members of the staff to the Personal Data Privacy Act (PDPA) now in force.

4. Information & Communication

IRPC values quality information and communication which are key components supporting effective internal control. An E-Compliance system has been developed to collect information with regard to laws, rules, regulations, and relevant requirements as well as compliance assessment system. The E-Compliance system is expected to be ready for system compatibility test in 2022. Progress in the project implementation will be communicated to the Company's Board of Directors, executives, employees, and stakeholders as appropriate. Meeting agenda will be delivered to members of the Board prior to the Board meeting, so they can prepare for decision-making.

The Company has announced policy and an integrated approach to Governance, Risk Management/Internal Control and Compliance (GRC), which will be communicated to raise awareness among employees about GRC implementation guidelines and how to apply it in the line of their duties to ensure efficiency, transparency, and compliance.

IRPC has provided internal communication channels, which consist of communication from the top management to employees through Town Hall events, communication via corporate intranet, communication via electronic mail, and communication via Line group. External communication channels for stakeholder engagement consist of SMS, Line group, electronic mail, Facebook page and corporate website. There are also units dedicated to regular information disclosure to stakeholders as well as complaint-handling channels and Whistleblower system to assure employees

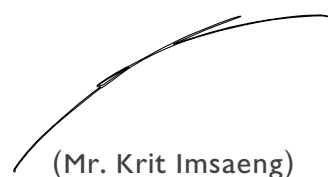
and external persons that their complaints will be handled in a transparent, honest, fair, and timely manner, while being kept confidential.

5. Monitoring Activities

IRPC has established a process for monitoring and assessing the adequacy of internal control along with guidelines to further improve and enhance the efficiency and effectiveness of the Company's internal control system. Executives at all levels are charged with the duty to provide oversight and monitor work systems under their respective purviews to ensure efficiency and strict compliance with applicable policies, rules, and regulations.

Internal control unit of Corporate Strategic and Sustainability Planning Department is tasked with assessing the adequacy and suitability of internal control system while providing advice on how to improve or remedy internal control deficiencies that have been detected. IRPC imposes reporting requirements for any internal control deficiency detected so that the management is alerted in a timely manner, along with monitoring process to ensure any remedial measure taken is effective and completed on time.

The Office of Corporate Internal Audit, an independent unit reporting directly to the Audit Committee, is tasked with reviewing, and assessing internal control effectiveness for various activities under audit plans approved by the Audit Committee. These plans align with IRPC's strategic direction and critical risks facing the Company's businesses. The office also provides recommendations for improving internal control efficiency and effectiveness by informing the management of remedial actions, reporting to the Audit Committee findings and the progress of remedial actions to completion.



(Mr. Krit Imsaeng)

Chairman

IRPC Public Company Limited

Connected Transactions

For the fiscal year 2021, the IRPC and its 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 agreed upon at fair prices and conditions. The relationship and connected transactions are described below:

No.	Connected Party/ Relationship	Transaction	2021	2020	2019	Nature and Condition
1	PTT Plc (PTT) Relationship: IRPC's major shareholder with 45.05% shares - PTT Management on IRPC Board of Directors Mr. Kris Imsang Ms. Peangpanor Boonklum Mr. Chansak Chuenchom Mr. Chawalit Tippawanich	<ul style="list-style-type: none"> - Sale of goods - Purchase of goods - Other income - Sales & admin expenses - Interest payables - Account receivable - Accounts payable - Other receivables 	192 166,119 5 41 - 19 24,503 2,789	593 103,029 75 46 3 542 21,674 1	22 155,802 11 54 31 2 21,431 -	<ul style="list-style-type: none"> - IRPC sold petroleum products and provided tank storage service to PTT. - IRPC purchased crude oil and natural gas from PTT. - IRPC received logistics compensation from PTT. - IRPC paid personnel expenses to PTT. - IRPC paid short-term loan interest (ICBL) to PTT.
2	PTT Oil and Retail Business Plc (PTTOR) Relationship: PTT Plc holds 75.00% shares - Common director: Mr. Kris Imsang	<ul style="list-style-type: none"> - Sale of goods - Purchase of goods - Other income - Sales & admin expenses - Accounts receivable - Accounts Payable 	32,681 163 - 2 1,993 13	24,102 13 1 - 1,619 -	26,830 22 - 2 1,608 -	<ul style="list-style-type: none"> - IRPC sold petroleum products to PTTOR. - IRPC purchased lubricant products from PTTOR. - IRPC received income for decorating Cafe Amazon outlets. - IRPC Oil Co., Ltd. and IRPC Technology Co., Ltd. paid royalties and marketing fees for sale of goods and transportation expenses to PTTOR.
3	Thai Oil Plc (TOP) Relationship: PTT Plc holds 45.03% shares	<ul style="list-style-type: none"> - Service income - Trade in crude and feedstocks for legal reserves. - Purchase of goods - Other income - Sales & admin expenses - Account receivable 	42 571 34 3 - -	118 - - - - 11	177 2,240 - - 4 9	<ul style="list-style-type: none"> - IRPC provided tank storage service to TOP. - IRPC traded in crude and feedstocks for legal reserves with TOP. - IRPC purchased crude from TOP. - IRPC received compensation from TOP. - IRPC paid compensation to TOP.

No.	Connected Party/ Relationship	Transaction	2021	2020	2019	Nature and Condition
4	Thai Lube Base Plc (TLB) Relationship: TOP holds 99.99% shares	- Sale of goods - Purchase of goods	- -	- -	192 5	- IRPC sold aromatics to TLB. - IRPC purchased lube base oil products from TLB.
5	Thai Paraxylene Co., Ltd. (TPX) Relationship: TOP holds 99.99% shares	- Sale of goods - Purchase of goods - Accounts payable	445 1,400 -	- 743 67	44 606 11	- The company sold aromatics products to TPX. - IRPC purchased aromatics products from TPX.
6	Thai Oil Marine Co., Ltd. (TOM) ⁽¹⁾ Relationship: TOP holds 99.99% shares	- Service income - Account receivable	11 -	34 2	34 3	- IRPC provided port services to TOM.
7	Top Solvent Co., Ltd. (TS) Relationship: Thai Oil Solvent Co., Ltd. holds 99.99% shares	- Sale of goods - Purchase of goods - Account receivable - Accounts payable	1,247 114 104 14	767 50 69 7	1,100 90 85 8	- IRPC sold aromatics products to TS. - IRPC purchased Solvent products from TS.
8	Top Solvent Vietnam Co., Ltd. (TSV) Relationship: Top Solvent Co., Ltd. holds 99.99% shares	- Sale of goods - Account receivable	568 26	433 56	675 32	- IRPC sold aromatics products to TSV.
9	Sak Chaisit Co., Ltd. (SAKC) Relationship: Top Solvent Co., Ltd. holds 80.52% shares	- Sale of goods - Account receivable	222 3	141 5	324 4	- IRPC sold aromatics products to SAKC.
10	Ubon Bio Ethanol Plc (UBBE) ⁽²⁾ Relationship: Thai Oil Ethanol Co., Ltd. holds 12.39% shares	- Purchase of goods - Accounts payable	99 -	253 1	- -	- IRPC purchased ethanol products from UBBE.
11	PTT Energy Solutions Co., Ltd. (PTTES) Relationship: PTT Plc holds 40.00% shares IRPC Plc holds 20.00% shares - Common director: Mr. Chawalit Tippawanich	- Other income - Sales & admin expenses - Other receivables	4 82 2	3 77 -	- 97 -	- IRPC received personnel expenses from PTTES. - IRPC paid PTTES technical service fees.

No.	Connected Party/ Relationship	Transaction	2021	2020	2019	Nature and Condition
12	Energy Complex Co., Ltd. (EnCo) Relationship: PTT Plc holds 50.00% shares - Common directors: Ms. Peangpanor Boonklum Mr. Chansak Chuenchom	<ul style="list-style-type: none"> - Sales & admin expenses - Amortization of license asset - Interest expense under lease agreement - Right of use - Lease liabilities - Accrued interest under lease agreement - Contract deposit 	64 30 1 3 3 - 20	65 30 2 33 34 1 20	98 - - - - - 20	<ul style="list-style-type: none"> - IRPC signed office rental and service agreements with EnCo for a period of three years (Feb. 2019 - 2022).
13	PTT International Trading Pte Ltd. (PTTT) Relationship: PTT Plc holds 99.99% shares	<ul style="list-style-type: none"> - Sale of goods - Purchase of goods - Income (Expenses) from oil futures contracts - Account receivable - Other receivables - Other payables 	11,510 - (311) 1,076 - 22	8,596 - (10) 539 - 125	18,248 629 201 1,289 40 -	<ul style="list-style-type: none"> - IRPC sold petroleum products to PTTT. - IRPC purchased petroleum products from PTTT. - The Company entered into an oil futures contract with PTTT.
14	Dhipaya Insurance Plc (TIP) ⁽³⁾ Relationship: PTT Plc holds 13.33% shares	<ul style="list-style-type: none"> - Other income - Sales & admin expenses - Other payables 	561 360 -	244 307 3	6 270 2	<ul style="list-style-type: none"> - IRPC received compensation from TIP. - IRPC paid insurance premiums to TIP.
15	PTT Tank Terminal Co., Ltd. (PTTTANK) Relationship: PTT Plc holds 99.99% shares - Common director: Mr. Kris Imsang	<ul style="list-style-type: none"> - Other income 	-	-	3	<ul style="list-style-type: none"> - The company received income in personnel expenses from PTTTANK.
16	Business Services Alliance Co., Ltd. (BSA) Relationship: PTT Plc holds 25% shares	<ul style="list-style-type: none"> - Other income - Sales & admin expenses - Other payables 	3 331 60	3 269 22	3 267 22	<ul style="list-style-type: none"> - IRPC Oil Co., Ltd. received store management service income from BSA. - The company paid personnel wages to BSA.

No.	Connected Party/ Relationship	Transaction	2021	2020	2019	Nature and Condition
17	Sport Services Alliance Co., Ltd. (SSA) Relationship: Business Services Alliance Co., Ltd. holds 99.99% shares - Common director: Air Marshal Boonsuib Prasit	- Service income - Sales & admin expenses	- -	- -	2 5	- IRPC Technology Co., Ltd. provided facilities management services to SSA. - IRPC provided public relations expenses for PTT Rayong football team to SSA.
18	PTTEP International Co., Ltd. (PTTEPI) Relationship: PTTEP Plc holds 99.99% shares	- Sales & admin expenses	-	-	2	- IRPC paid for security audit to PTTEPI.
19	Global Power Synergy Plc (GPSC) Relationship: PTT Plc holds 42.53% shares	- Other income - Sales & admin expenses	7 2	11 -	- -	- IRPC provides research services to GPSC. - IRPC paid personnel wages to GPSC.
20	PTT Global Chemical Plc (GC) Relationship: PTT Plc holds 45.18% shares	- Sale of goods - Purchase of goods - Trade in crude and feedstocks for legal reserves - Sales & admin expenses - Account receivable - Accounts payable	8,754 14,459 - 40 1,460 2,429	5,996 11,263 - 4 595 939	13,413 19,312 405 7 1,200 1,721	- IRPC sold petroleum products to GC. - IRPC purchased petroleum products from GC. - IRPC traded in crude and feedstocks for legal reserves with GC. - IRPC paid personnel wages and compensation for goods to GC.
21	GC Marketing Solutions Co., Ltd. (GCM) Relationship: PTT Global Chemical Plc holds 99.99% shares	- Sale of goods - Purchase of goods - Account receivable - Accounts payable	333 405 27 33	118 286 20 25	124 377 19 13	- IRPC sold polymer products to GCM. - IRPC purchased polymer products from GCM.
22	GC Logistics Solutions Co., Ltd. (GCL) Relationship: PTT Global Chemical Plc holds 99.99% shares	- Sales & admin expenses	2	5	5	- IRPC paid GCL for transportation services.

No.	Connected Party/ Relationship	Transaction	2021	2020	2019	Nature and Condition
23	GC Styrenics Co., Ltd. (GCS) Relationship: PTT Global Chemical Plc holds 99.99% shares	- Sale of goods	44	1	55	- IRPC sold aromatics products to GCS.
24	GC Glycol Co., Ltd. Relationship: PTT Global Chemical Plc holds 99.99% shares	- Purchase of goods	-	1	2	- IRPC purchased petrochemical products from Glycol.
25	GC Maintenance and Engineering Co., Ltd. (GCME) Relationship: PTT Global Chemical Plc holds 99.99% shares	- Sales & admin expenses - Other payables	13 -	13 -	15 3	- IRPC paid engineering service fees to GCME.
26	PTT Asahi Chemical Co., Ltd. (PTTAC) Relationship: PTT Global Chemical Plc holds 50.00% shares	- Purchase of goods - Accounts payable	2,275 208	1,122 141	1,417 131	- IRPC purchased petrochemical products from PTTAC.
27	PTT Digital Solutions Co., Ltd. (PTT DIGITAL) Relationship: PTT Global Chemical Plc holds 40.00% shares PTT Plc holds 20.00% shares	- Sales & admin expenses	30	29	31	- IRPC paid IT service fees to PTT DIGITAL
28	PTT Phenol Co., Ltd. (PPCL) Relationship: PTT Global Chemical Plc. holds 99.99% shares	- Other income - Account receivable	- -	- -	9 3	- IRPC provided storage tank services to PPCL.
29	NPC Safety and Environmental Services Co., Ltd. (NPC S&E) Relationship: PTT Global Chemical Plc. holds 99.99% shares	- Sales & admin expenses	2	1	1	- IRPC paid for rent of safety equipment, equipment for testing COVID-19 and training fees to NPC S&E.
30	Global Green Chemicals Plc (GGC) Relationship: PTT Global Chemical Plc holds 72.29% shares	- Purchase of goods - Accounts payable	1,578 66	562 39	212 64	- IRPC purchased petroleum products from GGC.

No.	Connected Party/ Relationship	Transaction	2021	2020	2019	Nature and Condition
31	Solution Creation Company Limited (SOLUTIONCRE) Relationship: PTT Global Chemical Plc holds 99.99% shares	- Sale of goods	3	-	-	- IRPC sold polymer products to SOLUTIONCRE.
32	GCM Polymer Trading DMCC Relationship: GC Marketing Solutions Co., Ltd. holds 100% shares	- Sale of goods - Account receivable	127 -	77 3	128 5	- IRPC sold polymer products to GCM Polymer Trading DMCC.
33	IRPC Clean Power Co., Ltd. (IRPC-CP) Relationship: Global Power Synergy Plc holds 51.00% shares IRPC Plc holds 48.99% shares - Common directors: Mrs. Nidcha Jirametthanakij Mr. Somkiat Lertritpuwadol Mr. Woravuth Sivapetranart	- Sale of goods - Purchase of goods - Other income - Account receivable - Accounts payable - Other receivables - Other payables	44 2,305 118 4 228 1 189	45 2,296 117 4 190 - 215	45 2,356 116 8 341 1 213	- IRPC sold electricity and water to IRPC-CP. - IRPC purchased steam from IRPC-CP. - IRPC provided services relating to power plants to IRPC-CP.
34	PTT Treasury Center Co., Ltd. (PTTTCC) Relationship: PTT Plc holds 99.99% shares	- Long-term loan	31	-	-	- Subsidiary borrowed from PTTTCC

Notes:

⁽¹⁾ Thai Oil Marine Co., Ltd. is not a related party of the group of companies since April 30, 2021.

⁽²⁾ Ubon Bio Ethanol Plc is not a related party of the group of companies since September 27, 2021.

⁽³⁾ Dhipaya Insurance Plc (TIP) is not a related party of the group of companies from August 31, 2021.

Connected Transactions Policy and Requirements

Significant connected transactions must be considered and approved by IRPC Board of Directors. As IRPC and its subsidiaries operate fully integrated petrochemical and refining businesses, the same business sector as PTT Group companies, connected transactions among IRPC, its subsidiaries, and PTT affiliates are inevitable and regarded as normal business operations. All such connected transactions, including trading in oil products and related services, as well as other transactions in support of normal business, are conducted on an arm's length basis and which does not lead to benefit transfer. IRPC exercises due care in considering connected transactions based on reasonableness and to the best interests of the company.

Measures Relating to Connected Transactions

IRPC complies with the requirements Office of the Securities and Exchange Commission (SEC) and the Securities Exchange of Thailand (SET) regarding connected transactions. The Board has duly examined transactions with potential conflicts of interest to ensure that they are conducted in a fair, transparent, and reasonable manner. Should a conflict of interest arise, the director, employee or any related party must recuse themselves from any discussion or voting on the issue in which they have a personal interest.

In addition, on a quarterly basis, the Audit Committee reviews IRPC and its subsidiaries' connected transactions with related companies or parties to avoid conflicts of interest and ensure IRPC's best interest.

Policy on Future Connected Transactions

IRPC's future connected transactions will be considered normal business transactions, with the company will take into consideration suitability of conditions and fair market prices. This is to ensure the best interests of all shareholders and stakeholders, in strict compliance with the corporate governance policy as well as SEC Office 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, with suitable reference market prices, and on an arm's length basis, in conformity to the corporate governance policy and SEC Office and SET's regulatory requirements.





“IRPC’s solid foundation in the petrochemical and energy sectors, coupled with its unparalleled expertise, provides the impetus for expansion into the NEW FRONTIER of innovative businesses providing custom solutions for diverse business clientele, to create new revenue streams and bolster the Company’s fundamental strengths”

Section

FINANCIAL REPORT

-
- Report of the Board of Directors' Responsibilities for the Financial Reports
- Report of the Independent Certified Public Accountants
- Financial Statements
- Notes to the Financial Statements

Report of the Board of Directors' Responsibilities for the Financial Reports

Dear Shareholders,

The financial statements of IRPC Public Company Limited and subsidiaries for the year ended on December 31, 2021, were prepared under the requirements of the Securities and Exchange Commission and the Securities and Exchange Act, B.E. 2535 (1992) and the notifications of the Department of Business Development issued under Article 11 Paragraph 3 of the Accounting Act B.E. 2543 (2000) and the financial reporting standards enforced by the Federation of Accounting Professions.

The Board of Directors is responsible for IRPC and subsidiaries' financial reports to ensure that our financial position, performance, and cash flow statements are materially correct. IRPC has recorded accurate, complete and sufficient accounting journal entries to maintain assets, ensure effective internal control, prevent fraud and substantially irregular transactions. In preparing these reports, IRPC has adopted suitable and consistently practised accounting policy in line with proper financial reporting standards. Material data have been duly disclosed in the Notes to the Financial Reports. The Auditor, having scrutinized the consolidated statements, expressed their opinion on the financial statements of IRPC Public Company Limited and its subsidiaries in the Report of the Independent Certified Public Accountant.



Mr. Kris Imsang
Chairman



Mr. Chawalit Tippawanich
President and
Chief Executive Officer

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, 2021, 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, 2021, 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. This matter was 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 this matter.

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 statements no. 3.5 and 10, 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 expected selling price of commodity, and testing the accuracy of 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 comprises 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 and the Company or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's 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 and the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the Company's ability to continue as a going concern. If 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

DELOITTE TOUCHE TOHMATSU JAIYOS AUDIT CO., LTD.

