



BEAT
THE
TARGET



About This Report

Prepared under the principles of The International Integrated Reporting Council (IIRC), this integrated report of IRPC approaches internationally accepted report preparation to communicate key business issues as well as issues of interest to stakeholders to enable them to appreciate and access IRPC's data more readily. The report also covers updates of its compliance with the United Nations Global Compact (UNGC).

Integrated reports are essentially an annual report integrated with sustainability contents of economic, social, and environmental performance, which helps investors focused on sustainability and long-term value creation harness data, leading to more accurate decision-making.

IRPC will be increasingly committed to this approach of key data communication in all formats and channels for the most efficient access to data by all stakeholders in a responsible and high-standard fashion.



VISION

LEADING INTEGRATED PETROCHEMICAL
COMPLEX IN ASIA BY 2020



MISSION

OPERATIONAL EXCELLENCE

HIGH PERFORMANCE

ORGANIZATION

CORPORATE SOCIAL
RESPONSIBILITY

VALUE CREATION

INNOVATION & CREATION
OF NEW BUSINESS



VALUES

- I** INDIVIDUAL OWNERSHIP
- S** SYNERGY
- P** PERFORMANCE EXCELLENCE
- I** INNOVATION
- R** RESPONSIBILITY FOR SOCIETY
- I** INTEGRITY & ETHICS
- T** TRUST & RESPECT



Power of GDP

Power of Growth, Power of Digital, Power of People
Three foundations of power driving IRPC's business growth, equipped with over Baht 70 billion's worth of investment projects. (Go to page 13)



MEMBER OF

**Dow Jones
Sustainability Indices**

In Collaboration with **RhbernSAM**



Sustainability Award
Gold Class 2019



Sustainability Award
Industry mover 2019

IRPC is recognized as a world leader in the Oil & Gas Refining and Marketing category of DJSI while maintaining its DJSI membership for the fifth consecutive year.

(Go to page 22)



SDGs 17

IRPC achieved goals for social project execution in line with all 17 SDGs.

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Lam Sai Yong Model

A prototype CSR project for water and drought management created social returns of Baht 2.19 for each Baht of investment.

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MESSAGE FROM THE CHAIRMAN



“

2018 marked another year of IRPC's strength to firmly put its feet on the energy and petrochemical path amid economic volatility and decreasing oil prices, with **EBITDA of THB 18.344 billion and a net profit of THB 7.735 billion**. The achievement resulted partly from the implementation of projects under the development strategy.

”

Mr. Chansin Treenuchagro
Chairman

Dear Shareholders,

The Board of Directors has defined the vision for IRPC to be the “Leading Integrated Petrochemical Complex in Asia by 2020” and formulated corporate strategic plans for the short term and the long term to ensure its growth in line with the devised direction and plans to achieve the ultimate goal within the specified timeframe.

2018 marked another year of IRPC’s strength to firmly put its feet on the energy and petrochemical path amid economic volatility and decreasing oil prices, with EBITDA of THB 18.344 billion and a net profit of THB 7.735 billion. The achievement resulted partly from the implementation of projects under the development strategy to improve performance efficiency, process improvement, including organizational management to incessantly move forward in all aspects—HR development, production, innovation, new investment projects, financial management, and becoming a leading digital company that conducts business in a social, community and environmentally responsible manner in line with the 3Ps principles (People, Planet and Prosperity). The success was a result of accurate forecast, continual preparedness, and the competency, commitment and dedication of the management and employees in efficiently managing and conducting the business under the supervision of the Board and its four committees.

The Board is pleased and honor to inform our shareholders that, in addition to our business achievements, IRPC has been recognized by domestic as well as international accredited organizations and institutions with numerous awards of honor in various fields. In particular this year, IRPC was ranked World Leader of the Oil & Gas Refining & Marketing Industry by DJSI (Dow Jones Sustainability Indices) and retained its membership for the fifth consecutive year. In addition, IRPC was ranked in a “Gold Class” in The Sustainability Yearbook 2019 and The Industry Mover with the highest score, and highest score improvement from the previous year. The ranking should ensure shareholders that IRPC is committed to conducting business with continuous development, transparent information disclosure, and a focus on internal control and anti-corruption, while

exerting its potential and readiness to become a world-leading sustainable organization.