BANGKOK
February 8, 2022

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF FINANCIAL POSITION
AS AT DECEMBER 31, 2021

Unit : Baht

	Notes	CONSOLIDATED FINANCIAL STATEMENTS		SEPARATE FINANCIAL STATEMENTS	
		2021	2020	2021	2020
ASSETS					
CURRENT ASSETS					
Cash and cash equivalents	7	11,236,030,183	8,851,190,030	10,894,240,854	8,553,136,627
Trade receivables	8	13,785,361,876	9,625,781,866	13,815,364,501	9,710,936,029
Other receivables	9	2,741,861,659	2,410,536,090	2,729,506,510	2,399,639,265
Amounts due from related parties	37 (c)	2,922,726,608	154,464,906	2,940,134,794	165,642,618
Short-term loans and interest receivables					
from related parties	37 (d)	-	-	-	16,537,624
Inventories	10	33,766,140,256	21,168,883,208	33,405,004,951	20,919,528,121
Refundable value-added tax		2,480,809,228	537,439,458	2,470,399,834	533,961,959
Prepaid excise tax		165,832,591	255,242,922	165,832,591	255,242,922
Other current assets		101,430,342	367,431,550	82,482,858	340,260,083
Total Current Assets		<u>67,200,192,743</u>	<u>43,370,970,030</u>	<u>66,502,966,893</u>	<u>42,894,885,248</u>
NON-CURRENT ASSETS					
Other non-current financial assets	11	1,689,040,204	1,691,856,585	1,688,440,206	1,691,256,587
Investments in subsidiaries	12	-	-	2,462,389,957	2,353,190,057
Investment in joint ventures	12	691,372,172	612,304,490	667,999,790	650,999,990
Investments in associates	12	8,602,894,817	8,071,465,520	6,977,346,963	6,977,346,963
Long-term loans to related parties	37 (f)	-	-	126,935,938	190,000,000
Investment property	13	921,962,956	921,962,956	886,096,147	886,096,147
Property, plant and equipment	14	109,067,255,859	114,550,574,163	107,211,252,394	112,765,515,060
Right-of-use assets	15	224,767,008	198,487,720	437,162,834	188,745,493
Intangible assets	16	760,509,363	774,280,379	725,803,814	743,119,673
Deferred tax assets	17	1,152,182,384	2,812,133,482	1,067,971,020	2,695,345,641
Non-current derivative assets	22	-	141,370,434	-	141,370,434
Other non-current assets	18	181,679,537	345,146,578	179,349,877	342,816,917
Total Non-current Assets		<u>123,291,664,300</u>	<u>130,119,582,307</u>	<u>122,430,748,940</u>	<u>129,625,802,962</u>
TOTAL ASSETS		<u><u>190,491,857,043</u></u>	<u><u>173,490,552,337</u></u>	<u><u>188,933,715,833</u></u>	<u><u>172,520,688,210</u></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, 2021

Unit : Baht

	Notes	CONSOLIDATED FINANCIAL STATEMENTS		SEPARATE FINANCIAL STATEMENTS	
		2021	2020	2021	2020
LIABILITIES AND SHAREHOLDERS' EQUITY					
CURRENT LIABILITIES					
Trade payables	20	28,671,172,280	23,982,702,976	28,630,394,669	23,918,869,161
Other payables	21	3,238,612,043	3,721,196,893	3,168,711,587	3,651,112,458
Amounts due to related parties	37 (h)	272,284,991	365,417,570	286,138,326	382,691,146
Interest payables		194,917,381	209,779,321	194,917,381	209,779,321
Accrued bonus expense		1,954,791,396	1,159,216,963	1,934,759,102	1,144,440,840
Advance receipts for goods		1,874,544,038	803,910,513	1,822,597,138	762,135,869
Current portion of long-term borrowings from financial institutions and debentures	19.1	10,584,763,013	13,334,798,837	10,584,763,013	13,334,798,837
Current portion of lease liabilities	23	81,334,015	99,059,836	188,109,149	94,916,745
Short-term borrowings and interest payable to a related party	37 (i)	-	-	56,468,671	-
Corporate income tax payable		593,496,182	-	580,545,948	-
Current derivative liabilities	22	27,760,107	340,834,475	27,760,107	340,834,475
Other current liabilities		48,947,561	41,635,907	39,829,434	39,421,437
Total Current Liabilities		47,542,623,007	44,058,553,291	47,514,994,525	43,879,000,289
NON-CURRENT LIABILITIES					
Long-term borrowings from financial institutions and debentures	19.1	50,494,310,167	48,596,605,989	50,494,310,167	48,596,605,989
Long-term borrowings from a related party	37 (j)	31,290,625	-	-	-
Lease liabilities	23	141,480,669	89,713,738	249,911,040	83,911,113
Provisions for employee benefits	24	4,005,119,183	4,238,652,933	3,958,407,216	4,188,184,839
Non-current derivative liabilities	22	222,568,283	153,852,361	222,568,283	153,852,361
Other non-current liabilities	25	342,178,806	687,247,000	313,226,456	659,887,110
Total Non-current Liabilities		55,236,947,733	53,766,072,021	55,238,423,162	53,682,441,412
TOTAL LIABILITIES		102,779,570,740	97,824,625,312	102,753,417,687	97,561,441,701

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF FINANCIAL POSITION (CONTINUED)
AS AT DECEMBER 31, 2021

Unit : Baht

	Notes	CONSOLIDATED		SEPARATE	
		FINANCIAL STATEMENTS		FINANCIAL STATEMENTS	
		2021	2020	2021	2020
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	26	2,047,500,000	2,047,500,000	2,047,500,000	2,047,500,000
Unappropriated		36,571,819,945	24,600,387,026	35,147,430,753	23,924,126,011
<u>Less</u> Treasury stock - ordinary shares					
held by a subsidiary	27	(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		(3,264,250)	(1,011,145)	(3,264,250)	(1,011,145)
Total attribution to owners of the parent		87,495,581,769	75,526,401,955	86,180,298,146	74,959,246,509
Non-controlling interests	28	216,704,534	139,525,070	-	-
TOTAL SHAREHOLDERS' EQUITY		87,712,286,303	75,665,927,025	86,180,298,146	74,959,246,509
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		190,491,857,043	173,490,552,337	188,933,715,833	172,520,688,210

Notes to the financial statements form an integral part of these statements

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF PROFIT OR LOSS
FOR THE YEAR ENDED DECEMBER 31, 2021

Unit : Baht

	Notes	CONSOLIDATED FINANCIAL STATEMENTS		SEPARATE FINANCIAL STATEMENTS	
		2021	2020	2021	2020
Revenues from sales and services		255,114,607,531	174,462,551,415	253,990,295,789	173,436,283,377
Cost of sales and cost of rendering of services		(228,988,860,070)	(174,490,791,270)	(228,270,207,884)	(173,759,802,353)
Gross profit (loss)		<u>26,125,747,461</u>	<u>(28,239,855)</u>	<u>25,720,087,905</u>	<u>(323,518,976)</u>
Other income	29	1,508,130,223	651,966,129	1,735,720,462	1,904,758,649
Net derivative gain (loss)	30	(1,942,163,334)	354,503,906	(1,942,085,814)	354,503,906
Selling expenses		(2,104,684,036)	(1,374,983,114)	(2,156,977,545)	(1,434,793,701)
Administrative expenses	31	(5,672,866,943)	(5,718,090,948)	(5,577,608,109)	(5,603,588,360)
Profit (loss) from operations		<u>17,914,163,371</u>	<u>(6,114,843,882)</u>	<u>17,779,136,899</u>	<u>(5,102,638,482)</u>
Finance costs	33	(1,742,698,953)	(1,901,587,947)	(1,750,447,531)	(1,901,237,227)
Share of profit on investments in joint ventures and associates	12	<u>712,619,961</u>	<u>332,669,007</u>	<u>-</u>	<u>-</u>
Profit (loss) before income tax (expense) benefit		<u>16,884,084,379</u>	<u>(7,683,762,822)</u>	<u>16,028,689,368</u>	<u>(7,003,875,709)</u>
Income tax (expense) benefit	17	(2,351,267,186)	1,553,742,419	(2,266,254,981)	1,568,027,918
Profit (loss) for the year		<u><u>14,532,817,193</u></u>	<u><u>(6,130,020,403)</u></u>	<u><u>13,762,434,387</u></u>	<u><u>(5,435,847,791)</u></u>
Profit (loss) attributable to					
Owners of the parent		14,504,624,077	(6,151,699,849)	13,762,434,387	(5,435,847,791)
Non-controlling interests		<u>28,193,116</u>	<u>21,679,446</u>	<u>-</u>	<u>-</u>
Profit (loss) for the year		<u><u>14,532,817,193</u></u>	<u><u>(6,130,020,403)</u></u>	<u><u>13,762,434,387</u></u>	<u><u>(5,435,847,791)</u></u>
Basic Earnings (loss) per Share (Baht)	34	0.71	(0.30)	0.67	(0.27)

Notes to the financial statements form an integral part of these statements

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF COMPREHENSIVE INCOME
FOR THE YEAR ENDED DECEMBER 31, 2021

Unit : Baht

	CONSOLIDATED FINANCIAL STATEMENTS		SEPARATE FINANCIAL STATEMENTS	
	2021	2020	2021	2020
Profit (loss) for the year	14,532,817,193	(6,130,020,403)	13,762,434,387	(5,435,847,791)
Other comprehensive income (loss) :				
Items that will not be reclassified subsequently to profit or loss				
- (Loss) gain on revaluation of financial assets	(2,816,381)	18,471,348	(2,816,381)	18,471,348
- Income tax relating to revaluation of financial assets	563,276	(3,694,270)	563,276	(3,694,270)
- Remeasurements of retirement benefit obligations	406,986,137	(139,361,688)	402,015,740	(139,800,843)
- Income tax relating to remeasurements of retirement benefit obligations	(81,211,096)	27,872,338	(80,403,148)	27,960,169
- Share of other comprehensive (loss) income on investment in associates	(1,559,938)	9,446,385	-	-
Other comprehensive income (loss) for the year - net of tax	<u>321,961,998</u>	<u>(87,265,887)</u>	<u>319,359,487</u>	<u>(97,063,596)</u>
Total comprehensive income (loss) for the year	<u><u>14,854,779,191</u></u>	<u><u>(6,217,286,290)</u></u>	<u><u>14,081,793,874</u></u>	<u><u>(5,532,911,387)</u></u>
Total comprehensive income (loss) attributable to:				
Owners of the parent	14,826,586,075	(6,238,965,736)	14,081,793,874	(5,532,911,387)
Non-controlling interests	28,193,116	21,679,446	-	-
	<u><u>14,854,779,191</u></u>	<u><u>(6,217,286,290)</u></u>	<u><u>14,081,793,874</u></u>	<u><u>(5,532,911,387)</u></u>

Notes to the financial statements form an integral part of these statements

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENT OF CHANGES IN SHAREHOLDERS' EQUITY
FOR THE YEAR ENDED DECEMBER 31, 2021

	Consolidated financial statements										Unit : Baht
	Other components of shareholders' equity										
	Retained earnings		Premium on treasury stock - ordinary shares		Gain (loss) on financial assets measured at fair value through other comprehensive income		Total attribution to owners of the parent		Non-controlling interests	Total shareholders' equity	
	Issued and paid-up share capital	Premium on ordinary shares	Appropriated - Legal reserve	Unappropriated	Treasury stock - ordinary shares held by a subsidiary	Premium on treasury stock - ordinary shares held by a subsidiary					
Balance as at January 1, 2020											
- As previously reported	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	
The effects from first-time adoption of new accounting policies	-	-	-	545,710,133	-	-	4,962,329	550,672,462	-	550,672,462	
Balance as at January 1, 2020											
- Restated	20,434,419,246	28,554,212,397	2,047,500,000	32,895,164,491	(124,282,649)	15,177,080	(15,788,223)	83,806,402,342	146,380,753	83,952,783,095	
Dividends paid	-	-	-	(2,041,034,651)	-	-	-	(2,041,034,651)	(28,535,129)	(2,069,569,780)	
(Loss) profit for the year	-	-	-	(6,151,699,849)	-	-	-	(6,151,699,849)	21,679,446	(6,130,020,403)	
Other comprehensive (loss) income for the year	-	-	-	(102,042,965)	-	-	14,777,078	(87,265,887)	-	(87,265,887)	
Balance as at December 31, 2020											
	20,434,419,246	28,554,212,397	2,047,500,000	24,600,387,026	(124,282,649)	15,177,080	(1,011,145)	75,526,401,955	139,525,070	75,665,927,025	
Balance as at January 1, 2021											
Dividends paid	20,434,419,246	28,554,212,397	2,047,500,000	24,600,387,026	(124,282,649)	15,177,080	(1,011,145)	75,526,401,955	139,525,070	75,665,927,025	
Profit for the year	-	-	-	(2,857,406,261)	-	-	-	(2,857,406,261)	(23,813,752)	(2,881,220,013)	
Other comprehensive income (loss) for the year	-	-	-	14,504,624,077	-	-	-	14,504,624,077	28,193,116	14,532,817,193	
Increase in portion of investment of non-controller of subsidiaries	-	-	-	324,215,103	-	-	(2,253,105)	321,961,998	-	321,961,998	
Balance as at December 31, 2021											
	20,434,419,246	28,554,212,397	2,047,500,000	36,571,819,945	(124,282,649)	15,177,080	(3,264,250)	87,495,581,769	216,704,534	87,712,286,303	
	-	-	-	-	-	-	-	-	72,800,100	72,800,100	

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, 2021

	Separate financial statements						Unit : Baht
	Note	Issued and paid-up share capital	Premium on ordinary shares	Retained earnings		Other components of shareholders' equity Gain (loss) on financial assets measured at fair value through other comprehensive income	
				Appropriated - Legal reserve	Unappropriated		
Balance as at January 1, 2020							
- As previously reported		20,434,419,246	28,554,212,397	2,047,500,000	30,969,521,834	(20,750,552)	81,984,902,925
The effects from first-time adoption of new accounting policies		-	-	-	545,710,133	4,962,329	550,672,462
Balance as at January 1, 2020							
- Restated		20,434,419,246	28,554,212,397	2,047,500,000	31,515,231,967	(15,788,223)	82,535,575,387
Dividends paid	35	-	-	-	(2,043,417,491)	-	(2,043,417,491)
Loss for the year		-	-	-	(5,435,847,791)	-	(5,435,847,791)
Other comprehensive (loss) income for the year		-	-	-	(111,840,674)	14,777,078	(97,063,596)
Balance as at December 31, 2020		20,434,419,246	28,554,212,397	2,047,500,000	23,924,126,011	(1,011,145)	74,959,246,509
Balance as at January 1, 2021							
Dividends paid		20,434,419,246	28,554,212,397	2,047,500,000	23,924,126,011	(1,011,145)	74,959,246,509
Profit for the year	35	-	-	-	(2,860,742,237)	-	(2,860,742,237)
Other comprehensive income (loss) for the year		-	-	-	13,762,434,387	-	13,762,434,387
Balance as at December 31, 2021		20,434,419,246	28,554,212,397	2,047,500,000	321,612,592	(2,253,105)	319,359,487
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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, 2021

Unit : Baht

	CONSOLIDATED FINANCIAL STATEMENTS		SEPARATE FINANCIAL STATEMENTS	
	2021	2020	2021	2020
CASH FLOWS FROM OPERATING ACTIVITIES				
Profit (loss) before income tax (expense) benefit	16,884,084,379	(7,683,762,822)	16,028,689,368	(7,003,875,709)
Adjustments for:				
Depreciation and amortisation	8,586,513,253	8,952,100,045	8,604,302,266	8,854,713,925
Interest income	(43,627,315)	(53,234,780)	(48,388,978)	(62,004,388)
Dividends income	(5,126,681)	(6,044,605)	(154,881,773)	(488,291,699)
Bad debts and doubtful accounts (reversal)	909,722	(1,488,036)	1,905,015	173,450
Allowance for declining in value of inventories	169,872,719	27,645,077	170,318,568	27,202,013
Loss on exchange rate	567,073,227	416,371,122	567,578,594	416,495,509
Unrealised (gain) loss on fair value of derivatives	(102,988,011)	998,736,542	(102,988,011)	998,736,542
Loss on disposals of fixed assets	46,011,857	44,568,202	44,956,588	43,517,484
Loss on write-off of fixed assets	-	519,862,332	-	519,862,332
Loss on write-off of intangible assets	-	34,428,039	-	34,428,039
Reversal of loss on impairment of investment in a subsidiary	-	-	-	(717,602,239)
Loss on impairment of fixed assets	-	455,695,614	-	455,695,614
Share of profit on investments in associates and joint ventures	(712,619,961)	(332,669,007)	-	-
Finance costs	1,742,698,953	1,901,587,947	1,750,447,531	1,901,237,227
Employee benefit expenses (income)	260,310,831	(248,157,263)	256,204,203	(252,789,914)
Profit from operations before changes in operating assets and liabilities	27,393,112,973	5,025,638,407	27,118,143,371	4,727,498,186
Operating assets (increase) decrease				
Trade receivables	(4,161,454,211)	472,221,757	(4,107,645,505)	439,139,514
Other receivables	(332,575,591)	(3,407,853)	(330,721,466)	(3,059,669)
Amounts due from related parties	(2,768,261,702)	7,708,267	(2,774,492,176)	6,454,981
Inventories	(12,767,129,768)	4,798,759,287	(12,655,795,398)	4,801,312,966
Refundable value-added tax	(1,943,369,770)	1,047,700,314	(1,936,437,875)	1,049,351,910
Prepaid excise tax	89,410,331	75,692,292	89,410,331	75,692,292
Other current assets	267,898,737	(150,821,232)	257,858,245	(145,044,182)
Other non-current assets	163,467,040	-	163,467,040	-
Operating liabilities increase (decrease)				
Trade payables	4,688,863,808	(888,363,436)	4,711,666,259	(927,430,478)
Other payables	(459,112,151)	1,382,900,117	(461,089,278)	1,387,385,696
Amounts due to related parties	(93,132,579)	123,470,270	(96,531,394)	122,754,569
Accrued bonus expenses	795,574,433	(721,704,034)	790,318,262	(712,797,780)
Advance receipts for goods	1,070,633,524	63,408,051	1,060,461,270	29,440,651
Other current liabilities	15,922,992	(203,957,877)	1,251,278	(217,166,155)
Cash paid for employee benefits	(86,858,444)	(488,259,650)	(83,966,086)	(486,963,788)
Other non-current liabilities	(345,068,194)	662,718,216	(346,660,654)	659,887,110
Cash received from operations	11,527,921,428	11,203,702,896	11,399,236,224	10,806,455,823
Income tax paid	(186,131,478)	(54,957,259)	(138,198,488)	(25,658,303)
Net cash provided by operating activities	11,341,789,950	11,148,745,637	11,261,037,736	10,780,797,520

IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF CASH FLOWS (CONTINUED)
FOR THE YEAR ENDED DECEMBER 31, 2021

Unit : Baht

	CONSOLIDATED FINANCIAL STATEMENTS		SEPARATE FINANCIAL STATEMENTS	
	2021	2020	2021	2020
CASH FLOWS FROM INVESTING ACTIVITIES				
Interest received	43,627,315	53,234,780	48,277,891	62,181,412
Dividends received	5,126,681	6,044,605	37,318,930	44,619,376
Cash received from short-term loans to related parties	-	-	16,784,649	212,322,760
Cash received from long-term loans to related parties	-	-	62,928,124	-
Dividends received from an associate and a joint venture	117,562,843	258,704,472	117,562,843	258,704,472
Cash paid for investment in an associate and a joint venture	(16,999,800)	(527,857,000)	(126,199,700)	(527,857,000)
Cash paid for purchases of fixed assets and investment property	(2,932,380,292)	(3,312,991,755)	(2,771,508,561)	(3,274,545,491)
Proceeds from sales of fixed assets	59,081,339	1,247,593	58,930,519	1,231,532
Cash paid for purchases of intangible assets	(128,665,524)	(352,772,190)	(122,633,779)	(340,097,391)
Other non-current assets	-	3,075,810	-	3,075,810
Net cash used in investing activities	(2,852,647,438)	(3,871,313,685)	(2,678,539,084)	(3,560,364,520)
CASH FLOWS FROM FINANCING ACTIVITIES				
Interest paid and financing fees	(1,768,543,085)	(1,799,320,640)	(1,776,378,610)	(1,798,948,951)
Net cash paid for settlements of financial derivative contracts	(91,499,197)	(380,498,625)	(91,499,197)	(380,498,625)
Cash paid for lease liabilities	(110,064,433)	(129,179,386)	(212,242,215)	(125,042,888)
Cash received from short-term borrowings from a related party	-	-	56,443,566	-
Cash received from long-term borrowings from a related party	31,200,000	-	-	-
Dividends paid	(2,857,406,261)	(2,041,034,651)	(2,860,742,237)	(2,043,417,491)
Dividends paid to non-controlling interests	(23,813,752)	(28,535,129)	-	-
Proceeds from non-controlling interests of subsidiaries	72,800,100	-	-	-
Cash paid for short-term borrowings from financial institutions	-	(6,900,000,000)	-	(6,900,000,000)
Proceeds from long-term borrowings from financial institutions	-	6,036,604,985	-	6,036,604,985
Proceeds from debentures issuance	11,982,924,269	11,982,328,571	11,982,924,268	11,982,328,571
Cash paid for long-term borrowings from financial institutions and debentures	(13,339,900,000)	(8,202,734,042)	(13,339,900,000)	(8,202,734,042)
Net cash used in financing activities	(6,104,302,359)	(1,462,368,917)	(6,241,394,425)	(1,431,708,441)
Net increase in cash and cash equivalents	2,384,840,153	5,815,063,035	2,341,104,227	5,788,724,559
Cash and cash equivalents as at January 1,	8,851,190,030	3,036,126,995	8,553,136,627	2,764,412,068
Cash and cash equivalents as at December 31,	11,236,030,183	8,851,190,030	10,894,240,854	8,553,136,627

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, 2021

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IRPC PUBLIC COMPANY LIMITED AND SUBSIDIARIES
NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED DECEMBER 31, 2021

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, Choengnueen 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, 2021 and 2020, PTT Public Company Limited is the major shareholder of the Company, holding 45.05%.