Moreover, in 2018, the Board put its full efforts in performing its roles for the utmost benefit of the company. The Board, jointly with the management, assisted in the development and problem-solving, ensured sufficiency of risk management with proper auditing, and conducted business under good corporate governance, social responsibility, fairness to all stakeholders, and respect for human rights. It also supported IRPC to become a learning organization, promoted innovation, and created a new business model with emphasis on R&D with a conviction that they are the foundation for IRPC to leap forward and contribute to essential business value creation. Directions for corporate growth was regularly defined through prudent strategic analysis covering all related factors and impacts so as to achieve concrete success for IRPC.

On behalf of the Board of Directors, I would like to express my heartfelt appreciation to everyone for their confidence in, support to, and cooperation with IRPC through the years—the shareholders, customers, business partners, government agencies, academicians, financial institutions, communities, the media, independent organizations, and to the President, executives and employees of IRPC and its affiliates for their remarkable performance, which have contributed to our great success this year. On January 30, 2019 Mr. Sukrit Surabotsopon will complete his term as President, and the Board has appointed Mr. Noppadol Pinsupa as the new President with effect from February 1, 2019. Thanks to the potential of our executives and employees, equipped with cutting-edge operating systems, I believe that IRPC will grow from strength to strength in the right directions with its business and organization health and will become a corporate governance organization with social responsibility and corporate citizenship. The success will doubtlessly multiply value addition for the shareholders and returns for stakeholders and Thailand.



MESSAGE FROM THE PRESIDENT



I wish to take this opportunity to thank the shareholders and all stakeholders for their continued support to our business execution and would like to assure you of the competency and potential of the new President who will undoubtedly lead IRPC to sustainable growth and in the best interests of shareholders, society and all stakeholders.



Mr. Sukrit Surabotsopon
President

(Appointed: 1 Oct 2013 - 30 Jan 2019)



Dear Shareholders,

IRPC's performance for 2018 was lower than the target due to the drastic drop of oil prices toward the end of the year from the increased oil supply, in particular from the US, and the lower-than-expected global economic expansion, which resulted in stock losses in the fourth quarter. Nevertheless, IRPC has generated profits from other investment projects, including the Upstream Project for Hygiene and Value-Added Products (UHV), which has increased the efficiency of UHV units for further value addition by increasing gasoline capacity to over 25 million liters per month; the Fully Integrated Polypropylene Expansion Project and the Polypropylene Compounding Project (PPE/PPC) to increase polypropylene capacity by operating commercially throughout the year for the first time; and other significant projects under the strategic plans—the EVEREST Forever (E4E) Project, a continuation of the Everest Project to increase efficiency as well as additional profits for the company, and IRPC 4.0, which applied state-of-the-art digital systems and technologies to enhance corporate performance efficiency. All these projects rendered IRPC THB 18.344 billion in EBITDA and Baht 7.735 billion in net profit.

The year 2019 will be extremely challenging, as IRPC has set a target for a higher profit than previous years, with the GDP strategic plan as the driver covering EVEREST Forever, MARS, Galaxy, and R&D Excellence under the Digital strategy, and HR Excellence under the People strategy, with IRPC DNA as the driving force. As such, I am confident that we will achieve the goal.

IRPC has defined a vision to be the “Leading Integrated Petrochemical Complex in Asia by 2020”, a grave challenge that needs the collaboration of all across the company. IRPC has refined its HR management system to perfection in all aspects so as to pursue “HR Excellence” through appropriate organization restructuring for flexible management, while cultivating essential corporate values of the workforce to enhance their capability, recruiting qualified personnel, creating career motivation, and developing leadership, all of which will lead to a good corporate culture in line with corporate growth.

Besides business value addition for the utmost satisfaction of the shareholders, IRPC adheres to the philosophy for sustainable growth with the right balance between the economy, society, community and the environment. This year IRPC set a policy to set aside a budget of 3% of the past three years' average profits for social and environmental projects nationwide to foster confidence among communities and society.

The success of this past year signified implementation under a clear vision, goals, policies and strategies, together with the commitment and dedication of the Board, executives and the workforce in their duties. As I retire as President on January 30, 2019, I wish to take this opportunity to thank the shareholders and all stakeholders for their continued support to our business execution and would like to assure you of the competency and potential of the new President, Mr. Noppadol Pinsupa, who will undoubtedly lead IRPC to sustainable growth and in the best interests of shareholders, society and all stakeholders.



“

Please accept my deep gratitude for your trust and be assured of my commitment to performing the tasks assigned to me as director and President with utmost efficiency, honesty, integrity and in an ethical and transparent manner to ensure that IRPC can create added value for business growth in the long run.

”

Mr. Noppadol Pinsupa
President

(Appointed: 1 Feb 2019 - Present)

Dear Shareholders,

IRPC has defined an investment plan to drive the corporation under three powers, or “GDP”. For the first element, G: Power of Growth, IRPC has invested in key projects such as aromatics capacity expansion or MARS (Maximum Aromatics Project), which is expected to see increases in paraxylene capacity to 1.3 million tons a year. The project is scheduled to be completed and commercially operated in 2023: the continuing EVEREST Forever (E4E) Project to increase efficiency and revenue for the entire IRPC together with corporate health, and Galaxy to expand the business to cover upstream and downstream. Concerning the second element, D: Power of Digital, or power of technology, we aim to achieve this by employing state-of-the-art digital systems and technologies to enhance the efficiency of production and management operating processes, save costs and time, as a way to manage risk for maximum efficiency through IRPC 4.0. Finally, P: Power of People, we seek to achieve this through human resource development of international standards, to make the most of the potential of all executives and employees for the maximum benefit of the company.

Besides setting the vision to become the “Leading Integrated Petrochemical Complex in Asia by 2020”, IRPC has focused on product R&D for a better quality of life and environment, and strive to raise the proportion of special product processing to enhance its competitiveness and seek new long-term business opportunities leading to the upgrading of R&D competency to be on a par with leading international companies. In 2018 IRPC’s innovation “Convert HDPE Plant to Specialty Pipe-Grade” won the “Best Innovative

Company Awards” from the SET Awards and the “Innovative Organization Award” from the National Innovation Agency (Public Organization) (NIA).

IRPC is committed to business conduct under corporate governance principles together with social responsibility, the core pillars of corporate governance, to drive IRPC to become a firm and sustainable Leading Integrated Petrochemical Complex in Asia. This earned IRPC the Best Sustainability Awards from SET for two consecutive years and the NACC Integrity Award 2018, presented by the Office of the National Anti-Corruption Commission. IRPC was also one of the 13 organizations from the public, private and state enterprise sectors awarded with the Thailand Quality Class (TQC) Award 2018. These remarkable awards represent IRPC’s sustainable growth that everyone at the company should be proud of.

May I take this opportunity to express my sincere appreciation to the shareholders and the Board of Directors and our customers, business partners, financial institutions, communities, and the workforce as well as all related parties for the support to and confidence in IRPC’s business conduct. Please accept my deep gratitude for your trust and be assured of my commitment to performing the tasks assigned to me as director and President with utmost efficiency, honesty, integrity and in an ethical and transparent manner to ensure that IRPC can create added value for business growth in the long run in the best interests of all stakeholders and uphold the faith and social value expected from IRPC.



NATURE OF BUSINESS

A Southeast Asian integrated petrochemical pioneer, IRPC owns a refinery and petrochemical complexes located in its own Rayong industrial zone. The zone fully contains infrastructure and basic utilities supporting industries, including a deepsea terminal, oil tank farm, and a power plant. Below is its business description: petroleum, petrochemical, and supporting businesses.