Coronavirus disease 2019 ("COVID-19") pandemic

The coronavirus disease 2019 ("COVID-19") pandemic is continuing to evolve, resulting in an economic slowdown and adversely impacting most businesses and industries. This situation may bring uncertainties and have an impact on the environment in which the Group operates. The Group's management considered that there is no financial impact in respect of valuation of assets, provisions and contingent liabilities. However, the Group's management will continue to monitor the ongoing situation.

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 "Presentation of Financial Statements", which was effective for financial periods beginning on or after January 1, 2021 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. 3) B.E. 2562" dated December 26, 2019.
- 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 4).
- 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, 2021 have included the subsidiaries' financial statements for the year ended December 31, 2021 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 financial reporting standards and the Conceptual Framework for Financial Reporting issued by the Federation of Accounting Professions which are effective for fiscal years beginning on or after January 1, 2021. These financial reporting standards were aimed at alignment with the corresponding International Financial Reporting Standards, with most of the changes directed towards revisions to references to the Conceptual Framework in TFRSs, the amendment for definition of business, the amendment for definition of materiality and accounting requirements for interest rate reform. The adoption of these 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 2021 amendment to Thai Financial Reporting Standards No. 16 "Leases" ("TFRS 16") added the requirements for the temporary exception arising from interest rate benchmark reform, which the Group shall apply these amendments for annual reporting periods beginning on or after January 1, 2022 with earlier application permitted. This revised TFRS 16 has been announced in the Royal Gazette on January 27, 2021.

In addition, the 2021 amendment to TFRS 16 - Phase 2 has been announced in the Royal Gazette on May 13, 2021, which permits a lessee to apply the practical expedient regarding COVID-19-related rent concessions to rent concessions for which any reduction in lease payments affects only payments originally due on or before June 30, 2022. A lessee shall apply this amendment for annual reporting periods beginning on or after April 1, 2021 with earlier application is permitted.

In addition, the Federation of Accounting Professions has issued the Notification regarding Thai Financial Reporting Standards ("TFRSs") that are relevant to Interest Rate Benchmark Reform Phase 2 amendments ("Phase 2 amendments") and amends Thai Financial Reporting Standards No. 4 "Insurance Contracts", Thai Financial Reporting Standards No. 7 "Financial Instruments: Disclosures" and Thai Financial Reporting Standards No. 9 "Financial Instruments". The Phase 2 amendments address issues that might affect financial reporting during the reform of an interest rate benchmark, including the effects of changes to contractual cash flows or hedging relationships arising from the replacement of an interest rate benchmark with an alternative benchmark rate. Such TFRSs have been announced in the Royal Gazette on June 28, 2021 and will be effective for the financial statements for the periods beginning on or after January 1, 2022 onwards with earlier application permitted.

The Group's management will adopt such TFRSs 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 these TFRSs on the financial statements of the Group in the period of initial application.

In addition, the Federation of Accounting Professions has issued the Notification regarding the amendments to Thai Financial Reporting Standards and guidelines on accounting which have been announced in the Royal Gazette on December 22, 2021. Such Thai Financial Reporting Standards and guidelines on accounting are not applicable to the Group.

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:

	Business type	Country of registration	Percentage of shareholdings (%)	
			2021	2020
IRPC Oil Co., Ltd.	Sales of oil products and gas	Thailand	99.99	99.99
IRPC Technology Co., Ltd.	Vocational school	Thailand	99.99	99.99
Innoplymed Co., Ltd.	Distributing non-woven fabric products and medical consumables	Thailand	60.00	-
IRPC A&L Co., Ltd.	Distributing of petrochemical products	Thailand	57.48	57.48
iPolymer Co., Ltd.	Distributing plastic resin and chemical products via E-Commerce system	Thailand	55.00	55.00
Indirectly invested by IRPC Oil Co., Ltd.				
Rakpasak Co., Ltd.	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 stated at their invoice value less allowance for expected credit losses.

The allowance for expected credit losses is disclosed in Note 3.21.

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 which 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 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.

3.7 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 3.9).

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.

3.8 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

3.9 Impairment of assets

The carrying amounts of the Group's assets are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, the assets' recoverable amounts are estimated. For goodwill and intangible assets that have indefinite useful lives or are not yet available for use, the recoverable amount is estimated each year at the same time.

An impairment loss is recognised if the carrying amount of an asset or its cash-generating unit exceeds its recoverable amount. The impairment loss is recognised in profit or loss.

Calculation of recoverable amount

The recoverable amount of a non-financial asset is the greater of the asset's value in use and fair value less costs to sell. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. For an asset that does not generate cash inflows largely independent of those from other assets, the recoverable amount is determined for the cash-generating unit to which the asset belongs.

Reversals of impairment

An impairment loss in respect of goodwill is not reversed.

Impairment losses recognised in prior periods in respect of other non-financial assets are assessed at each reporting date for any indications that the loss has decreased or no longer exists. An impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

3.10 Leases

● The Group as lessee

The Group assesses whether a contract is or contains a lease, at inception of the contract. The Group recognises a right-of-use asset and corresponding lease liability with respect to all lease arrangements in which it is the lease, except for short-term leases with a lease term of 12 months or less and leases of low value assets. For these leases, the Group recognises the lease payments as an operating expense on a straight-line basis over the lease term and presents as an expense in the statement of income.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted by using the interest rate implicit in the lease. If this rate cannot be readily determined, the Group uses its incremental borrowing rate.

Lease payments included in the measurement of the lease liability comprise:

- Fixed payments (including in-substance fixed payments), less any lease incentives receivable;
- Variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date;
- Amount expected to be payable by the lease under residual value guarantees;
- Exercise price of purchase options, if the lease is reasonably certain to exercise the options; and
- Payments of penalties for terminating the lease, if the lease term reflects the lessee exercising an option to terminate the lease.

The lease liability is subsequently measured using the effective interest method and by reducing the carrying amount to reflect the lease payments made. The Group recognises interest from lease liability in the statement of income.

The Group remeasures the lease liability (and makes a corresponding adjustment to the related right-of-use asset) whenever:

- The lease term has been changed resulting in a change in the assessment of exercise of a purchase option to purchase the underlying asset, in which case the lease liability is remeasured by discounting the revised lease payments using a revised discount rate.
- The lease payments have been changed due to changes in an index or a rate or a change in expected payment under a guaranteed residual value, in which cases the lease liability is remeasured by discounting the revised lease payments using an unchanged discount rate.
- A lease contract is modified and the lease modification that is not accounted for as a separate lease, in which case the lease liability is remeasured based on the lease term of the modified lease by discounting the revised lease payments using a revised discount rate at the effective date of the modification.

The right-of-use assets comprise the initial measurement of the corresponding lease liability, lease payments made at or before the commencement day, less any lease incentives received and any initial direct costs. They are subsequently measured at cost less accumulated depreciation and accumulated impairment losses.

Right-of-use assets are depreciated over the shorter period of lease term and useful life of the underlying asset. If a lease transfers ownership of the underlying asset and the Group expects to exercise a purchase option, the related right-of-use is depreciated over the useful life of the underlying asset. The depreciation starts at the commencement date of the lease. In addition, the right-of-use assets are assessed for impairment in accordance with TAS 36 "Impairment of assets".

- The Group as lessor

Leases for which the Group is a lessor are classified as operating leases.

Rental income from operating leases is recognised on a straight-line basis over the term of the relevant lease. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognised on a straight-line basis over the lease term.

3.11 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.

3.12 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.

3.13 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 recognised 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.

3.14 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.

3.15 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.

3.16 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.

3.17 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.

3.18 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.

3.19 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.

3.20 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 (Level 1). 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. 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.

3.21 Accounting for financial instruments

The Group shall recognise a financial asset or a financial liability in its statement of financial position only when the Group becomes party to the contractual provisions of the instrument. Regular way of purchases and sales of financial assets are recognised on trade-date, the date on which the Group commits to purchase or sell the asset. Financial assets are derecognised only when the rights to receive cash flows from the financial assets have expired or when the Group has transferred the financial assets which transferred substantially all the risks and rewards of ownership of the financial assets.

Recognition, Measurement and Classification of financial assets

At initial recognition, the Group measures a financial asset as follows:

- A financial asset measured at amortised cost and a financial asset measured at fair value through other comprehensive income are measured at their fair value, plus or less transaction costs that are directly attributable to the acquisition or issuance of the financial assets.
- A financial asset measured at fair value through profit or loss is measured at its fair value. Transaction costs are expensed in profit or loss.

Subsequent measurement of financial assets depends on the Group's business model for managing the financial asset and the cash flow characteristics of the financial assets. There are three measurement categories into which the Group classifies its financial assets:

- Amortised cost - A financial asset will be measured at amortised cost when the financial asset is held within a business model whose objective is to hold financial assets in order to collect contractual cash flows. In addition, the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding. Interest income from these financial assets is using the effective interest rate method. Any gain or loss arising on derecognition is recognised directly in profit or loss and impairment losses are presented in profit or loss.

- Fair value through other comprehensive income (FVTOCI) - A financial asset will be measured at FVTOCI when it is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment losses and interest income using effective interest rate method. When the financial asset is derecognised, the cumulative gain or loss previously recognised in other comprehensive income is reclassified to profit or loss or retained earnings.
- Fair value through profit or loss (FVTPL) - A financial asset that does not meet the criteria for amortised cost or FVTOCI are measured at FVTPL.

Impairment

The Group assesses on a forward-looking basis the expected credit loss associated with its financial assets carried at amortised cost. The Group applies simplified approach for credit-impaired consideration which depends on the significant of credit risk.

In determining allowance of expected credit loss, the financial asset is considered to have low credit risk and no significant incremental of credit risk since initial recognition. The Group will not recognise any allowance of expected credit loss.

Reversals of impairment

An impairment loss in respect of a financial asset is reversed if the subsequent increase in recoverable amount can be related objectively to an event occurring after the impairment loss was recognised in profit or loss.

Derecognition of financial assets

The Group derecognises a financial asset only when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity.

On derecognition of a financial asset measured at amortised cost, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognised in profit or loss. In addition, on derecognition of an investment in a debt instrument classified as at FVTOCI, the cumulative gain or loss previously accumulated in the investments revaluation reserve is reclassified to profit or loss. In contrast, on derecognition of an investment in equity instrument which the Group has elected on initial recognition to measure at FVTOCI, the cumulative gain or loss previously accumulated in the investments revaluation reserve is not reclassified to profit or loss, but is transferred to retained earnings.

Recognition, Measurement and Classification of financial liabilities

Financial instruments issued by the Group must be classified as financial liabilities or equity instruments by considering contractual obligations.

- Where the Group has an unconditional contractual obligation to deliver cash or another financial asset to another entity and is unable to deny or avoid the settlement of the obligation indefinitely, it is considered a financial liability.
- Where the Group has no contractual obligation or has an unconditional right to avoid the settlement of the obligation, it is considered an equity instrument.

At initial recognition, the Group measures financial liabilities, which are not measured at FVTPL, at fair value minus transaction costs that are directly attributable to the acquisition or issuance of the financial assets. The Group classifies all financial liabilities as subsequently measured at amortised cost, except for some financial liabilities.

Derecognition of financial liabilities

The Group derecognises financial liabilities when, and only when, the Group's obligations are discharged, cancelled or have expired. The difference between the carrying amount of the financial liability derecognised and the consideration paid and payable is recognised in profit or loss.

When the Group exchanges with the existing lender one debt instrument into another one with the substantially different terms, such exchange is accounted for as an extinguishment of the original financial liability and the recognition of a new financial liability. Similarly, the Group accounts for substantial modification of terms of an existing financial liability or part of it as an extinguishment of the original financial liability and the recognition of a new financial liability. It is assumed that the terms are substantially different if the discounted present value of the cash flows under the new terms, including any fees paid net of any fees received and discounted using the original effective date is at least 10 percent different from the discounted present value of the remaining cash flows of the original financial liability. If the modification is not substantial, the difference between; (1) the carrying amount of the liability before the modification; and (2) the present value of cash flows after modification should be recognised in profit or loss as the modification gain or loss within other gains and losses.

Derivatives

The Group is a party to derivatives, which mainly comprise foreign currency forward contracts, interest rate swap contracts, and commodity derivative contracts. Such financial instruments are recognised initially at fair value; attributable transaction costs are recognised in profit or loss when incurred. Subsequent to initial recognition, they are remeasured at fair value. The gain or loss on remeasurement is recognised immediately in profit or loss.

The fair value of swap contracts is based on broker quotes at the reporting date. Those quotes are tested for reasonableness by discounting estimated future cash flows based on the terms and maturity of each contract and using market interest rates for a similar instrument at the reporting date.

The fair value of forward exchange contracts is based on their listed market price as the reporting date, if available. If the listed market price is not available, then fair value is estimated by forward contract with the same nature and maturity date at the reporting date.

3.22 Basic earnings (loss) per share

Basic earnings (loss) per share are calculated by dividing the profit (loss) 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. 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.

4.1 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.

4.2 Calculation of recoverable amount

In the calculation of recoverable amount, the Group's management estimated the future cash flows discounted to their present value using an appropriate discount rate that reflects current market assessments of the time value of money and the risks specific to the asset.

4.3 Changes in accounting estimates

During 2021, the Company has changed the estimated useful life for machinery and equipment from the previous estimated useful life of 5-20 years to be 10-30 years, in order to reflect the current usage condition and the future economic benefit. This change is considered as a change in an accounting estimate which resulted in decrease of depreciation in the consolidated and separate statements of profit or loss for the year-ended December 31, 2021 in amount of Baht 35 million.

5. SUPPLEMENTARY DISCLOSURE OF CASH FLOWS INFORMATION

5.1 Accounts payable - acquisition of fixed assets for the years ended December 31, are as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Accounts payable - acquisition of fixed assets brought forward ⁽¹⁾	353	487	350	487
<u>Add</u> Purchase of fixed assets (net of capitalised borrowing costs)	2,907	3,179	2,749	3,137
<u>Less</u> Cash payment	(2,932)	(3,313)	(2,771)	(3,274)
Accounts payable - acquisition of fixed assets carried forward ⁽¹⁾	328	353	328	350

⁽¹⁾ Accounts payable - acquisition of fixed assets has been presented including in other payables in the statements of financial position as at December 31, 2021 and 2020.

5.2 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, 2021

Unit : Million Baht

Consolidated financial statements									Unit : Million Baht
			Non-cash changes						
	Balance as at January 1, 2021	Financing cash flows	Interest expense	Interest expense capitalised as part of fixed assets	Amortisation of deferred financing fees	Amortisation of discount on debentures	Lease liabilities - net	Loss on exchange rate and net derivatives	Balance as at December 31, 2021
Accrued interest expense	210	(1,769)	1,712	42	-	-	-	-	195
Long-term borrowings from a related party	-	31	-	-	-	-	-	-	31
Non-current derivative liabilities	154	(91)	-	-	-	-	-	160	223
Long-term borrowings from financial institutions and debentures	61,931	(1,357)	-	-	25	6	-	474	61,079
Lease liabilities	189	(110)	-	-	-	-	143	-	222
	62,484	(3,296)	1,712	42	25	6	143	634	61,750

As at December 31, 2020

Unit : Million Baht

	Consolidated financial statements								Balance as at December 31, 2020
	Balance as at January 1, 2020	Financing cash flows	Interest expense	Interest expense capitalised as part of fixed assets	Non-cash changes		Lease liabilities - net	(Gain) Loss on exchange rate and net derivatives	
					Amortisation of deferred financing fees	Amortisation of discount on debentures			
Accrued interest expense	104	(1,799)	1,853	52	-	-	-	-	210
Short-term borrowings from financial institutions	6,900	(6,900)	-	-	-	-	-	-	-
Non-current derivative liabilities	-	(380)	-	-	-	-	-	534	154
Long-term borrowings from financial institutions and debentures	52,071	9,816	-	-	46	2	-	(4)	61,931
Lease liabilities	299	(129)	-	-	-	-	19	-	189
	59,374	608	1,853	52	46	2	19	530	62,484

As at December 31, 2021

Unit : Million Baht

	Balance as at January 1, 2021	Financing cash flows	Separate financial statements						Balance as at December 31, 2021
			Interest expense	Interest expense capitalised as part of fixed assets	Amortisation of deferred financing fees	Amortisation of discount on debentures	Lease liabilities - net	Loss on exchange rate and net derivatives	
Accrued interest expense	210	(1,776)	1,719	42	-	-	-	-	195
Short-term borrowings from a related party	-	56	-	-	-	-	-	-	56
Non-current derivative liabilities	154	(91)	-	-	-	-	-	160	223
Long-term borrowings from financial institutions and debentures	61,931	(1,357)	-	-	25	6	-	474	61,079
Lease liabilities	179	(212)	-	-	-	-	471	-	438
	62,474	(3,380)	1,719	42	25	6	471	634	61,991

As at December 31, 2020

Unit : Million Baht

	Balance as at January 1, 2020	Financing cash flows	Separate financial statements						Balance as at December 31, 2020
			Interest expense	Interest expense capitalised as part of fixed assets	Amortisation of deferred financing fees	Amortisation of discount on debentures	Lease liabilities - net	(Gain) Loss on exchange rate and net derivatives	
Accrued interest expense	104	(1,799)	1,853	52	-	-	-	-	210
Short-term borrowings from financial institutions	6,900	(6,900)	-	-	-	-	-	-	-
Non-current derivative liabilities	-	(380)	-	-	-	-	-	534	154
Long-term borrowings from financial institutions and debentures	52,071	9,816	-	-	46	2	-	(4)	61,931
Lease liabilities	288	(125)	-	-	-	-	16	-	179
	59,363	612	1,853	52	46	2	16	530	62,474

6. 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, 2021				
Revenues from sales and services	179,627	71,089	4,399	255,115
Profit from operating segments	8,981	7,718	1,676	18,375
Unallocated other expenses				(461)
Profit from operations				17,914
Finance costs				(1,743)
Share of profit on investments in joint ventures and associates				713
Income tax expense				(2,351)
Profit for the year				14,533

	Unit : Million Baht				
	Consolidated financial statements				
	<u>Petroleum products</u>	<u>Petrochemical products</u>	<u>Other businesses</u>	<u>Elimination entries</u>	<u>Total</u>
As at December 31, 2021					
Segment fixed assets	52,053	28,070	24,135	229	104,487
Unallocated fixed assets					4,580
Segment other assets	37,545	12,098	5,122	(704)	54,061
Unallocated other assets					27,364
Consolidated total assets					190,492

Unit : Million Baht				
Consolidated financial statements				
	Petroleum products	Petrochemical products	Other businesses	Total
For the year ended December 31, 2020				
Revenues from sales and services	122,152	47,457	4,854	174,463
Profit (loss) from operating segments	(5,125)	(514)	1,379	(4,260)
Unallocated other expenses				(1,855)
Loss from operations				(6,115)
Finance costs				(1,902)
Share of profit on investments in joint ventures and associates				333
Income tax benefit				1,554
Loss for the year				(6,130)

Unit : Million Baht

	Consolidated financial statements				Total
	Petroleum products	Petrochemical products	Other businesses	Elimination entries	
As at December 31, 2020					
Segment fixed assets	54,129	29,967	13,711	181	97,988
Unallocated fixed assets					16,563
Segment other assets	22,858	7,512	4,252	(338)	34,284
Unallocated other assets					24,656
Consolidated total assets					<u>173,491</u>

Geographic information

The Group's sales and service revenues 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	
	2021	2020	2021	2020
Thailand	163,743	115,713	162,626	114,688
Singapore	33,121	21,973	33,121	21,973
Others	58,251	36,777	58,243	36,775
Total	<u>255,115</u>	<u>174,463</u>	<u>253,990</u>	<u>173,436</u>

Major customers

The Group's sales and service revenues mainly comprise revenue from one customer of petroleum products and other business segment for the year ended December 31, 2021 representing Baht 32,681 million (2020 : Baht 24,102 million).