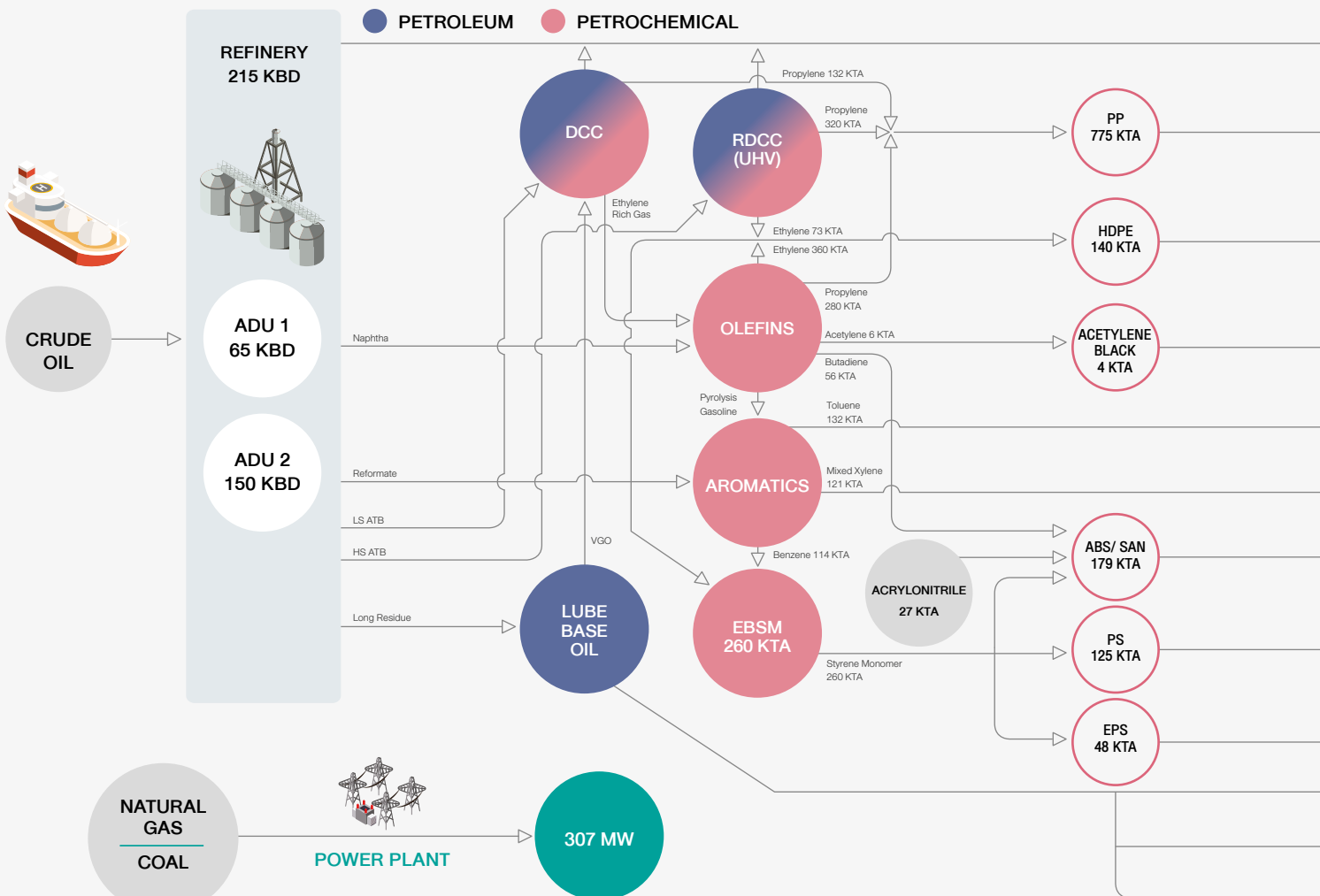
Petroleum business

IRPC's oil refining unit commands a total capacity of 215,000 barrel per day (bpd). The third-largest refinery in Thailand, it yields LPG, naphtha, gasoline, diesel, and fuel oil. Its Lube Base Oil Group 1 plant commands a total capacity of 320 thousand tons per year (KTA), whereas an associated asphalt plant's total capacity is 600 KTA—the largest domestic capacities. IRPC is also a producer of raw materials for tire manufacturing and rubber process oil, whose quality has won international quality acceptance under the Terramaxx brand.

Petrochemical business

IRPC's upstream products consist of olefins (1,221 KTA) and aromatics (367 KTA) and styrene monomer (260 KTA). Sold under the POLIMAXX brand to plastic manufacturers, polyolefins consist of HDPE and PP (915 KTA capacity) and styrenics consist of ABS, SAN, EPS, PS and Nano (352.1 KTA capacity). It creates innovative styrenics products, namely Green ABS, SVNR, ABS Powder, Anti-dripping Additive, Anti-Bacterial Additive & Compound, UHMW-PE, Polyolefins Catalyst and Bio-Maxx-LCement

Integrated Refinery and Petrochemical Complex Flow Chart



Supporting businesses

Power and public utilities IRPC provides electricity, steam, and basic public utility services along with other public utility systems, an industrial water-system, a pneumatic system, and wastewater treatment system, including sale and lease of land for industrial purposes, and other land plots.

Port and tank services These services consist of terminals for transfer of domestic and international cargoes. IRPC commands full infrastructure, complete with modern amenities. Available services include liquid tankfarms for petroleum products and petrochemicals along with modern, efficient, and safe management systems.