7. CASH AND CASH EQUIVALENTS

Cash and cash equivalents as at December 31, consist of the following:

	Consolidated financial statements		Separate financial statements	
	2021	2020	2021	2020
Cash on hand	1	1	-	-
Bank deposits in current accounts	480	1,103	479	1,103
Bank deposits in savings accounts	10,755	7,747	10,415	7,450
Total cash and cash equivalents	<u>11,236</u>	<u>8,851</u>	<u>10,894</u>	<u>8,553</u>

As at December 31, 2021, bank deposits in current accounts and savings accounts bear interest at rates between 0.05% to 0.50.% per annum (2020 : 0.05% to 0.50.% per annum). Cash and cash equivalents are mainly in Thai Baht.

8. TRADE RECEIVABLES

Trade receivables as at December 31, consist of the following:

Note	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Trade receivables				
- Other parties	8,868	6,016	8,641	5,868
- Related parties	4,947	3,640	5,198	3,865
Total	13,815	9,656	13,839	9,733
<u>Less</u> Allowance for expected credit losses	(30)	(30)	(24)	(22)
Total trade receivables	13,785	9,626	13,815	9,711

Aging analysis of trade receivables is as follows:

Note	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Other parties				
Current	7,533	5,272	7,319	5,137
Overdue				
- less than 3 months	1,303	714	1,297	708
- over 3 months but less than 6 months	3	-	3	1
- over 6 months but less than 12 months	1	2	-	-
- over 12 months	28	28	22	22
	1,335	744	1,322	731
	8,868	6,016	8,641	5,868
<u>Less</u> Allowance for expected credit losses	(30)	(30)	(24)	(22)
Total trade receivables from other parties	8,838	5,986	8,617	5,846
Related parties				
Current	4,911	3,628	5,172	3,838
Overdue				
- less than 3 months	22	12	11	27
- over 3 months but less than 6 months	9	-	10	-
- over 6 months but less than 12 months	5	-	5	-
- over than 12 months	-	-	-	-
	36	12	26	27
Total trade receivables from related parties	4,947	3,640	5,198	3,865
Total trade receivables	13,785	9,626	13,815	9,711

Normal credit term of trade receivables is determined at 7 days to 120 days.

The Group always measures the loss allowance for trade receivables at an amount equal to lifetime ECL. The expected credit losses on trade receivables are estimated using a provision matrix by reference to past default experience of the debtor and an analysis of the debtor's current financial position. In case, the Group measures the loss allowance to Simplified ECL. The Group has recognised a loss allowance of 100% against all receivables over 180 days past due because historical experience has indicated that these receivables are generally not recoverable.

The Group has been no significant changed in estimation and assumption method in current financial position.

The following table shows the movement in lifetime expected credit losses that has been recognised for trade receivables in accordance with the simplified approach set out in TFRS 9.

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Balance at beginning of the year	30	32	22	22
Losses on allowance for expected credit losses	2	1	2	-
Amounts recovered during the year	(2)	(3)	-	-
Balance at ending of the year	30	30	24	22

9. OTHER RECEIVABLES

Other receivables as at December 31, consist of the following:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Receivables from excise department and oil fund	1,901	1,373	1,901	1,373
Others	841	1,038	829	1,027
Total other receivables	2,742	2,411	2,730	2,400

10. INVENTORIES

Inventories as at December 31, consist of the following:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Raw materials	8,804	3,614	8,804	3,614
Work in process	20	13	20	13
Finished goods	18,965	10,830	18,659	10,599
Chemicals and fuel oil	1,526	1,025	1,506	1,008
Spare parts and repair materials	2,594	2,516	2,593	2,514
Goods in transit	2,968	4,112	2,934	4,112
<u>Less</u> Allowance for diminution in value and obsolescence of inventories	(1,111)	(941)	(1,111)	(940)
Total inventories	33,766	21,169	33,405	20,920

According to the Ministry of Energy's regulations, the Company is required to reserve crude oil at 4% of commercial volume and liquid petroleum gas and petroleum products at 1% of the total production output in each period. As at December 31, 2021, 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 6,085 million and Baht 6,082 million, respectively (as at December 31, 2020 : Baht 2,571 million and Baht 2,568 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 206,358 million and Baht 205,880 million in the consolidated and separate statements of profit or loss, respectively (2020 : Baht 149,271 million and Baht 148,780 million in the consolidated and separate statements of profit or loss, respectively).

As at December 31, 2021, inventories are presented net of allowance for diminution in value and obsolescence of inventories amounting to Baht 1,111 million in the consolidated and separate financial statements (2020 : Baht 941 million and Baht 940 million in the consolidated and separate statements of financial position). During the year 2021, the allowance for diminution in value and obsolescence of inventories amounting to Baht 170 million has been recognised in the consolidated and separate statements of profit or loss (2020 : Baht 27 million and Baht 28 million in the consolidated and separate statements of profit or loss, respectively).

11. OTHER NON-CURRENT FINANCIAL ASSETS

Movements of other non-current financial assets for the year ended December 31, 2021 and 2020 are as follows:

As at December 31, 2021

	Consolidated financial statements	Unit : Million Baht Separate financial statements
Opening net book amount	1,692	1,691
Changes in fair value through other comprehensive income	(3)	(3)
Closing net book amount	<u>1,689</u>	<u>1,688</u>

As at December 31, 2020

	Unit : Million Baht Consolidated financial statements			
	General investments	Available for sale investments	Total other long-term investments	Other non-current financial assets
Opening net book amount	1,626	41	1,667	-
The effects from first-time adoption of new accounting policies	5	-	5	-
Reclassification to other non-current financial assets	(1,631)	(41)	(1,672)	1,672
Changes in fair value through other comprehensive income	-	-	-	20
Closing net book amount	<u>-</u>	<u>-</u>	<u>-</u>	<u>1,692</u>

	Unit : Million Baht Separate financial statements			
	General investments	Available for sale investments	Total other long-term investments	Other non-current financial assets
Opening net book amount	1,625	41	1,666	-
The effects from first-time adoption of new accounting policies	5	-	5	-
Reclassification to other non-current financial assets	(1,630)	(41)	(1,671)	1,671
Changes in fair value through other comprehensive income	-	-	-	20
Closing net book amount	<u>-</u>	<u>-</u>	<u>-</u>	<u>1,691</u>

Other non-current financial assets as at December 31 are as follow:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Other non-current financial assets designated as at fair value through other comprehensive income	1,637	1,639	1,636	1,638
Other non-current financial assets measured at fair value through other comprehensive income	52	53	52	53
Total other non-current financial assets	1,689	1,692	1,688	1,691

12. INVESTMENTS IN SUBSIDIARIES, JOINT VENTURES AND ASSOCIATES

Movements of investments in subsidiaries, joint ventures and associates for the years ended December 31, are as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Opening net book amount	8,684	8,257	9,982	8,736
Increase in investment in joint ventures and an associate ¹⁾	17	528	17	528
Increase in investment in a subsidiary ²⁾	-	-	109	-
Reversal of impairment of investment in a subsidiary ³⁾	-	-	-	718
Dividend received from a joint venture and an associates	(118)	(443)	-	-
Share of profit on investments in joint ventures and associates	713	333	-	-
Share of other comprehensive (loss) income on investment in a joint venture and associates	(2)	9	-	-
Closing net book amount	9,294	8,684	10,108	9,982

- 1) On July 20, 2020, the Extra Ordinary General Meeting of shareholders of WHA Industrial Estate Rayong Co., Ltd. ("WHAIER") passed a resolution to increase the registered share capital from Baht 650 million to be Baht 710 million by issuing new 6 million ordinary shares at par value of Baht 10 each totaling Baht 60 million. WHAIER called for paid-up share capital of 25% and the Company paid the share capital increase for the investment in joint venture of Baht 6 million on July 30, 2020.

On August 26, 2021, the Board of Directors' meeting of WHAIER passed a resolution to approve the 2nd call for payment at 25% of the increased registered share capital from 650 million to be 710 million, totalling of Baht 15 million. The Company already paid additional paid-up share capital for the investment in joint venture of Baht 6 million on October 29, 2021.

During 1st quarter 2020, IRPC Clean Power Co., Ltd., 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 137 million.

On June 2, 2020, the Annual General Meeting of shareholders of IRPC Polyol Co., Ltd. passed a resolution to increase the registered share capital from Baht 300 million to be Baht 370 million by issuing new 0.7 million ordinary shares at par value of Baht 100 each totaling Baht 70 million. The Company paid the share capital increase for the investment in joint venture of Baht 35 million on July 9, 2020.

During 3rd quarter of 2020, investment in a joint venture increased from investment in Mytex Polymers (Thailand) Co., Ltd. On March 3, 2020, the Company entered into the Share Purchase Agreement with Japan Polypropylene Corporation, incorporated in Japan to acquire 600,000 ordinary shares (50 percent of the registered share capital of 1.2 million shares totaling Baht 120 million) of Mytex Polymers (Thailand) Co., Ltd., incorporated in Thailand, which operates petrochemical business at the price of Baht 350 million. The Company paid for share acquisition to Japan Polypropylene Corporation on July 30, 2020.

During the first quarter of 2021, the Company has invested in Vajira Lab for Society Co., Ltd., 99.97% owned by the Company which was registered as a limited company in Thailand. Such company's objective is to be a laboratory for providing analysis and certification services for medical devices in the form of social enterprises. Vajira Lab for Society Co., Ltd. has registered and fully paid-up share capital of 10,000 ordinary shares at par value of Baht 100, totalling Baht 1 million. The Company already paid the share capital for the investment of Baht 1 million on March 15, 2021. Subsequently, on May 6, 2021, the Extraordinary General Meeting of Vajira Lab for Society Co., Ltd. passed a resolution to increase the registered share capital from Baht 1 million to be Baht 22 million by issuing new 210,000 ordinary shares at par value of Baht 100 each totalling Baht 21 million. On May 14, 2021, the Company executed a partial right for this increase share capital by additionally paid of 100,000 ordinary shares, totalling Baht 10 million that result to the percentage of shareholding has been changed to 50%. The remaining shares of 50% is held by Navamindradhiraj University. As a result, the status of investment in Vajira Lab for Society Co., Ltd. has been changed from investment in a subsidiary to be a joint venture.

- 2) During 2021, investment in a subsidiary increased from investment in Innopolymed Co., Ltd. which was registered as a limited company in Thailand. Innopolymed Co., Ltd. is a joint shareholding with Innobic (Asia) Co., Ltd. which is a subsidiary of PTT Public Company Limited, of which 60.00% owned by the Company. The main objective is to operate the business of producing, distributing non-woven fabric products, and medical consumables. Innopolymed Co., Ltd. has registered and paid-up share capital 1.82 million ordinary shares at par value of Baht 100 each, totaling Baht 182 million. The Company already paid the share capital for the investment of Baht 109 million on May 20, 2021.

On January 7, 2022, the Extraordinary General Meeting of shareholders of Innopolymed Co., Ltd. passed a resolution to increase the registered share capital from 182 million to 282 million by issuing new 1 million ordinary shares at par value of Baht 100 each, totaling Baht 100 million. The Company already paid share capital of Baht 60 million on January 14, 2022.

- 3) During 2020, the Company recognised reversal of impairment of investment in IRPC Oil Co., Ltd. in amount of Baht 718 million in the separate financial statements because the impairment review showed that the recoverable amount of such investment exceeded its carrying amount.

Business type		Separate financial statements								Unit : Million Baht	
		Ownership interest (%)		Paid-up capital		Cost method		Impairment		Net	
		2021	2020	2021	2020	2021	2020	2021	2020	2021	2020
Subsidiaries											
IRPC Oil Co., Ltd. IRPC Technology Co., Ltd. Innoplymed Co., Ltd.	Sales of oil products and gas	99.99		2,000	2,000	2,000		-		2,000	
	Vocational school	99.99		750	750	750		(476)		274	
	Distributing non-woven fabric products and medical consumables	60.00		182	-	109	-	-		-	
IRPC A&L Co., Ltd. iPolymer Co., Ltd.	Distributing of petrochemical products	57.48		10	10	14	14	-		14	14
	Distributing of plastic resin and chemical products										
	Distributing of plastic resin and chemical products via E-Commerce system	55.00		120	120	66	66	-		66	
Total investments in subsidiaries						2,939	2,830	(476)		2,463	2,354
Joint Ventures											
WHHA Industrial Estate Rayong Co., Ltd. IRPC Polyol Co., Ltd.	Industrial estate development	40.00		680	665	272	266	-		272	266
	Manufacturing and sales of chemical products for polyurethanes	50.00		370	370	185	185	(150)		35	
	Manufacturing and sales of chemical products	50.00		120	120	350	350	-		350	350
Mytex Polymers (Thailand) Co., Ltd. Vajira Lab for Society Co., Ltd.	Provide analysis and certification services for medical devices	50.00		22	-	11	-	-		11	-
						818	801	(150)		668	651
Total investments in joint ventures										5	23
Associates											
PTT Energy Solutions Co., Ltd. UBE Chemicals (Asia) Public Co., Ltd. IRPC Clean Power Co., Ltd.	Engineering consulting	20.00		150	150	30	30	-		30	-
	Manufacturing and sales of petrochemical products	25.00		10,739	10,739	5,300	5,300	-		5,300	5,300
	Manufacturing and sales of electricity and steam	48.99		3,362	3,362	1,647	1,647	-		1,647	1,647
Total investments in associates						6,977	6,977	-		6,977	6,977

b) Details of investments in joint ventures and associates 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	
	2021	2020	2021	2020	2021	2020	2021	2020
Joint Ventures								
WHA Industrial Estate Rayong Co., Ltd.	680	665	272	266	264	260	-	-
IRPC Polyol Co., Ltd.	370	370	185	185	64	25	-	-
Mytex Polymers (Thailand) Co., Ltd.	120	120	350	350	352	327	5	23
Vajira Lab for Society Co., Ltd.	22	-	11	-	11	-	-	-
			818	801	691	612	5	23
Associates								
PTT Energy Solutions Co., Ltd.	150	150	30	30	32	40	-	-
UBE Chemicals (Asia) Public Co., Ltd.	10,739	10,739	5,300	5,300	4,870	4,708	-	-
IRPC Clean Power Co., Ltd.	3,362	3,362	1,647	1,647	3,701	3,324	113	420
			6,977	6,977	8,603	8,072	113	420

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, are as follows:

	UBE Chemicals (Asia) Public Co., Ltd.		Unit : Million Baht IRPC Clean Power Co., Ltd.	
	2021	2020	2021	2020
Opening net assets at January 1,	12,444	13,316	6,349	5,867
Dividend paid during the years	-	-	(230)	(857)
Legal reserve during the years	-	-	27	183
Net profit (loss) during the years	808	(872)	1,023	1,156
Closing net assets at December 31,	13,252	12,444	7,169	6,349
Interest in associates (%)	25.00	25.00	48.99	48.99
Carrying value at December 31,	3,313	3,111	3,512	3,110

13. INVESTMENT PROPERTY

Investment property as at December 31, consists of:

As at December 31, 2021

	Unit : Million Baht Consolidated financial statements			
	Balances as at January 1, 2021	Additions	Disposals	Balances as at December 31, 2021
Cost				
Land	986	-	-	986
Buildings	18	-	-	18
Total cost	1,004	-	-	1,004
Accumulated depreciation				
Buildings	(18)	-	-	(18)
Total accumulated depreciation	(18)	-	-	(18)
<u>Less</u> Allowance for impairment	(64)	-	-	(64)
Total investment property	922			922

As at December 31, 2020

	Unit : Million Baht Consolidated financial statements			
	Balances as at January 1, 2020	Additions	Disposals	Balances as at December 31, 2020
Cost				
Land	986	-	-	986
Buildings	18	-	-	18
Total cost	1,004	-	-	1,004
Accumulated depreciation				
Buildings	(18)	-	-	(18)
Total accumulated depreciation	(18)	-	-	(18)
<u>Less</u> Allowance for impairment	(64)	-	-	(64)
Total investment property	922			922

As at December 31, 2021**Unit : Million Baht**

	Separate financial statements			
	Balances as at January 1, 2021	Additions	Disposals	Balances as at December 31, 2021
Cost				
Land	938	-	-	938
<u>Less</u> Allowance for impairment	(52)	-	-	(52)
Total investment property	<u>886</u>			<u>886</u>

As at December 31, 2020**Unit : Million Baht**

	Separate financial statements			
	Balances as at January 1, 2020	Additions	Disposals	Balances as at December 31, 2020
Cost				
Land	938	-	-	938
<u>Less</u> Allowance for impairment	(52)	-	-	(52)
Total investment property	<u>886</u>			<u>886</u>

Amounts recognised in the statements of profit or loss that are related to investment property for the years ended December 31, are as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Rental income	33	30	33	30

The fair values of investment property as at December 31, are as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Land	1,140	1,140	1,104	1,104
Buildings	9	9	-	-
	<u>1,149</u>	<u>1,149</u>	<u>1,104</u>	<u>1,104</u>

14. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment as at December 31, are as follows:

Unit : Million Baht

As at December 31, 2021	Consolidated financial statements					Balances as at December 31, 2021
	Balances as at January 1, 2021	Additions	Disposal/ Write off	Transfers in (out)	Reclassification of assets	
Cost						
Land and land improvement	11,795	-	-	-	-	11,795
Buildings and building improvements	41,228	11	(72)	291	-	41,458
Machinery and pipes	150,949	327	(397)	1,306	-	152,185
Tools and factory equipment	3,448	52	(2)	11	-	3,509
Furniture, fixtures and office equipment	1,291	11	(93)	34	-	1,243
Vehicles	681	-	(10)	-	-	671
Total cost	209,392	401	(574)	1,642	-	210,861
Accumulated depreciation						
Buildings and building improvements	(19,681)	(1,367)	64	-	-	(20,984)
Machinery and pipes	(73,754)	(6,639)	302	-	-	(80,091)
Tools and factory equipment	(2,384)	(196)	2	-	-	(2,578)
Furniture, fixtures and office equipment	(953)	(107)	92	-	-	(968)
Vehicles	(616)	(19)	10	-	-	(625)
Total accumulated depreciation	(97,388)	(8,328)	470	-	-	(105,246)
Assets under construction and assets under installation	3,157	2,548	-	(1,642)	-	4,063
Less Allowance for impairment	(611)	-	-	-	-	(611)
Total property, plant and equipment	114,550					109,067

Unit : Million Baht

As at December 31, 2020	Consolidated financial statements					Balances as at December 31, 2020
	Balances as at January 1, 2020	Additions	Disposals/ Write off	Transfers in (out)	Transfers from inventory	
Cost						
Land and land improvement	11,537	-	(15)	273	-	11,795
Buildings and building improvements	39,822	-	(2)	1,408	-	41,228
Machinery and pipes	147,509	279	(62)	3,223	-	150,949
Tools and factory equipment	3,325	111	(95)	107	-	3,448
Furniture, fixtures and office equipment	1,255	19	(105)	122	-	1,291
Vehicles	684	-	(3)	-	-	681
Total cost	204,132	409	(282)	5,133	-	209,392
Accumulated depreciation						
Buildings and building improvements	(18,324)	(1,359)	2	-	-	(19,681)
Machinery and pipes	(66,756)	(7,034)	36	-	-	(73,754)
Tools and factory equipment	(2,278)	(201)	95	-	-	(2,384)
Furniture, fixtures and office equipment	(958)	(99)	104	-	-	(953)
Vehicles	(598)	(20)	2	-	-	(616)
Total accumulated depreciation	(88,914)	(8,713)	239	-	-	(97,388)
Assets under construction and assets under installation	6,006	2,817	(520)	(5,133)	(13)	3,157
<u>Less</u> Allowance for impairment	(155)	(456)	-	-	-	(611)
Total property, plant and equipment	121,069					114,550
Depreciation for the years ended December 31,						
2021						8,328
2020						8,713

Unit : Million Baht

As at December 31, 2021	Separate financial statements				Balances as at December 31, 2021
	Balances as at January 1, 2021	Additions	Disposal/ Write off	Transfers in (out)	
Cost					
Land and land improvement	11,159	-	-	-	11,159
Buildings and building improvements	39,421	-	(72)	287	39,636
Machinery and pipes	150,609	267	(397)	1,304	151,783
Tools and factory equipment	2,605	52	(1)	8	2,664
Furniture, fixtures and office equipment	1,141	9	(92)	32	1,090
Vehicles	501	-	(9)	-	492
Total cost	205,436	328	(571)	1,631	206,824
Accumulated depreciation					
Buildings and building improvements	(18,240)	(1,357)	64	-	(19,533)
Machinery and pipes	(73,757)	(6,625)	302	-	(80,080)
Tools and factory equipment	(1,827)	(145)	1	-	(1,971)
Furniture, fixtures and office equipment	(869)	(96)	92	-	(873)
Vehicles	(437)	(19)	9	-	(447)
Total accumulated depreciation	(95,130)	(8,242)	468	-	(102,904)
Assets under construction and assets under installation	2,995	2,463	-	(1,631)	3,827
<u>Less</u> Allowance for impairment	(536)	-	-	-	(536)
Total property, plant and equipment	112,765				107,211

Unit : Million Baht

As at December 31, 2020	Separate financial statements				
	Balances as at January 1, 2020	Additions	Disposal/ Write off	Transfers in (out)	Balances as at December 31, 2020
Cost					
Land and land improvement	10,901	-	(15)	273	11,159
Buildings and building improvements	38,024	-	(3)	1,400	39,421
Machinery and pipes	147,171	280	(61)	3,219	150,609
Tools and factory equipment	2,478	111	(88)	104	2,605
Furniture, fixtures and office equipment	1,099	18	(97)	121	1,141
Vehicles	503	-	(2)	-	501
Total cost	200,176	409	(266)	5,117	205,436
Accumulated depreciation					
Buildings and building improvements	(16,891)	(1,350)	1	-	(18,240)
Machinery and pipes	(66,771)	(7,020)	34	-	(73,757)
Tools and factory equipment	(1,771)	(144)	88	-	(1,827)
Furniture, fixtures and office equipment	(878)	(88)	97	-	(869)
Vehicles	(421)	(18)	2	-	(437)
Total accumulated depreciation	(86,732)	(8,620)	222	-	(95,130)
Assets under construction and assets under installation	5,852	2,780	(520)	(5,117)	2,995
<u>Less</u> Allowance for impairment	(80)	(456)	-	-	(536)
Total property, plant and equipment	119,216				112,765
Depreciation for the years ended December 31,					
2021					8,242
2020					8,620

For the year ended December 31, 2021, borrowing costs of Baht 42 million was included in the purchases of assets in the consolidated and separate financial statements (2020 : Baht 52 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 3.00 and 3.44 to calculate the capitalised borrowing costs.

As at December 31, 2021 and 2020, costs of plant and equipment in the consolidated financial statements that were fully depreciated but still in use were Baht 15,675 million and Baht 10,902 million, respectively.

As at December 31, 2021 and 2020, costs of plant and equipment in the separate financial statements that were fully depreciated but still in use were Baht 15,159 million and Baht 10,401 million, respectively.

The Company considered to indefinitely postpone a project and reviewed the possibility of continuance for such project. Therefore, the Company recognized allowance for impairment of such project cost recorded in assets under construction of Baht 456 million for the year ended December 31, 2020.

15. RIGHT-OF-USE ASSETS

Right-of-use assets as at December 31, were as follows:

As at December 31, 2021	Consolidated financial statements				Unit : Million Baht
	Balance as at January 1, 2021	Additions	Disposal	Balance as at December 31, 2021	
Cost					
Land	44	-	-	44	
Buildings	74	-	-	74	
Computer and accessories	-	5	-	5	
Vehicles	196	138	(60)	274	
Total cost	314	143	(60)	397	
Accumulated depreciation					
Land	(6)	(5)	-	(11)	
Buildings	(34)	(35)	-	(69)	
Vehicles	(76)	(76)	60	(92)	
Total accumulated depreciation	(116)	(116)	60	(172)	
Total right-of-use assets	198			225	

As at December 31, 2020	Consolidated financial statements				Unit : Million Baht
	Balance as at January 1, 2020	Effects from first-time adoption of TFRS 16	Additions	Disposal	Balance as at December 31, 2020
Cost					
Land	-	39	5	-	44
Buildings	-	69	5	-	74
Vehicles	-	191	9	(4)	196
Total cost	-	299	19	(4)	314
Accumulated depreciation					
Land	-	-	(6)	-	(6)
Buildings	-	-	(34)	-	(34)
Vehicles	-	-	(77)	1	(76)
Total accumulated depreciation	-	-	(117)	1	(116)
Total right-of-use assets	-				198

Depreciation for the years ended December 31,

2021

116

2020

117

Unit : Million Baht

As at December 31, 2021	Separate financial statements			
	Balance as at January 1, 2021	Additions	Disposal	Balance as at December 31, 2021
Cost				
Land	44	-	-	44
Buildings	71	90	-	161
Tank and storage	-	246	-	246
Computer and accessories	-	5	-	5
Vehicles	185	131	(59)	257
Total cost	300	472	(59)	713
Accumulated depreciation				
Land	(5)	(6)	-	(11)
Buildings	(34)	(63)	-	(97)
Tank and storage	-	(82)	-	(82)
Vehicles	(72)	(72)	58	(86)
Total accumulated depreciation	(111)	(223)	58	(276)
Total right-of-use assets	189			437

Unit : Million Baht

As at December 31, 2020	Separate financial statements				Unit : Million Baht
	Balance as at January 1, 2020	Effects from first-time adoption of TFRS 16	Additions	Disposal	Balance as at December 31, 2020
Cost					
Land	-	39	5	-	44
Buildings	-	66	5	-	71
Vehicles	-	183	5	(3)	185
Total cost	-	288	15	(3)	300
Accumulated depreciation					
Land	-	-	(5)	-	(5)
Buildings	-	-	(34)	-	(34)
Vehicles	-	-	(73)	1	(72)
Total accumulated depreciation	-	-	(112)	1	(111)
Total right-of-use assets	-				189

Depreciation for the years ended December 31,

2021

223

2020

112

The maturity analysis of lease liabilities is presented in Note 23.

The Group leases several assets including land, buildings and vehicles. The lease term is 3 - 20 years.

Expenses relating to right-of-use assets recognised at profit or loss as at December 31 consist of the followings:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Amounts recognised in profit and loss				
Depreciation expense on right-of-use assets	116	117	223	112
Interest expense relating to lease liabilities	6	9	14	9
Expense relating to short-term leases	14	20	15	141
Expense relating to leases of low value assets	50	52	49	51
Expense relating to variable lease payments not included in the measurement of the lease liability	35	34	35	34

Overall the variable payments constitute up to 33% of the Group's entire lease payments. The Group expects this ratio to remain constant in future years. The variable payments depend on quantity used.

For the year ended December 31, 2021, the total cash outflow for leases amount to Baht 110 million and Baht 212 million in the consolidated and separate statements of cash flows, respectively. (2020 : amount of Baht 129 million and Baht 125 million, respectively)

16. INTANGIBLE ASSETS

Intangible assets as at December 31, consist of:

As at December 31, 2021	Consolidated financial statements					Unit : Million Baht
	Balances as at January 1, 2021	Additions	Write off	Transfers In (out)	Reclassification of assets	Balances as at December 31, 2021
Cost						
Dredging expenses	454	-	-	-	-	454
Computer software	1,423	1	-	108	-	1,532
Total	1,877	1	-	108	-	1,986
Accumulated amortisation						
Dredging expenses	(279)	(24)	-	-	-	(303)
Computer software	(1,050)	(118)	-	-	-	(1,168)
Total	(1,329)	(142)	-	-	-	(1,471)
Computer software under installation	226	128	-	(108)	-	246
Total intangible assets	774					761

Unit : Million Baht

As at December 31, 2020	Consolidated financial statements					Balances as at December 31, 2020
	Balances as at January 1, 2020	Additions	Write off	Transfers In (out)	Reclassification of assets	
Cost						
Dredging expenses	2,640	162	(2,348)	-	-	454
Computer software	1,156	49	-	218	-	1,423
Total	3,796	211	(2,348)	218	-	1,877
Accumulated amortisation						
Dredging expenses	(2,562)	(31)	2,314	-	-	(279)
Computer software	(958)	(92)	-	-	-	(1,050)
Total	(3,520)	(123)	2,314	-	-	(1,329)
Computer software under installation	288	143	-	(218)	13	226
Total intangible assets	564					774
Amortisation for the years ended December 31,						
2021						142
2020						123

Unit : Million Baht

As at December 31, 2021	Separate financial statements				Balances as at December 31, 2021
	Balances as at January 1, 2021	Additions	Write off	Transfers in (out)	
Cost					
Dredging expenses	454	-	-	-	454
Computer software	1,415	1	-	75	1,491
Total	1,869	1	-	75	1,945
Accumulated amortisation					
Dredging expenses	(279)	(24)	-	-	(303)
Computer software	(1,045)	(116)	-	-	(1,161)
Total	(1,324)	(140)	-	-	(1,464)
Computer software under installation	198	122	-	(75)	245
Total intangible assets	743				726

Unit : Million Baht

As at December 31, 2020	Separate financial statements				
	Balances as at January 1, 2020	Additions	Write off	Transfers in (out)	Balances as at December 31, 2020
Cost					
Dredging expenses	2,640	162	(2,348)	-	454
Computer software	1,148	49	-	218	1,415
Total	3,788	211	(2,348)	218	1,869
Accumulated amortisation					
Dredging expenses	(2,562)	(31)	2,314	-	(279)
Computer software	(954)	(91)	-	-	(1,045)
Total	(3,516)	(122)	2,314	-	(1,324)
Computer software under installation	287	129	-	(218)	198
Total intangible assets	559				743
Amortisation for the years ended December 31,					
2021					140
2020					122

17. DEFERRED INCOME TAX/INCOME TAX

The movement of deferred tax assets and liabilities during the years is as follows:

Unit : Million Baht

	Consolidated financial statements					
	Provisions for employee benefits	Fixed assets	Taxable loss carried forward	Derivatives	Others	Total
Deferred tax assets						
As at January 1, 2020	963	257	510	-	170	1,900
The effects from first-time adoption of new accounting policies to profit or loss	-	-	-	(136)	-	(136)
Net charged/(credited) to profit or loss	(148)	70	1,065	235	206	1,428
Net charged/(credited) to other comprehensive income	28	-	-	-	(3)	25
As at December 31, 2020	843	327	1,575	99	373	3,217
Net charged/(credited) to profit or loss	34	(43)	(1,569)	(49)	(88)	(1,715)
Net charged/(credited) to other comprehensive income	(81)	-	-	-	(1)	(82)
As at December 31, 2021	796	284	6	50	284	1,420

Unit : Million Baht

Consolidated financial statements

	Other non-current financial assets	Fixed assets	Lease liabilities	Derivatives	Total
Deferred tax liabilities					
As at January 1, 2020	-	524	-	-	524
The effects from first-time adoption of new accounting policies to other comprehensive income	1	-	-	-	1
Net (charged)/credited to profit or loss	-	(152)	2	28	(122)
Net (charged) /credited to other comprehensive income	2	-	-	-	2
As at December 31, 2020	3	372	2	28	405
Net (charged)/credited to profit or loss	-	(106)	(2)	(28)	(136)
Net (charged)/credited to other comprehensive income	(1)	-	-	-	(1)
As at December 31, 2021	2	266	-	-	268

Presentation in the statements of financial position

As at December 31, 2021

Deferred tax assets - net	1,152
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As at December 31, 2020

Deferred tax assets - net	2,812
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Unit : Million Baht

Separate financial statements

	Provisions for Employee benefit obligations	Fixed assets	Taxable loss carried forward	Derivatives	Others	Total
Deferred tax assets						
As at January 1, 2020	958	164	466	-	197	1,785
The effects from first-time adoption of new accounting policies to other comprehensive income	-	-	-	(136)	-	(136)
Net charged/(credited) to profit or loss	(148)	80	1,082	235	177	1,426
Net charged/(credited) to other comprehensive income	28	-	-	-	(3)	25
As at December 31, 2020	838	244	1,548	99	371	3,100
Net charged/(credited) to profit or loss	34	(32)	(1,548)	(49)	(88)	(1,683)
Net charged/(credited) to other comprehensive income	(80)	-	-	-	(1)	(81)
As at December 31, 2021	792	212	-	50	282	1,336

Unit : Million Baht

Separate financial statements

	Other non-current financial assets	Fixed assets	Lease liabilities	Derivatives	Total
Deferred tax liabilities					
As at January 1, 2020	-	524	-	-	524
The effects from first-time adoption of new accounting policies to other comprehensive income	1	-	-	-	1
Net (charged)/credited to profit or loss	-	(152)	2	28	(122)
Net (charged)/credited to other comprehensive income	2	-	-	-	2
As at December 31, 2020	3	372	2	28	405
Net (charged)/credited to profit or loss	-	(106)	(2)	(28)	(136)
Net (charged)/credited to other comprehensive income	(1)	-	-	-	(1)
As at December 31, 2021	2	266	-	-	268

Presentation in the statements of financial position

As at December 31, 2021

Deferred tax assets - net	1,068
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As at December 31, 2020

Deferred tax assets - net	2,695
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Income tax

Unit : Million Baht

	Consolidated financial statements		Separate financial statements	
For the years ended December 31,	2021	2020	2021	2020
Income tax expense for the current period	(772)	(16)	(719)	-
Deferred income tax (expense) benefit	(1,579)	1,550	(1,547)	1,548
Prior year tax adjustment	-	20	-	20
Income tax benefit	(2,351)	1,554	(2,266)	1,568

For the years ended December 31, 2021 and 2020, 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 (benefit) for the years ended December 31, are reconciled as follows:

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2021	2020	2021	2020
Profit (loss) before income tax expense (benefit)	16,884	(7,684)	16,029	(7,004)
Tax calculated at a tax rate of 20%	3,377	(1,537)	3,206	(1,401)
Tax effect of:				
Profit from operations of associates - net of tax	(143)	(67)	-	-
Income subject to tax	43	1	43	1
Income not subject to tax	(1)	(65)	(31)	(279)
Income subject to tax exemption	(884)	-	(884)	-
Expenses not deductible for tax purpose	90	133	64	129
Expenses with additional deduction	(95)	(31)	(95)	(30)
Tax losses not recognised as deferred income tax	(36)	12	(37)	12
Income tax expense (benefit)	<u>2,351</u>	<u>(1,554)</u>	<u>2,266</u>	<u>(1,568)</u>

18. OTHER NON-CURRENT ASSETS

Other non-current assets as at December 31, consist of:

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2021	2020	2021	2020
Prepaid expense	152	315	152	315
Others	30	30	27	28
Total other non-current assets	<u>182</u>	<u>345</u>	<u>179</u>	<u>343</u>

19. BORROWINGS

19.1 Long-term borrowings from financial institutions and debentures

Long-term borrowings from financial institutions and debentures as at December 31, consist of:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Long-term borrowings from financial institutions	37,153	43,129	37,153	43,129
<u>Less</u> Current portion of long-term borrowings from financial institutions	(8,586)	(6,445)	(8,586)	(6,445)
<u>Less</u> Deferred financing fees	(46)	(71)	(46)	(71)
Total long-term borrowings from financial institutions	28,521	36,613	28,521	36,613
Debentures	24,000	18,890	24,000	18,890
<u>Less</u> Current portion of debentures	(1,999)	(6,890)	(1,999)	(6,890)
<u>Less</u> Deferred debentures issuance costs	(28)	(16)	(28)	(16)
Total debentures	21,973	11,984	21,973	11,984
Total current portion of long-term borrowings from financial institutions and debentures	10,585	13,335	10,585	13,335
Total long-term borrowings from financial institutions and debentures	50,494	48,597	50,494	48,597

Long-term borrowings

The Company entered into the following long-term borrowing agreements with local and foreign financial institutions for capital expenditure projects of the Group as follows:

- 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 June 2020. The loans were fully drawn down.
- 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 42nd 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 42nd 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 October 2023 (the 42nd month from the first draw down). The facility was fully drawn down.
- 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 December 2022. 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 October 2023 (the 42nd month from the first draw down). The facility was fully drawn down.
- 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 October 2023 (the 42nd month from the first draw down). The facility was fully drawn down.

Under Facility Agreements, the Group has to comply with the covenants and conditions including the maintenance of certain financial conditions as specified in the agreements such as the maintenance of Debt to Equity Ratio and the maintenance of Debt Service Coverage Ratio. As at December 31, 2021, the Company has fully complied with such conditions.

Debentures

On May 9, 2014, the Company issued debentures which are non-subordinated, unsecured with a debenture holders' representative in the name-registered certificate, totaling 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, they were matured 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.

On September 11, 2020, the Company issued debentures which are non-subordinated, unsecured with a debenture holders' representative in the name-registered certificate for 5 tranches totaling Baht 12,000 million where Tranche 1 and Tranche 2 were offered to general investors totaling Baht 6,000 million and Tranche 3 to Tranche 5 were offered to limited institutional investors and/or high net worth totaling Baht 6,000 million, respectively.

The details are as follows:

Tranche 1 amounting to Baht 2,000 million for 3 years with a fixed interest rate at 3.00% per annum, it was matured on September 11, 2023.

Tranche 2 amounting to Baht 4,000 million for 5 years with a fixed interest rate at 3.50% per annum, it was matured on September 11, 2025.

Tranche 3 amounting to Baht 2,000 million for 2 years with a fixed interest rate at 2.76% per annum, it was matured on September 11, 2022.

Tranche 4 amounting to Baht 1,300 million for 10 years with a fixed interest rate at 3.93% per annum, it was matured on September 11, 2030.

Tranche 5 amounting to Baht 2,700 million for 15 years with a fixed interest rate at 4.40% per annum, it was matured on September 11, 2035.

Interest is payable on every March 11th and September 11th throughout the debentures' period for all tranches.

On May 20, 2021, the Company issued debentures which are non-subordinated, unsecured with a debenture holders' representative in the name-registered certificate for 5 tranches totaling Baht 12,000 million where Tranche 1 offered to general investors of Baht 4,000 million and Tranche 2 to Tranche 5 were offered to limited institutional investors and/or high net worth totaling Baht 8,000 million, respectively.

The details are as follows:

Tranche 1 amounting to Baht 4,000 million for 5 years with a fixed interest rate at 3.00% per annum, it will be matured on May 20, 2026.

Tranche 2 amounting to Baht 2,000 million for 3 years with a fixed interest rate at 1.77% per annum, it will be matured on May 20, 2024.

Tranche 3 amounting to Baht 2,000 million for 7 years with a fixed interest rate at 2.91% per annum, it will be matured on May 20, 2028.

Tranche 4 amounting to Baht 2,000 million for 10 years with a fixed interest rate at 3.38% per annum, it will be matured on May 20, 2031.

Tranche 5 amounting to Baht 2,000 million for 15 years with a fixed interest rate at 4.10% per annum, it will be matured on May 20, 2036.

Interest is payable on every May 20th and November 20th throughout the debentures' period for all tranches.

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 debt to equity ratio, etc. As at December 31, 2021, the Company has fully complied with such conditions.

The movement of long-term borrowings from financial institutions and debentures for the year ended December 31, 2021 is as follows:

	Unit : Million Baht
	Consolidated and Separate
	financial statements
Opening net book amount	61,931
Issue debenture	12,000
Repayment of debenture	(6,890)
Repayment of long-term borrowings	(6,450)
Unrealised loss on exchange rate	474
Financing cost of issue debenture	(17)
Amortisation of deferred financing fees	25
Amortisation of discount on debentures	6
Closing net book amount	<u>61,079</u>

19.2 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	
	2021	2020	2021	2020
Debentures at fixed interest rates	23,972	18,873	23,972	18,873
Long-term borrowings at floating interest rates	37,107	43,058	37,107	43,058
	<u>61,079</u>	<u>61,931</u>	<u>61,079</u>	<u>61,931</u>

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2021	2020	2021	2020
Effective interest rates (%)				
Debentures	1.77 - 4.40	2.76 - 4.96	1.77 - 4.40	2.76 - 4.96
Long-term borrowings from financial institutions	1.35 - 2.97	1.40 - 2.99	1.35 - 2.97	1.40 - 2.99

19.3 Maturity of long-term borrowings from financial institutions and debentures

Maturity of long-term borrowings from financial institutions and debentures as at December 31, are as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Within 1 year	10,585	13,335	10,585	13,335
Later than 1 year but no later than 5 years	37,797	38,514	37,797	38,514
Later than 5 years	12,697	10,082	12,697	10,082
	<u>61,079</u>	<u>61,931</u>	<u>61,079</u>	<u>61,931</u>

19.4 Credit facilities

The Group has credit facilities with the commercial banks and a major shareholder (excluding long-term borrowings) totaling Baht 17,000 million and Baht 10,000 million, respectively, with the market interest rates. As at December 31, 2021, the Group has unused credit facilities with the commercial banks and a major shareholder of Baht 8,353 million and Baht 10,000 million, respectively (December 31, 2020 : Baht 21,738 million and Baht 10,000 million, respectively).

20. TRADE PAYABLES

Trade payables as at December 31, consist of:

Note	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Trade payables				
- Other parties	1,180	899	1,138	834
- Related parties	27,491	23,084	27,492	23,085
Total trade payables	<u>28,671</u>	<u>23,983</u>	<u>28,630</u>	<u>23,919</u>

21. OTHER PAYABLES

Other payables as at December 31, 2021 are as follows:

Note	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Accounts payable - Acquisition of fixed assets	328	353	328	350
Accounts payable - Excise department and oil fund	697	806	697	806
Accounts payable - Revenue department	162	58	154	56
Accounts payable - Commodity derivative contracts	577	733	577	733
Employment restructuring obligations	343	750	343	750
Others	1,132	1,021	1,070	956
Total other payables	<u>3,239</u>	<u>3,721</u>	<u>3,169</u>	<u>3,651</u>

22. DERIVATIVES

Derivative assets and liabilities held for trading derivatives that are not designated in hedge accounting relationships carried at fair value through profit or loss.

Derivatives as at December 31, were as follows:

	Consolidated		Unit : Million Baht	
	Financial Statements		Separate	
	2021	2020	2021	2020
Derivative financial assets - non-current				
Cross currency interest rate swap contracts	-	141	-	141
Total derivative financial assets	-	141	-	141
Derivative financial liabilities - current				
Commodity derivative contracts	28	341	28	341
Derivative financial liabilities - non-current				
Cross currency interest rate swap contracts	171	-	171	-
Interest rate swap contracts	52	154	52	154
Total derivative financial liabilities	251	495	251	495

The Group has not entered into master netting agreements with the counterparties for above derivatives.

The Group has significant contracts related to derivatives as follows:

Interest rate swap contracts

The Company entered into interest rate swap contracts of USD long-term borrowings with two financial institutions totaling USD 140 million to swap interests from floating rate to fixing rate as specified in the contracts. The contracts are effective from November 15, 2019 to June 30, 2025.

The above interest rate swap contracts will be swapped the interest every month from the effective date until the maturity date and will recognise the transactions as derivatives in the financial statements over the period of contracts.

Cross currency interest rate swap contracts

The Company entered into two cross currency interest rate swap contracts of Thai Baht long-term borrowings with two financial institutions totalling Baht 612 million to swap principals from Thai Baht to US Dollar at an exchange rate as specified in the contracts and to swap the fixed interest rate on Thai Baht to a fixed interest rate on US Dollar. The contracts are effective from March 5, 2021 to September 11, 2023.

The above cross currency interest rate swap contracts will be swapped the interest every March and September from the effective date until the maturity date and will recognise the transactions as derivatives in the financial statements over the period of contracts.

The Company entered into three cross currency interest rate swap contracts of Thai Baht long-term borrowings with a financial institution totaling Baht 2,862 million to swap principals from Thai Baht to US Dollar at an exchange rate as specified in the contracts and to swap the fixed interest rate on Thai Baht principal to a fixed interest rate on US Dollar principal. The contracts are effective from September 28, 2020 to November 30, 2024.

The above cross currency interest rate swap contracts will be swapped the interest every ended of May and November from the effective date until the maturity date and will recognise the transactions as derivatives in the financial statements 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, 2021 and December 31, 2020, the outstanding balances under such contracts were at 5.25 million barrels and 2.40 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, 2021, there was no the outstanding balances under such contracts (2020 : the outstanding balances under such contracts was at 6.35 million barrels).

23. LEASE LIABILITIES

Lease liabilities as at December 31, consist of:

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2021	2020	2021	2020
Maturity analysis:				
Year 1	86	103	197	99
Year 2	59	46	172	42
Year 3	42	25	41	23
Year 4	29	9	29	9
Year 5	13	6	12	6
Year 5 onwards	5	10	5	10
	234	199	456	189
<u>Less</u> deferred interest	(12)	(10)	(18)	(10)
Total	222	189	438	179
Analysed as:				
Current	81	99	188	95
Non-current	141	90	250	84
Total	222	189	438	179

The Group does not face a significant liquidity risk with regard to its lease liabilities. Lease liabilities are monitored within the Group's treasury function.

24. EMPLOYEE BENEFIT OBLIGATIONS

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2021	2020	2021	2020
Statements of financial position				
As at December 31,				
Retirement benefits	3,800	4,032	3,754	3,983
Other long-term benefits	205	207	204	205
	4,005	4,239	3,958	4,188
Statements of profit or loss				
For the years ended December 31,				
Retirement benefits	246	(267)	242	(272)
Other long-term benefits	14	19	14	19
	260	(248)	256	(253)

The movements of employee benefit obligations for the years ended December 31, are as follows:

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Opening book amount	4,239	4,836	4,188	4,788
Current service costs	202	227	198	224
Interest cost	62	85	61	84
Past service cost	-	(607)	-	(608)
(Gain) loss on remeasurement of retirement benefit obligations	(407)	139	(402)	140
(Gain) loss on remeasurement of other long-term benefit obligations	(4)	47	(3)	47
Benefits paid	(87)	(488)	(84)	(487)
Closing book amount	<u>4,005</u>	<u>4,239</u>	<u>3,958</u>	<u>4,188</u>

The expenses of Baht 175 million and Baht 173 million (2020 : Baht 193 million and Baht 191 million) were included in cost of sales in the consolidated and separate statements of profit or loss, respectively.

The expenses (reversal) of Baht 85 million and Baht 83 million (2020 : Baht (441) million and Baht (444) million) were included in administrative expenses in the consolidated and separate statements of profit or loss, respectively.

The principle actuarial assumptions used for calculating the employee benefit obligations as at December 31, are as follows:

	Consolidated financial statements		Unit : Percentage Separate financial statements	
	2021	2020	2021	2020
Discount rate	2.3	1.5	2.3	1.5
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					
2021					2020
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%	(390)	451	(447)	522
Salary growth rate	1%	354	(312)	407	(356)

		Unit : Million Baht			
		Separate financial statements			
		2021		2020	
		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%	(386)	446	(443)	516
Salary growth rate	1%	349	(308)	402	(352)

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 (2020 : 12 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, 2021 are as follows:

		Unit : Million Baht			
		Consolidated financial statements			
		Less than 1 year	Between 1 - 5 years	More than 5 years	Total
Retirement benefits		43	466	3,291	3,800
Other long-term benefits		14	115	76	205
Total		57	581	3,367	4,005

		Unit : Million Baht			
		Separate financial statements			
		Less than 1 year	Between 1 - 5 years	More than 5 years	Total
Retirement benefits		42	455	3,257	3,754
Other long-term benefits		14	115	75	204
Total		56	570	3,332	3,958

Expected maturity analysis of retirement and other long-term benefits as at December 31, 2020 are as follows:

		Unit : Million Baht			
		Consolidated financial statements			
		Less than 1 year	Between 1 - 5 years	More than 5 years	Total
Retirement benefits		94	314	3,624	4,032
Other long-term benefits		13	82	112	207
Total		107	396	3,736	4,239

	Unit : Million Baht			
	Separate financial statements			
	Less than 1 year	Between 1 - 5 years	More than 5 years	Total
Retirement benefits	91	306	3,586	3,983
Other long-term benefits	13	81	111	205
Total	104	387	3,697	4,188

On June 1, 2020, the Company has officially announced the Increase in Organization Capability project resulting in the employment restructuring by terminating the employment and voluntary resignation for employees who are 40 years and above. The Company then set up the provisions for terminating the employee's contract in amount of Baht 1,410 million which was recorded in other payables in amount of Baht 750 million and other non-current liabilities in amount of Baht 660 million in the consolidated and separate financial statements as at December 31, 2020. The Company had no obligations regarding the Thai Labor Protection Act for settling the employee benefit obligations. In this regard, the Company reversed the provisions for employee benefits in amount of Baht 396 million in the consolidated and separate financial statements as at December 31, 2020.

As at December 31, 2021, the outstanding of other payables and other non-current liabilities in amount of Baht 343 million and Baht 313 million in the consolidated and separate financial statements, respectively.

Provident fund contributions for their employees and recorded as expense in the statements of profit or loss for the years ended December 31, are as follows:

	Unit : Million Baht	
	Consolidated financial statements	Separate financial statements
	2021	2020
Provident fund expenses	419	496

25. OTHER NON-CURRENT LIABILITIES

Other non-current liabilities as at December 31, are as follows:

	Note	Unit : Million Baht			
		Consolidated financial statements		Separate financial statements	
		2021	2020	2021	2020
Employment restructuring obligations	24	313	660	313	660
Others		29	27	-	-
Total other non-current liabilities		342	687	313	660

26. 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.

27. 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	
	2021	2020
IRPC Oil Company Limited	124	124
	124	124

As at December 31, 2021, the Company's ordinary shares of 23,828,400 shares have been held by IRPC Oil Company Limited, a subsidiary (2020 : 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.

28. NON-CONTROLLING INTERESTS

The movements of non-controlling interests for the years ended December 31, are as follows:

	Unit : Million Baht	
	Consolidated	
	financial statements	
	2021	2020
Beginning balance	140	146
Dividends paid	(24)	(28)
Share of profit for the year	28	22
Increase in portion of investment of non-controller of subsidiaries	73	-
Ending balance	217	140

29. OTHER INCOME

For the years ended December 31,	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2021	2020	2021	2020
Interest income	44	53	48	62
Dividend income	5	6	155	488
Loss on exchange rate from borrowings and interest payable	(474)	(2)	(474)	(2)
Gain on exchange rate	946	369	943	372
Loss on disposals of fixed assets	(46)	(45)	(45)	(45)
Loss on disposals of intangible assets	-	(34)	-	(34)
Reversal of loss on impairment of investment in a subsidiary	-	-	-	718
Loss on impairment of fixed assets	-	(456)	-	(456)
Income from tax refund from the customs import duty	64	87	64	87
Others	969	674	1,045	715
Total other income	1,508	652	1,736	1,905

30. NET DERIVATIVE GAIN (LOSS)

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2021	2020	2021	2020
For the years ended December 31,				
Realised loss on financial derivative contracts	(92)	(380)	(92)	(380)
Unrealised loss on financial derivative contracts	(210)	(38)	(210)	(38)
Realised gain (loss) on commodity derivative contracts	(1,954)	1,734	(1,954)	1,734
Unrealised gain (loss) on commodity derivative contracts	313	(961)	313	(961)
Total net derivative gain (loss)	(1,943)	355	(1,943)	355

Gain (loss) on commodity derivative contracts 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.

31. ADMINISTRATIVE EXPENSES

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2021	2020	2021	2020
For the years ended December 31,				
Staff costs	3,724	3,627	3,679	3,587
Consultant fees	124	328	120	324
Depreciation	289	278	186	169
Rental	51	119	51	243
Advertising	28	23	29	22
Bad debts and doubtful accounts (reversal)	1	(1)	2	-
Directors' remuneration	27	27	25	24
Others	1,429	1,317	1,486	1,235
Total administrative expenses	5,673	5,718	5,578	5,604

32. SIGNIFICANT EXPENSES BY NATURE

	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2021	2020	2021	2020
For the years ended December 31,				
Changes of finished goods	4,718	(1,734)	4,671	(1,746)
Cost of raw materials used	317,992	128,828	317,332	128,667
Staff costs	9,285	9,088	9,143	8,956
Depreciation and amortisation	8,587	8,952	8,605	8,855
Directors' and managements' remuneration	70	81	68	78

33. FINANCE COSTS

For the years ended December 31,	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2021	2020	2021	2020
Interest expense	1,742	1,892	1,742	1,891
Interest expense from lease liabilities	6	9	14	9
Amortisation of deferred financing fees	25	46	25	46
Amortisation of discount on debentures	6	2	6	2
Total interest expense	1,779	1,949	1,787	1,948
<u>Less</u> amounts included in the cost of qualifying assets	(42)	(52)	(42)	(52)
	1,737	1,897	1,745	1,896
Others finance cost	6	5	6	5
Total	1,743	1,902	1,751	1,901

34. 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		Separate	
	financial statements		financial statements	
	2021	2020	2021	2020
Profit (loss) attributable to owner of the parent (million Baht)	14,505	(6,152)	13,762	(5,436)
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)	0.71	(0.30)	0.67	(0.27)

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.

35. DIVIDENDS PAID

On March 25, 2020, the Board of Directors' meeting of the Company passed a resolution to approve the distribution of interim dividend payment instead of the annual dividend payment which was planned to propose to the Annual General Meeting of shareholders of the Company at Baht 0.10 per share, totalling Baht 2,043 million. The dividend was paid on April 24, 2020.

On March 31, 2021, the Annual General Meeting of shareholders of the Company approved the distribution of an annual dividend payment from the retained earnings of 2020 at Baht 0.06 per share for 20,434 million shares, totalling Baht 1,226 million. The dividend was paid on April 20, 2021.

On August 24, 2021, the Board of Directors' meeting of the Company passed a resolution to approve the distribution of interim dividend payment for the operating results for the six-month period ended June 30, 2021 at Baht 0.08 per share for 20,434 million shares, totalling Baht 1,635 million. The dividend was paid on September 23, 2021.

36. 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”), Floating Solar project and PP Melt Blown Project. The privileges granted include:

- (a) exemption from payment of import duty and tax on materials and necessary parts including machinery as approved by the Board
- (b) 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
- (c) 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
- (d) 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					
	2021			2020		
	BOI	Non-BOI	Total	BOI	Non-BOI	Total
Revenues from sales and services						
- Overseas	46,224	45,141	91,365	31,073	27,675	58,748
- Domestic	83,493	79,132	162,625	60,748	53,940	114,688
Total	129,717	124,273	253,990	91,821	81,615	173,436

37. 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, 2021 and 2020, PTT Public Company Limited is the major shareholder of the Company, holding 45.05%.

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	<p><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.</p> <p><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.</p>
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	
	2021	2020	2021	2020
Sales of goods and services				
- Major shareholder	192	593	192	593
- Subsidiaries	-	-	9,262	5,477
- Related parties	57,998	42,236	56,961	41,610
Purchases of goods				
- Major shareholder	166,119	103,029	166,119	103,029
- Subsidiaries	-	-	8	8
- Related parties	22,837	16,593	22,831	16,589
Sales / Purchase crude oil and raw material for crude reserve				
- A related party	571	-	571	-
Selling and administrative expenses				
- Major shareholder	41	46	41	46
- Subsidiaries	-	-	143	232
- Related parties	927	773	896	744
Net derivative loss				
- A related party	(311)	(10)	(311)	(10)
Interest income, dividend income and other income				
- Major shareholder	5	75	5	75
- Subsidiaries	-	-	129	101
- Related parties	819	511	934	952
Interest expense and other expenses				
- Major shareholder	-	3	-	3
- Subsidiaries	-	-	8	-
- A related party	1	2	1	2

(b) Trade receivables from related parties

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Major shareholder	19	542	19	542
Subsidiaries	-	-	363	285
Related parties	4,928	3,098	4,816	3,038
Total	4,947	3,640	5,198	3,865

(c) Amounts due from related parties

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
As at December 31,				
Major shareholder ⁽¹⁾	2,789	1	2,789	1
Subsidiaries	-	-	28	22
Related parties	134	153	133	153
	2,923	154	2,950	176
<u>Less</u> Allowance for expected credit losses	-	-	(10)	(10)
Total	2,923	154	2,940	166

⁽¹⁾ As at December 31, 2021, amounts due from major shareholder in the consolidated and separate statements of financial position is mainly the advance payment for goods of Baht 2,788 million.