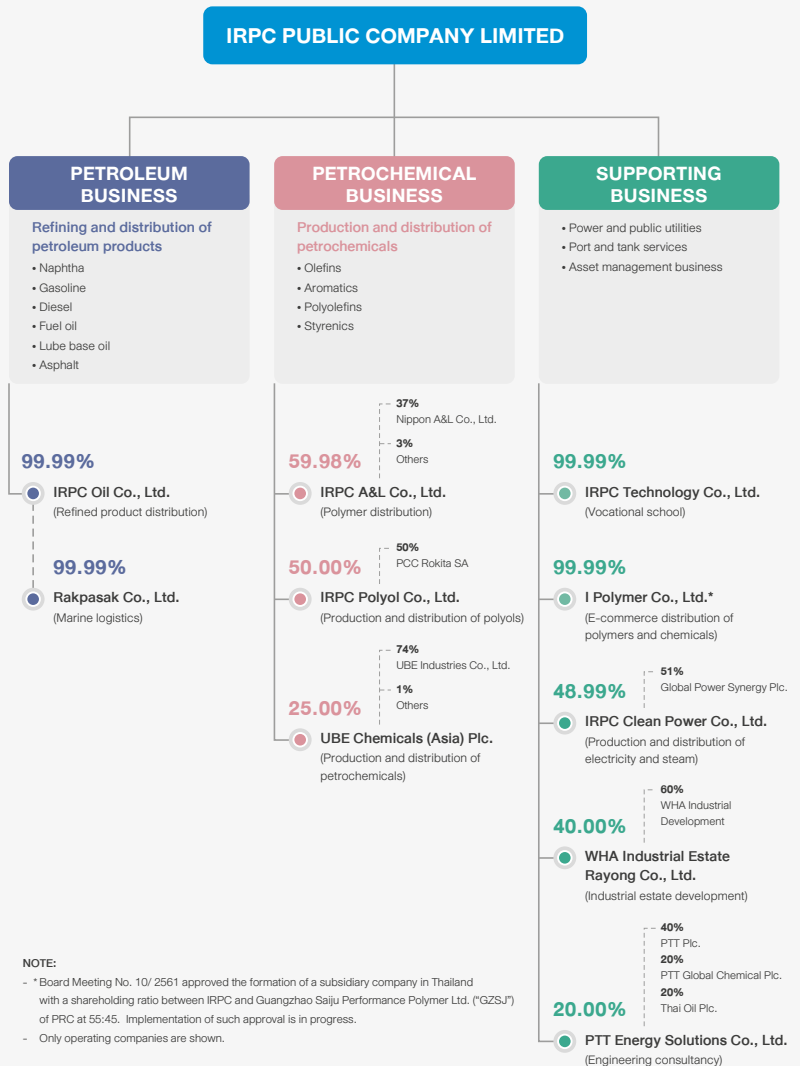
- **Bulk & container terminal (BCT):** The six sub-wharfs handle vessels ranging from 800 to 150,000 DWT, serving general cargoes, including iron ores, palm shells, coal, and mineral ores. The current annual cargo volumes exceed 1.5 million tons, and the terminal handles over 240 vessels a year.

- **Liquid & chemical terminal (LCT):** The port features six sub-wharfs, handling vessels ranging from 1,000 to 250,000 DWT. This petrochemical-liquid & petroleum terminal handles petrochemicals, liquid petroleum, and gaseous cargoes. The annual cargo volume is about 16.5 million tons. LCT handles more than 2,100 vessels a year.
- **Tankfarm service:** Four IRPC oil depots are located in Rayong, Phra Padaeng, Phra Nakhon Si Ayutthaya, and Chumphon. Service is provided through more than 300 tanks for liquid petroleum and petrochemical products with a storage capacity of 2.9 million tons, designed to accommodate IRPC's oil product distribution and third parties alike.

Asset management business IRPC manages high-potential land in Rayong and other provinces with a total acreage of some 12,000 rai to develop such land into EIZ (Eco-Industrial Zone) projects, complete with public utility systems fully supporting industries and accommodating the Eastern Economic Corridor Development Project (EEC)—an investment promotion scheme under public policy.