(d) Short-term loans and interest receivables from related parties

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
As at December 31,				
Short-term loans and interest receivables				
Subsidiaries	-	-	-	17
Total	-	-	-	17

Average interest rate of short-term loans to related parties are 1.20% per annum (2020: 2.45% per annum).

(e) Other current assets

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
As at December 31,				
A related party	-	185	-	185
Total	-	185	-	185

(f) Long-term loans to related parties

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
As at December 31,				
Long-term loans				
Subsidiaries	-	-	127	190
Total	-	-	127	190

Average interest rate of long-term loans to related parties is 3.11% - 3.42% per annum (2020: 3.11% per annum).

(g) Trade payables to related parties

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Major shareholder	24,503	21,674	24,503	21,674
Subsidiaries	-	-	1	1
Related parties	2,988	1,410	2,988	1,410
Total	27,491	23,084	27,492	23,085

(h) Amounts due to related parties

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
Subsidiaries	-	-	17	18
Related parties	272	365	269	365
Total	272	365	286	383

(i) Short-term borrowings and interest payables to a related party

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
A subsidiary	-	-	56	-
Total	-	-	56	-

Average interest rate of short-term borrowings from a related party is 0.25% per annum.

(j) Long-term borrowings from a related party

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
A related party	31	-	-	-
Total	31	-	-	-

Average interest rate of Long-term borrowings from a related party is 3.42% per annum.

(k) Lease liabilities

As at December 31,	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
A subsidiary	-	-	226	-
A related party	3	34	3	34
Total	3	34	229	34

(l) Current derivative liabilities

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
As at December 31,				
A related party	9	110	9	110
Total	9	110	9	110

(m) Directors' and management's remuneration

	Consolidated financial statements		Unit : Million Baht Separate financial statements	
	2021	2020	2021	2020
For the years ended December 31,				
Salaries and other short-term benefits	70	80	67	77
Long-term benefits	1	1	1	1
Total	71	81	68	78

38. FINANCIAL INSTRUMENTS**38.1 Financial risk management objectives**

The Group's Corporate Treasury function monitors and manages the financial risks relating to the operations of the Group through internal risk reports which analyses exposures by degree and magnitude of risks. These risks include market risk (including currency risk, interest rate risk and price risk), credit risk and liquidity risk.

The Group seeks to minimise the effects of these risks by using financial instruments such as derivatives to hedge these risk exposures. The use of financial derivatives is governed by the Group's policies approved by the board of directors, which provide written principles on foreign exchange risk, interest rate risk, credit risk. The use of financial derivatives and non-derivative financial instruments, and the investment of excess liquidity, compliance with policies and exposure limits are reviewed by the internal auditors on a continuous basis. The Group does not enter into or trade financial instruments, including, financial derivatives for speculative purposes.

The Corporate Treasury function reports the result of risk management on a quarterly basis to the Group's risk management committee, an independent body that determines the policies and monitors the risk management implemented to mitigate risk exposures.

38.2 Market risk

The Group's activities expose it primarily to the financial risks of changes in foreign currency exchange rates and interest rates. The Group enters into a variety of financial derivatives to manage its exposure to interest rate and foreign currency risk, including:

- Forward foreign exchange contracts to hedge the exchange rate risk arising on the export and import of goods and including foreign currency loans
- Interest rate swap contracts to mitigate the risk of rising interest rates;
- Commodity derivative contracts to mitigate the price risk of purchased inventory

38.2.1 Foreign currency risk management

The Group undertakes transactions denominated in foreign currencies; consequently, exposures to exchange rate fluctuations arise. Exchange rate exposures are managed within approved policy parameters utilising foreign exchange contracts and forward contracts.

The carrying amounts of the Group's foreign currency denominated monetary assets and monetary liabilities as at December 31, are as follows:

	Consolidated				Unit : Million Baht			
	Financial Statements				Separate			
	Assets		Liabilities		Assets		Liabilities	
	2021	2020	2021	2020	2021	2020	2021	2020
USD	6,007	3,967	5,839	5,201	6,007	3,967	5,839	5,176
EURO	-	-	57	18	-	-	57	18
Others	-	-	23	7	-	-	8	-

Foreign currency sensitivity analysis

The Group is mainly exposed to the currency of assets and liabilities to USD currency.

The following table details the Group's sensitivity to a 10% appreciate and depreciate in Thai Baht against the relevant foreign currencies. 10% is the sensitivity rate used when reporting foreign currency risk internally to key management personnel and represents management's assessment of the reasonably possible change in foreign exchange rates. The sensitivity analysis includes only outstanding foreign currency denominated monetary items and adjusts their translation at the year-end for a 10% change in foreign currency rates as follows.

	Consolidated		Unit : Million Baht	
	Financial Statements		Separate	
	Assets	Liabilities	Assets	Liabilities
	2021	2021	2021	2021
Profit (loss)				
- 10% appreciate		(603)	(603)	852
- 10% depreciate		603	603	(852)

	Consolidated		Unit : Million Baht	
	Financial Statements		Separate	
	Assets	Liabilities	Assets	Liabilities
	2020	2020	2020	2020
Profit (loss)				
- 10% appreciate		(397)	(397)	787
- 10% depreciate		397	397	(787)

38.2.2 Interest rate risk management

The Group is exposed to interest rate risk because entities in the Group borrow funds at both fixed and floating interest rates. The risk is managed by the Group by maintaining an appropriate mix between fixed and floating rate borrowings, and by the use of interest rate swap contracts. Hedging activities are evaluated regularly to align with interest rate views and defined risk appetite; ensuring the most cost-effective hedging strategies are applied.

The Group's exposures to interest rates on financial assets and financial liabilities are detailed in the liquidity risk management section of this note.

Interest rate sensitivity analysis

The sensitivity analysis below have been determined based on the exposure to interest rates for both financial derivatives and non-financial derivatives at the reporting date. For floating rate liabilities, the analysis is prepared assuming the amount of liability outstanding at the reporting date was outstanding for the whole year. The Group's sensitivity to 1% increase or decrease is used when reporting interest rate risk internally to key management personnel and represents management's assessment of the reasonably possible change in interest rates.

If interest rates had been 1% higher/lower and all other variables were held constant, the Group's:

- Profit or loss for the year ended December 31, 2021 would decrease/increase by Baht 261 million (2020 : decrease/increase by Baht 311 million). This is mainly attributable to the Group's exposure to interest rates on its floating rate borrowing.

Interest rate swap contracts

Under interest rate swap contracts, the Group agrees to exchange the difference between fixed and floating rate interest amounts calculated on agreed notional principal amounts. Such contracts enable the Group to mitigate the risk of changing interest rates on the fair value of issued fixed rate debt held and the cash flow exposures on the issued variable rate debt held.

The detail various information regarding interest rate swap contracts outstanding at the end of the reporting period, interest rate swap contract assets and liabilities are included in Note 22.

Interest rate swap contracts will be settled every month. The floating rate on the interest rate swap contracts is 1-month LIBOR plus 1.25%. The Group will settle the difference between fixed and floating rate on a net basis.

38.2.3 Commodity price risk

Commodity price risk in the Group primarily arises from price fluctuations and the availability of petroleum products. The Group enters into derivative transactions to limit these risks. Hedging activities are evaluated regularly to align with Group expectations about the price changes and defined risk appetite; ensuring the most cost-effective hedging strategies are applied.

Commodity price sensitivity analysis

If the commodity price had been increased/(decreased) by 1 USD per barrel in December 2021, profit (loss) after tax would increase/(decrease) by Baht 125 million (December 2020 : increase/(decrease) by Baht 71 million).

Commodity derivative contracts

The Group has a policy to enter into commodity derivative contracts to manage the commodity price risk associated with anticipated purchase transactions in next 24 months. The Group policy is to enter into crack spread swap contracts up to 50% of production quantity and enter into crude oil swap contracts up to 100%.

The following tables detail the commodity derivative contracts outstanding at the end of the reporting period. Commodity derivative contracts are presented in the line 'Derivative Liabilities' within the statements of financial position.

	Consolidated and separate financial statements	
	Quantity	Carrying amount of derivative contracts
	2021	2021
As at December 31,	Million Barrels	Million Baht
Outstanding of commodity derivative contracts		
Crack Spread Swap Contracts	5.25	28
Total current derivative liabilities		28

	Consolidated and separate financial statements	
	Quantity	Carrying amount of derivative contracts
	2020	2020
As at December 31,	Million Barrels	Million Baht
Outstanding of commodity derivative contracts		
Crack Spread Swap Contracts	2.40	90
Crude Oil Swap Contracts	6.35	(431)
Total current derivative liabilities		(341)

38.2.4 Other price risks

The Group is exposed to equity price risks arising from equity investments.

Equity investments in unlisted entities are held for strategic rather than trading purposes.

Equity price sensitivity analysis

The sensitivity analysis below have been determined based on the exposures to equity price risks at the reporting date.

If equity prices had been 10% higher/lower:

- Other comprehensive income for the year ended December 31, 2021 would increase/decrease by Baht 11 million (2020 : increase/decrease by Baht 12 million) as a result of the changes in fair value of the investments in listed shares.

38.3 Credit risk management

Note 8 details the Group's maximum exposure to credit risk and the measurement bases used to determine expected credit losses.

In order to minimise credit risk, the Group has determined the policies and procedures to consider the appropriate credit limit for business, comparable to leading companies in the same business. The Group takes into account the risks that will cause bad debts to the Group by having the credit committee who is responsible for supervising the credit management for selling all type of products and services of the Group.

Before approving credit limit to counterparty, the Group has set the terms and analysis for both counterparty with or without collateral to determine the credit rating. The analysis includes financial position, financial performance, ability to pay off debts together with qualitative information such as the Company's profile and major shareholders. The terms and credit limits are determined by the credit ratings as approved by the credit committee. The Group reviews the terms and credit limits with each counterparty on an annually basis.

The Group does not have significant credit risk exposure to any single counterparty or any group of counterparties having similar characteristics. The Group has no significant concentrations of credit risks. 80% of the trade receivables has the best credit scoring under the credit rating system used by the Group. Other monitoring procedures are also in place to ensure that follow-up action is taken to recover overdue debts. Furthermore, the Group reviews the recoverable amount of each trade receivable on an individual basis at the end of the reporting period to ensure that adequate loss allowance is made for irrecoverable amounts.

38.4 Liquidity risk management

Ultimate responsibility for liquidity risk management rests with the board of directors, which has established an appropriate liquidity risk management framework for management of the Group's short, medium and long-term funding and liquidity management requirements. The Group manages liquidity risk by maintaining adequate reserves, banking facilities and reserve borrowing facilities, by continuously monitoring forecast and actual cash flows, and by matching the maturity profiles of financial assets and liabilities.

38.4.1 Liquidity and interest risk tables

The following tables detail the Group's remaining contractual maturity for its non-derivative financial liabilities with agreed repayment periods. The tables have been drawn up based on the undiscounted cash flows of financial liabilities based on the earliest date on which the Group can be required to pay. The table includes both interest and principal cash flows. To the extent that interest cash flows are floating rate, the undiscounted amount is derived from interest rate curves at the reporting date.

As at December 31, 2021	Weighted average effective interest rate	Consolidated financial statements			Unit : Million Baht	
		Less than 1 year	1 - 5 years	More than 5 years	Total	Carrying amount
Trade payables		28,671	-	-	28,671	28,671
Other payables		3,239	-	-	3,239	3,239
Amounts due to related parties		272	-	-	272	272
Interest payables		195	-	-	195	195
Accrued bonus expense		1,955	-	-	1,955	1,955
Other current liabilities		49	-	-	49	49
Long-term borrowings						
from a related party	3.42	-	12	19	31	31
Long-term borrowings from						
financial institutions	2.31	8,594	25,844	2,715	37,153	37,153
Debentures	3.28	2,000	12,000	10,000	24,000	24,000
Lease liabilities		86	143	5	234	234
Other non-current liabilities		-	342	-	342	342

Unit : Million Baht

As at December 31, 2020	Weighted average effective interest rate	Consolidated financial statements			Total	Carrying amount
		Less than 1 year	1 - 5 years	More than 5 years		
Trade payables		23,983	-	-	23,983	23,983
Other payables		2,377	-	-	2,377	2,377
Amounts due to related parties		365	-	-	365	365
Interest payables		210	-	-	210	210
Accrued bonus expense		1,159	-	-	1,159	1,159
Other current liabilities		397	-	-	397	397
Long-term borrowings from financial institutions	2.40	6,450	30,579	6,100	43,129	43,129
Debentures	4.10	6,890	8,000	4,000	18,890	18,890
Lease liabilities		103	86	10	199	199
Other non-current liabilities		-	687	-	687	687

Unit : Million Baht

As at December 31, 2021	Weighted average effective interest rate	Separate financial statements			Total	Carrying amount
		Less than 1 year	1 - 5 years	More than 5 years		
Trade payables		28,630	-	-	28,630	28,630
Other payables		3,169	-	-	3,169	3,169
Amounts due to related parties		286	-	-	286	286
Interest payables		195	-	-	195	195
Accrued bonus expense		1,935	-	-	1,935	1,935
Short-term borrowings and interest payable to a related party	0.25	56	-	-	56	56
Other current liabilities		40	-	-	40	40
Long-term borrowings from financial institutions	2.31	8,594	25,844	2,715	37,153	37,153
Debentures	3.28	2,000	12,000	10,000	24,000	24,000
Lease liabilities		197	254	5	456	456
Other non-current liabilities		-	313	-	313	313

Unit : Million Baht

As at December 31, 2020	Weighted average effective interest rate	Separate financial statements			Total	Carrying amount
		Less than 1 year	1 - 5 years	More than 5 years		
Trade payables		23,919	-	-	23,919	23,919
Other payables		2,349	-	-	2,349	2,349
Amounts due to related parties		383	-	-	383	383
Interest payables		210	-	-	210	210
Accrued bonus expense		1,144	-	-	1,144	1,144
Other current liabilities		384	-	-	384	384
Long-term borrowings from financial institutions	2.40	6,450	30,579	6,100	43,129	43,129
Debentures	4.10	6,890	8,000	4,000	18,890	18,890
Lease liabilities		99	80	10	189	189
Other non-current liabilities		-	660	-	660	660

The following table details the Group's liquidity analysis for its financial derivatives based on contractual maturities. The table has been drawn up based on the undiscounted net cash inflows and outflows on derivatives instruments that settle on a net basis, and the undiscounted gross inflows and outflows on those derivatives that require gross settlement. When the amount payable or receivable is not fixed, the disclosed amount has been determined by referring to the projected interest rates as illustrated by the yield curves existing at the reporting date.

As at December 31, 2021	Unit : Million Baht					
	Consolidated and separate financial statements					
	Less than 1 month	1 - 3 months	3 months to 1 year	1 - 2 years	2 - 5 years	More than 5 years
Derivative liabilities:						
Cross currency interest rate swaps contracts	-	-	-	53	118	-
Interest rate swap contracts	-	-	-	-	52	-
Commodity derivative contracts	-	-	28	-	-	-

As at December 31, 2020	Unit : Million Baht					
	Consolidated and separate financial statements					
	Less than 1 month	1 - 3 months	3 months to 1 year	1 - 2 years	2 - 5 years	More than 5 years
Derivative assets:						
Cross currency interest rate swaps contracts	-	-	-	-	141	-
Derivative liabilities:						
Interest rate swap contracts	-	-	-	-	154	-
Commodity derivative contracts	-	-	341	-	-	-

38.4.2 Financing facilities

The Group is using combination of the cash inflows from the financial assets and the available bank facilities to manage the liquidity.

The table below presents the cash inflows from financial assets:

As at December 31, 2021	Unit : Million Baht			
	Consolidated financial statements			
	Less than 1 year	1 - 5 years	More than 5 years	Total
Trade receivables	13,785	-	-	13,785
Other receivables	2,742	-	-	2,742
Amounts due to related parties	2,923	-	-	2,923
Other current assets	101	-	-	101
Other non-current financial assets	-	-	1,689	1,689
Other non-current assets	-	182	-	182

As at December 31, 2020	Unit : Million Baht			
	Consolidated financial statements			
	Less than 1 year	1 - 5 years	More than 5 years	Total
Trade receivables	9,626	-	-	9,626
Other receivables	213	-	-	213
Amounts due to related parties	154	-	-	154
Other current assets	198	-	-	198
Other non-current financial assets	-	-	1,692	1,692
Derivative assets	-	141	-	141
Other non-current assets	-	27	-	27

As at December 31, 2021	Unit : Million Baht			
	Separate financial statements			
	Less than 1 year	1 - 5 years	More than 5 years	Total
Trade receivables	13,815	-	-	13,815
Other receivables	2,730	-	-	2,730
Amounts due to related parties	2,940	-	-	2,940
Other current assets	82	-	-	82
Other non-current financial assets	-	-	1,688	1,688
Long-term loans to related parties	-	19	108	127
Other non-current assets	-	179	-	179

As at December 31, 2020	Unit : Million Baht			
	Separate financial statements			
	Less than 1 year	1 - 5 years	More than 5 years	Total
Trade receivables	9,711	-	-	9,711
Other receivables	211	-	-	211
Short-term loans and interest receivables to related parties	17	-	-	17
Amounts due to related parties	166	-	-	166
Other current assets	198	-	-	198
Other non-current assets	-	-	1,691	1,691
Long-term loans to related parties	-	190	-	190
Derivative assets	-	141	-	141

The Group accesses capital sources by having credit facilities with commercial banks and a major shareholder totaling Baht 17,000 million and Baht 10,000 million, respectively, with the market interest rate. As at December 31, 2021, the Group has unused credit facilities with the commercial banks and a major shareholder of Baht 8,353 million and Baht 10,000 million, respectively (see Note 19.4).

38.5 Capital risk management

The Group manages its capital to ensure that entities in the Group will be able to continue as going concerns while maximising the return to shareholders through the optimisation of the debt and equity balance.

The capital structure of the Group consists of net debt (borrowings disclosed in Note 19 after deducting cash and bank balances) and equity of the Group (comprising issued capital, reserves, retained earnings and non-controlling interests).

The Group's risk management committee reviews the capital structure on a semi-annual basis. As part of this review, the committee considers the cost of capital and the risks associated with each class of capital. The Group has a target gearing ratio not over 1 time determined as the proportion of net debt to equity. The gearing ratio as at December 31, 2021 was 0.57 time (2020: 0.71 time) at below the target range.

38.6 Classes and categories of financial instruments and their fair values

The following table combines information about:

- Classes of financial instruments based on their nature and characteristics
- The carrying amounts of financial instruments
- Fair values of financial instruments (except financial instruments when carrying amount approximates their fair value) and
- Fair value hierarchy levels of financial assets and financial liabilities for which fair value was disclosed
- Fair value hierarchy levels 1 to 3 are based on the degree to which the fair value is observable

The carrying values of cash and cash equivalents, trade receivables, other receivables, amounts due from related parties, short-term loans and interest receivables from related parties, trade payables, other payables, amounts due to related parties, interest payables, accrued bonus expense and short-term borrowings and interest payable to a related party approximate their fair values due to the short maturity period.

The carrying values of long-term loans to related parties and long-term borrowings from financial institutions with floating interest rate, long-term borrowings from a related party and lease liabilities, the fair values approximate their carrying values.