Business Structure and Shareholding

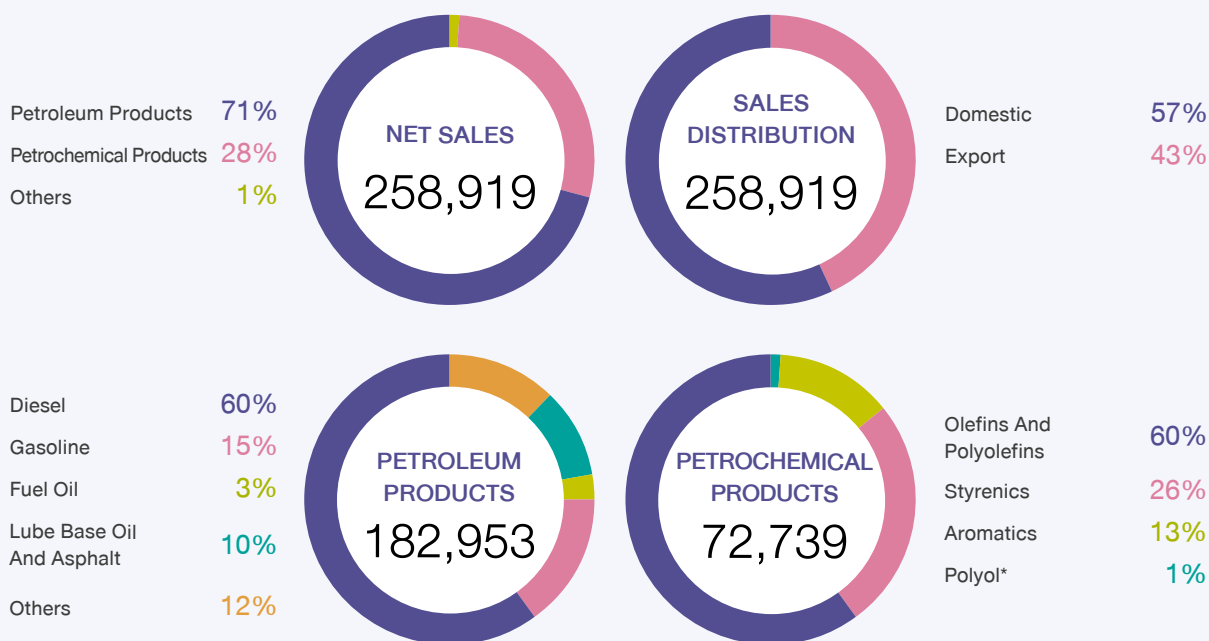
FINISHED PRODUCTS	APPLICATIONS
LPG, GASOLINE, DIESEL, FUEL OIL	Fuel
PP	Auto Part, Clear Food Bag, Fruit Juice Bottle, Diaper, Saline Bottle, Milk Bottle
HDPE	Water Pipe, Electric Wire Cord, Floating Solar Buoy
ACETYLENE BLACK	Battery, Auto Tire, Lithium Battery, Auto Battery
TOLUENE	Solvent and Petrochemical Feedstock
MIXED XYLENE	Solvent and Petrochemical Feedstock
ABS/ SAN	Toy, Electrical Appliance, Auto Part, Household Utensil
PS	Cosmetic Container, Frozen Food Container, Electrical Appliance
EPS	Cushion Foam for Electrical Appliances, Heat Insulator for Construction Work
LUBE BASE OIL 320 KTA	Lubricant
TDAE 50 KTA	Ingredient in Tires
ASPHALT 600 KTA	Construction Materials for Road





HIGHLIGHTS OF OPERATIONS

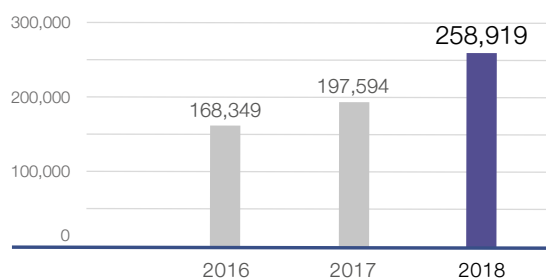
(Unit: Million Baht)



* Polyol product was sold during January - April 2018 because the Company sold additional shares of IRPC Polyol on April 30, 2018. Hence, as at December 31, 2018, the Company and PCC each hold 50% of IRPC Polyol's shares and the status of investment in IRPC Polyol was changed from a subsidiary to a joint venture.

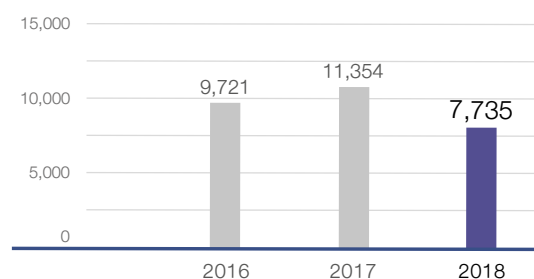
NET SALES

(Unit: Million Baht)



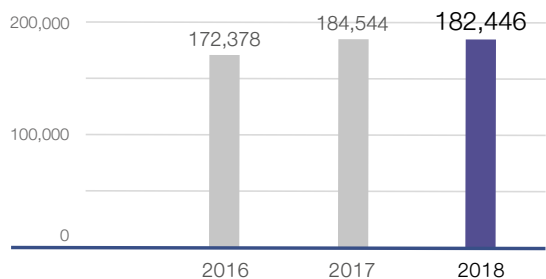
NET PROFIT

(Unit: Million Baht)



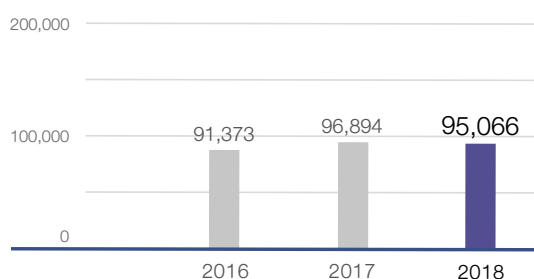
TOTAL ASSETS

(Unit: Million Baht)



TOTAL LIABILITIES

(Unit: Million Baht)



*For more details on "Financial highlights", please refer to the 2018 Annual Report pages 12 at http://www.irpc.co.th/en/pdf/Annual_Report_2018_en.pdf and the 2018 Financial Report at http://www.irpc.co.th/en/pdf/Financial_Report_2018_en.pdf



IRPC's vision is to become a **leading integrated petrochemical complex in Asia by 2020**. We strive to strengthen our business for sustainable business growth and accommodate future market needs in parallel with our stewardship of society, communities, and the environment with the implementation of various strategic projects through the years. The ultimate goal is to enable the corporation to achieve its vision.

2010



- Operational Efficiency Improvement
- Asset Utilization Enhancement
- Product and Service Improvement
- Capacity and Products Expansion

2014



Margin Improvement

- Operational Excellence
- Commercial Excellence
- Procurement Excellence
- HR Excellence

Other Projects Completion

CAPACITY	BEFORE	AFTER
CHP I		
• Electricity	108 MW	307 MW
• Steam	200 T/hr	664 T/hr
PRP	312 KTA	412 KTA
EBSM	200 KTA	260 KTA

Benefit **+135** MUSD

2016



Incremental Margin and Organization Health

- Capability Building
- Owner mindset & Performance Orientation
- Cultural Changes

CAPACITY	BEFORE	AFTER
PROPYLENE (UHV)	412 KTA	732 KTA

Fully Integrated PP

CAPACITY	BEFORE	AFTER
PP (PPE-PPC)	475 KTA	775 KTA

2018



POWER GDP

- G** Power of Growth
- D** Power of Digital
- P** Power of People



- INDIVIDUAL OWNERSHIP
- SYNERGY
- PERFORMANCE EXCELLENCE
- INNOVATION
- RESPONSIBILITY FOR SOCIETY
- INTEGRITY & ETHICS
- TRUST & RESPECT



LEADING INTEGRATED PETROCHEMICAL COMPLEX IN ASIA BY 2020



Revenue Growth of 5%
EBITDA Growth of 10%



1st Quartile ROIC in Petroleum and Petrochemical Industry



Member of DJSI Emerging Markets Universe



ECONOMIC PERFORMANCE

Business operation

IRPC is committed to becoming Asia's leading petrochemical company. This year its EBITDA amounted to Baht 18.344 billion and net profit Baht 7.735 billion. Below are the highlights of our projects.

Petroleum business

IRPC strives to keep domestic customers while growing its exports to Indochinese countries with high demand.

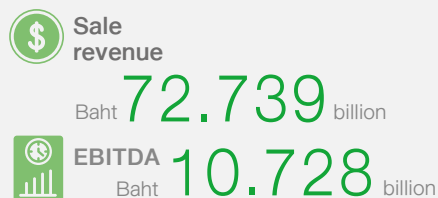
This year the business grossed Baht 182.953 billion in sales revenue, an increase of Baht 47.828 billion (35%) over the previous year, whereas EBITDA came to Baht 5.496 billion. Domestic revenue accounted for 57%; export revenue, 43%.



Petrochemical business

To profit through incremental spreads, IRPC focuses on promoting and supporting R&D of special-grade products, deciding the sales proportions of these products at 60% by 2020.

This year the petrochemical business generated Baht 72.739 billion in sales revenue, an increase of Baht 13.011 billion (22%) over the previous year; domestic sales accounted for 56%; exports 44%. EBITDA totaled Baht 10.728 billion.



Other support businesses

Power and utilities IRPC focuses on providing quality and integrated services for the continuity of industrial customers' businesses, with due regard for communities, society, and the environment. This year saw Baht 3.227 billion made in revenue, an increase of Baht 486 million (18%) over the previous year.

Port and tank farm Relentlessly, IRPC has improved the quality of its product tanks and port services to meet customers' diverse needs. This year the business generated Baht 876 million, 21% up from the previous year. The port business accounted for 43% of revenue; the tank farm businesses, 57%.