Unit : Million Baht

Consolidated financial statements

As at December 31, 2021	Carrying Value					Fair Value		
	Financial assets		Financial liabilities			Level		
	FVTPL - mandatorily measured	FVTOCI - designated	Amortised cost	FVTPL - mandatorily measured	Amortised cost	1	2	3
						Total		Total
Cash and cash equivalents	-	-	11,236	-	-	11,236	-	-
Trade accounts receivable	-	-	13,785	-	-	13,785	-	-
Other receivables	-	-	119	-	-	2,742	-	-
Amounts due from related parties	-	-	2,923	-	-	2,923	-	-
Other non-current financial assets	-	1,689	-	-	-	1,689	52	1,637
Other non-current assets	-	-	27	-	-	182	-	-
Trade payables	-	-	-	-	28,671	28,671	-	-
Other payables	-	-	-	-	2,297	3,239	-	-
Amounts due to related parties	-	-	-	-	272	272	-	-
Interest payables	-	-	-	-	195	195	-	-
Accrued bonus expense	-	-	-	-	1,955	1,955	-	-
Current derivative liabilities	-	-	-	28	-	28	28	28
Long-term loan from a related party	-	-	-	-	31	31	-	-
Long-term borrowings from financial institutions	-	-	-	-	37,107	37,107	-	-
Debentures	-	-	-	-	23,972	23,972	24,596	24,596
Lease liabilities	-	-	-	-	222	222	-	-
Non-current derivative liabilities	-	-	-	223	-	223	223	223
Other non-current liabilities	-	-	-	-	313	342	-	-
					29			

	Consolidated financial statements							Unit : Million Baht			
	Carrying Value				Fair Value						
	Financial assets		Financial liabilities		Level	1	2		3	Total	
	FVTPL - mandatorily measured	FVTOCI - designated	Amortised cost	FVTPL - mandatorily measured							Amortised cost
Cash and cash equivalents	-	-	8,851	-	-	-	-	-	-	-	-
Trade accounts receivable	-	-	9,626	-	-	-	-	-	-	-	-
Other receivables	-	-	411	-	-	2,000	-	-	-	-	-
Amounts due from related parties	-	-	154	-	-	-	-	-	-	-	-
Other non-current financial assets	-	1,692	-	-	-	-	53	-	1,639	1,692	-
Non-current derivative assets	141	-	-	-	-	-	-	141	-	-	141
Other non-current assets	-	-	27	-	-	318	-	-	-	-	-
Trade payables	-	-	-	-	23,983	-	-	-	-	-	-
Other payables	-	-	-	-	2,771	950	-	-	-	-	-
Amounts due to related parties	-	-	-	-	365	-	-	-	-	-	-
Interest payables	-	-	-	-	210	-	-	-	-	-	-
Accrued bonus expense	-	-	-	-	1,159	-	-	-	-	-	-
Current derivative liabilities	-	-	-	341	-	-	-	341	-	-	341
Long-term borrowings from financial institutions	-	-	-	-	43,058	-	-	-	-	-	-
Debentures	-	-	-	-	18,873	-	-	19,207	-	-	19,207
Lease liabilities	-	-	-	-	189	-	-	-	-	-	-
Non-current derivative liabilities	-	-	-	154	-	-	-	154	-	-	154
Other non-current liabilities	-	-	-	-	659	28	-	687	-	-	-

Unit : Million Baht

As at December 31, 2021	Separate financial statements																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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Unit : Million Baht

	Separate financial statements						Fair Value		
	Carrying Value			Level					
	Financial assets	Financial liabilities		Level		Total	1	2	3
	FVTPL - mandatorily measured	FVTOCI - designated	Amortised cost	FVTPL - mandatorily measured	Amortised cost	Non-financial assets and non-financial liabilities	1	2	3
Cash and cash equivalents	-	-	8,553	-	-	-	-	-	-
Trade accounts receivable	-	-	9,711	-	-	-	-	-	-
Other receivables	-	-	409	-	-	1,991	-	-	-
Amounts due from related parties	-	-	166	-	-	-	-	-	-
Short-term loans and interest receivables from related parties	-	-	17	-	-	-	-	-	-
Other non-current financial assets	-	1,691	-	-	-	-	53	-	1,638
Long-term loans to related party	-	-	190	-	-	-	-	-	-
Non-current derivative assets	141	-	-	-	-	-	-	141	-
Other non-current assets	-	-	25	-	-	318	-	-	-
Trade payables	-	-	-	-	23,919	-	-	-	-
Other payables	-	-	-	-	2,722	929	-	-	-
Amounts due to related parties	-	-	-	-	383	-	-	-	-
Interest payables	-	-	-	-	210	-	-	-	-
Accrued bonus expense	-	-	-	-	1,144	-	-	-	-
Current derivative liabilities	-	-	-	-	-	-	-	-	-
Long-term borrowings from financial institutions	-	-	-	341	-	-	-	341	-
Debentures	-	-	-	-	43,058	-	-	-	-
Lease liabilities	-	-	-	-	18,873	-	-	19,207	-
Non-current derivative liabilities	-	-	-	-	179	-	-	-	-
Other non-current liabilities	-	-	-	154	-	-	-	154	-
	-	-	-	-	660	-	-	-	-

As at December 31, 2020

Fair value measurement

Level 1

The fair values of other non-current financial assets, which are available-for-sale are based on quoted bid price by references from the Stock Exchange of Thailand as at the end of reporting period.

Level 2

The fair values of Thai Baht debentures are calculated by applying the latest reference yield rate referred from the Thai Bond Market Association.

The fair values of derivatives, which are forward foreign exchange contracts, interest rate 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 statements 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 statements of financial position date which the reasonableness is tested for those prices.

Level 3

The fair values of other non-current financial assets, which are non-marketable securities are based on the net asset method whereby the information is reasonably available.

The Company has no transfer between level 1 and level 2 in current year and prior year.

Reconciliation of Level 3 fair value measurements of financial instruments

The following table only demonstrates financial assets. The financial liabilities measured subsequently at fair value on Level 3 represent contingent consideration relating to a business combination. No gain or loss for the year relating to this contingent consideration has been recognised in profit or loss.

	Consolidated financial statements	Unit : Million Baht Separate financial statements
	Other non-current financial assets - unlisted shares	Other non-current financial assets - unlisted shares
Balance as at January 1, 2020	1,626	1,625
The effects from first-time adoption of new accounting policies	5	5
Total gains or losses:		
in other comprehensive income	8	8
Balance as at January 1, 2021	1,639	1,638
Total gains or losses:		
in other comprehensive income	(2)	(2)
Balance as at December 31, 2021	1,637	1,636

39. COMMITMENTS, LETTERS OF GUARANTEE AND SIGNIFICANT AGREEMENTS**(a) Commitments under agreements**

As at December 31,	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2021	2020	2021	2020
Contracted but not recognised in the financial statements				
- Purchase agreements for machinery and construction	12,585	1,271	12,570	1,254
- Consultation agreements	458	267	457	267
- Other agreements	1,002	912	1,011	889
Total	14,045	2,450	14,038	2,410

During 2021, the Company has entered into the construction contracts for a new plant with the contractors. The contracts price is totaling Baht 10,953 million.

(b) Non-cancellable operating lease commitments

As at December 31,	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2021	2020	2021	2020
Office building rental agreements:				
Not later than 1 year	1	2	1	2
Later than 1 year but not later than 5 years	-	-	-	-
	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>
Vehicle rental agreements:				
Not later than 1 year	2	2	2	2
Later than 1 year but not later than 5 years	-	-	-	-
	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
Computer rental agreements:				
Not later than 1 year	38	14	38	13
Later than 1 year but not later than 5 years	8	13	8	12
	<u>46</u>	<u>27</u>	<u>46</u>	<u>25</u>
Total commitments under lease agreements	<u>49</u>	<u>31</u>	<u>49</u>	<u>29</u>
Service agreements:				
Not later than 1 year	27	78	26	77
Later than 1 year but not later than 5 years	13	31	13	30
Total commitments under service agreements	<u>40</u>	<u>109</u>	<u>39</u>	<u>107</u>

(c) Letters of guarantee and other commitments

As at December 31,	Consolidated		Unit : Million Baht	
	financial statements		Separate	
	2021	2020	2021	2020
Letters of guarantee:				
Bank guarantees	<u>150</u>	<u>150</u>	<u>148</u>	<u>148</u>
Other commitments:				
Outstanding letters of credits	<u>146</u>	<u>70</u>	<u>115</u>	<u>70</u>

(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.

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. Later, the notification from the Eastern Economic Corridor Policy Committee has been announced in the Royal Gazette indicates that the Company's tank farms are now located in a purple zone and able to operate the oil and gas tank farms.

(e) Use in public ways and gutters

The Company has filed a petition for the removal of public ways and gutters in accordance with Section 8 of the Land Code by providing the appropriate land for exchange with the public ways and gutters. The Company has also filed a request for permission to use the state land under Section 9 of the Land Code, which is located in the IRPC Industrial Zone Project at Ban Laeng sub-district, Ta Phong sub-district and Choeng Noen sub-district, Muang Rayong district, Rayong province. Currently, the Company has been granted the permission to use the state land under Section 9 of the Land Code and has also filed a request for a renewal of such permission within the period specified by the laws. Regarding the removal of the public ways and gutters under Section 8 of the Land Code, the Company is in the process of execution and considering of the relevant government agencies (see Note 40).

(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, 2021. The Company has extended the agreement to December 31, 2022. 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, 2022. 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.

Compensation Agreement for Emission Reduction

On November 29, 2019, the Company entered into the Compensation Agreement for Emission Reduction of Nitrogen Oxides with a related party to provide the emission reduction of Nitrogen Oxides service within IRPC Industrial Park. The Company will receive compensation as specified in the agreement which is effective from November 29, 2019 until December 31, 2028.

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 2022. The service fees are stipulated in the agreements.

40. SIGNIFICANT CLAIMS AND LEGAL PROCEEDINGS

The President of the Administrative Organization-Tambon Ban Laeng and 11 government agencies and Minister of Interior and 9 others

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 of Rayong Province to suspend or dismiss any activities of the Company in expansion IRPC Industrial Zone Project, which it is the public ways and gutters in disputed area (see Note 39 (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 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. Subsequently, the Administrative Court has ordered that July 29, 2020 was the last day of investigation and has dismissed the case on August 27, 2020. The plaintiffs also submitted a petition of appeal to Supreme Administrative Court on September 23, 2020. The Supreme Administrative Court accepted the appeal of the plaintiffs and has ordered the defendants to revise the appeal. On December 21, 2020, the Company submitted the revision appeal to Supreme Administrative Court. As at December 31, 2021, the case is in the process of considering of the Supreme Administrative Court's appeal.

In 2019, Ms. Phayung Meesabai and the other 4 plaintiffs filed a lawsuit to Minister of Interior and 9 others requesting the Administrative Court to suspend the removal of public ways and gutters process (see Note 39 (e)). On January 15, 2019, the Company submitted the petition as a defendant and additionally submitted the docket to the Court on June 14, 2019. Subsequently, the Administrative Court has ordered that August 5, 2020 was the last day of investigation and has dismissed the case on September 25, 2020. The plaintiffs also submitted a petition of appeal to Supreme Administrative Court on October 22, 2020. The Company submitted the revision appeal to Supreme Administrative Court on March 4, 2021 and as at December 31, 2021, the case is in the process of considering of the Supreme Administrative Court's appeal.

41. RECLASSIFICATIONS

Certain reclassifications are made to the interim consolidated and separate financial statements as at December 31, 2020, to conform to the classifications used in the interim consolidated and separate financial statements as at December 31, 2021, as follows:

Account Name	As at December 31, 2020		Previous Classification	Unit : Million Baht
	Consolidated financial statements	Separate financial statements		Current Classification
Advance payment	117	115	Other current assets	Other receivables
Prepaid expenses	510	503	Other current assets	Other receivables
Accrued income	198	198	Other current assets	Other receivables
Unearned revenue	49	32	Other current liabilities	Other payables
Accrued expenses	436	413	Other current liabilities	Other payables
Retention	9	9	Other payables	Other current liabilities

42. EVENTS AFTER THE REPORTING PERIOD

On February 8, 2022, the Board of Directors' meeting of the Company passed a resolution to distribute an annual dividends from operating result of 2021 at Baht 0.22 per share for 20,434 million shares, totalling Baht 4,496 million which the Company already paid the interim dividend at Baht 0.08 per share on September 23, 2021 as described in Note 35. Therefore, the remaining dividend to be paid is at Baht 0.14 per share for 20,434 million shares, totalling Baht 2,861 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 2022 for further consideration and approval.

43. APPROVAL OF THE FINANCIAL STATEMENTS

These financial statements have been approved for issue by the Company's Board of Directors on February 8, 2022.

ABOUT THIS REPORT

GRI102-45, GRI102-50, GRI102-51,
GRI102-52, GRI102-54, GRI102-56

Section 3 Business-driven sustainability

IRPC has disclosed sustainability performance information to stakeholders through the annual Sustainability Report and the corporate website on a yearly basis. In 2021, IRPC adjusted the disclosure format to take the form of “Annual Registration Statement/Annual Report 2020 (Form 56-1 One Report), combining them as One Report as shown in Section 3 Business-driven sustainability, as well as disclosing such information on the website www.irpc.co.th in the Sustainable Development section, as is the case each year, to communicate material issues relating to sustainability of our business operations to all stakeholders. This report also contains current status and progress on the implementation of the United Nations Global Compact (UNGC) by preparing a report in accordance with the guidelines for the Annual Registration Statement/Annual Report, Form 56-1 One Report, of Office of the Securities and Exchange Commission (SEC) and the Sustainability Reporting Guideline (Standards) of the Global Reporting Initiative (GRI) at the level of Core Option and additional indicators for companies in the Oil and Gas Sector Disclosure. In its latest Sustainability Report 2020, IRPC maintained the scope of reporting on business driven sustainability in Form 56-1 One Report 2021, covering economic, social and environmental operations between January 1 and December 31, 2021, approved by the Board of Directors, the Chief Executive Officer and President as well as high-level executives from relevant departments, and reviewed and audited by KPMG Phoomchai Audit Co., Ltd. to reassure all stakeholders as to its accuracy, reliability and in alignment with the business operation that is also traceable to the sources of information in every respect.

Disclosure of operating results, covering all businesses operated directly or owned by IRPC through shareholding, include IRPC Public Company Limited, as well as subsidiaries under IRPC’s management, with over 50 per cent of shares held by IRPC, are: 1) IRPC Oil Company Limited; 2) IRPC A&L Company Limited; 3) IRPC Technology Company Limited; and 4) iPolymer Company Limited; along with Rakpasak Company Limited, whose shares are held indirectly by IRPC through its subsidiaries, amounting to more than 50 per cent. The scope of reporting corresponds to other topics contained in this report and from the website. www.irpc.co.th.

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Assurance Report



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Independent limited assurance report

To the Directors of IRPC Public Company Limited (“IRPC”)

Conclusion

Based on the procedures performed, as described below, nothing has come to our attention that causes us to believe that the selected subject matters (“Subject Matters”) identified below and included in the Sustainability Report 2021 (the “Report”) for the year ended 31 December 2021, are not, in all material respects, prepared in compliance with the reporting criteria (the “Criteria”).

Our Responsibilities

We have been engaged by IRPC and are responsible for providing a limited assurance conclusion in respect of the Subject Matters for the year ended 31 December 2021 to be included in the Report as identified below.

Our assurance engagement is conducted in accordance with the International Standard on Assurance Engagements ISAE 3000 *Assurance Engagements other than Audits or Reviews of Historical Financial Information*, and ISAE 3410 *Assurance on Greenhouse Gas Statements*. These standards require the assurance team to possess the specific knowledge, skills and professional competencies needed to provide assurance on sustainability information, and that we plan and perform the engagement to obtain limited assurance on whether the Subject Matters are prepared, in all material respects, in compliance with the Criteria. We have complied with the independence and other ethical requirements of the International Ethics Standards Board for Accountants’ *International Code of Ethics for Professional Accountants (including International Independence Standards)* (IESBA Code), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. The firm applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

We have not been engaged to provide an assurance conclusion on any other information disclosed within the Report.

Subject Matters

Subject Matters comprised of the following data expressed numerically or in descriptive text for the year ended 31 December 2021:

- GRI 302-1 Energy consumption within organization
- GRI 303-3 Water withdrawal (2018)
- GRI 303-4 Water discharge (2018)
- GRI 303-5 Water consumption (2018)
- GRI 305-1 Direct (Scope 1) GHG emissions
- GRI 305-2 Energy indirect (Scope 2) GHG emissions
- GRI 305-3 Other indirect (Scope 3) GHG emissions
- GRI 305-7 Nitrogen oxide (NOx), sulfur oxides (SOx), and other significant air emissions
- GRI 306-3 Significant spill (2016)
- GRI 306-3 Waste generated (2020)
- GRI 306-4 Waste diverted from disposal (2020)
- GRI 306-5 Waste directed to disposal (2020)
- GRI 403-9 Work-related injuries (2018)
- GRI 403-10 Work-related ill health (2018)
- GRI 405-2 Ratio of basic salary and remuneration of women to men
- OGSD - OG6 Volume of flared and vented hydrocarbon
- OGSD - OG13 Number of process safety events, by business activity



Criteria

The Subject Matters were assessed according to the following criteria:

- The Sustainability Reporting Standards of the Global Reporting Initiative (“GRI Standards”) with core option; and
- The Oil and Gas Sector Disclosures (“OGSD”);

Directors’ and management’s responsibilities

The directors and management of IRPC are responsible for the preparation and presentation of the Subject Matters, specifically ensuring that in all material respects the Subject Matters are prepared and presented in accordance with the Criteria. This responsibility also includes the internal controls relevant to the preparation of the Report that is free from material misstatement whether due to fraud or error.

Procedure performed

In forming our limited assurance conclusion over the Subject Matters, our procedures consisted of making enquiries and applying analytical and other evidence gathering procedures including:

- Interviews with senior management and relevant staff at corporate and operating sites;
- Inquiries about the design and implementation of the systems and methods used to collect and process the information reported, including the aggregation of source data into the Subject Matters;
- Inquiries about managements practices and procedures related to identifying stakeholders and their expectations, determining material sustainability matters and implementing sustainability policies and guidelines;
- Remote site visit to 2 sites; Ethylene plant and Atmospheric Distillation Units 1 (ADU1) plant, selected on the basis of risk analysis including the consideration of both quantitative and qualitative criteria;
- Agreeing the Subject Matters to relevant underlying sources on a sample basis to determine whether all the relevant information has been included in the Subject Matters and prepared in accordance with the Criteria.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement and consequently the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Accordingly, we do not express a reasonable assurance opinion.

Inherent limitations

Due to the inherent limitations of any internal control structure it is possible that errors or irregularities in the information presented in the Report may occur and not be detected. Our engagement is not designed to detect all weaknesses in the internal controls over the preparation and presentation of the Report, as the engagement has not been performed continuously throughout the period and the procedures performed were undertaken on a test basis.

Restriction of use of our report

Our report should not be regarded as suitable to be used or relied on by any party wishing to acquire rights against us other than IRPC, for any purpose or in any other context. Any party other than IRPC who obtains access to our report or a copy thereof and chooses to rely on our report (or any part thereof) will do so at its own risk. To the fullest extent permitted by law, we accept or assume no responsibility and deny any liability to any party other than IRPC for our work, for this independent limited assurance report, or for the conclusions we have reached.

KPMG PHOONCHAI AUDIT LTD.

KPMG Phoomchai Audit Ltd.

Bangkok

7 March 2022





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