Asset management IRPC's goal is to manage and develop commercial land into eco-industrial zones (EIZs)—including industrial estates, industrial zones, and high-potential land. This year it generated THB 269 million, which was closed to the previous year of THB 268 million.



Performance Indicators	2018 Performance	2018 Target	2019 Target
Petroleum Business: Customer Satisfaction (Percentage)	89	89	89
Petrochemical Business: Customer Satisfaction (Percentage)	89	90	90
Port and Asset Business: Customer Satisfaction (Percentage)	85	80	85

Business key performance indices

This year IRPC conducted a customer survey to discover that all business groups had achieved their goals under a plan to foster and improve customer satisfaction focusing on efficient after-sales service.

"For more details on "Business key performance indices", please refer to the 2018 Corporate Sustainability Report pages 52-53 at [http://www.irpc.co.th/en/pdf/Sustainable_Development_Report_\(SD%20Report\)_2018_en.pdf](http://www.irpc.co.th/en/pdf/Sustainable_Development_Report_(SD%20Report)_2018_en.pdf)



Key strategic project operation

Power of GDP

The Power of GDP strategic element contains directions and strategies underlined by three following key power foundations

1

Power of Growth

▲ POWER OF GROWTH

Raise the productivity of petrochemicals for growth and development of high-value products. The four key projects are

- **EVEREST Forever (E4E) Project :** This project extends the successes of the Everest Project, designed to add efficiency and generate incremental profits from enterprise business. This year IRPC reaped Baht 9.367 billion in profit
- **Maximum Aromatics (MARS) Project:** This is a paraxylene production project with a capacity of 1.3 million tons per year (TPA) and benzene, with a capacity of 500 KTA, value addition to feedstock through advanced processing technology. It adds the proportion of petrochemicals from 17% to 27% by weight. Commercial operation is due by the end of 2023.
- **Galaxy Project :** This represents cooperation with business allies to extend and create incremental profits by investing and co-investing to forge synergy.
- **R&D Excellence Project :** This project seeks to develop high-value products through innovation excellence focusing on core products and New S-Curve opportunities.

2

Power of Digital

▲ POWER OF DIGITAL

Digital application enhances business efficiency and develops customer services, known as the IRPC 4.0 Project, made up of

- **OPS 4.0:** Smart Operation (AI) for production control and planning, leveraging artificial intelligence
- **ISC 4.0:** Analysis of customers' buying behavior and business partners' readiness to deliver feedstock for IRPC's supply chain management
- **CCM 4.0:** Solution to Customer-Centric Digital needs by accessing customers' needs and addressing them swiftly
- **PRO 4.0:** Striving for Lean Procurement and improving procurement planning efficiency
- **ERP 4.0:** Emphasis on assisting data management methods and corporate IT infrastructure toward excellence.

3

Power of People

▲ POWER OF PEOPLE

Our approach for human resource management entails a suitable corporate structure and cultivation of a corporate values leading to a new corporate culture in line with IRPC's growth. Three key projects are

- **Truly embed and Live the IRPC DNA** Cultivate understanding among employees and continually measure responses to IRPC DNA.
- **Develop Next Generation of Top 30 Leaders** Prepare development plans to recruit personnel to sustain future changes in the corporation.
- **Continue to Establish Lean, Fit-for-Purpose Organization** Design the organizational structure and plan HR allocation for extension of success.



"For more details on "Key strategic project operation", please refer to the 2018 Annual Report pages 169-173 at http://www.irpc.co.th/en/pdf/Annual_Report_2018_en.pdf

Key strategic Project operation



The UHV (Upstream Project for Hygiene and Value-Added Products): Project went commercial in 2016. It improves the quality of low-value heavy oil and add value to it. Key products consist of propylene and heavy naphtha, with propylene serving as feedstock for the PPE and PPC projects, whereas heavy naphtha is feedstock for paraxylene under the MARS Project. IRPC extended work on UHV as described below.

- **Gasoline Maximization:** This undertaking raised the gasoline capacity from 95 million to 120 million liters a month, raising income by about Baht 870 million a year.
- **Residue Deep Catalytic Cracking (RDCC Catalyst Reformulation) Project:** This project raised propylene output from 18% to 20%, wrapped up in August 2018.
- **UHV Catalyst Cooler Project:** This heat-exchanger installation project grows process capability by using heavy oil as a raw material while doing away with temperature constraints in the catalyst regenerator. It is due for completion in the first quarter of 2019.
- **Fully Integrated Polypropylene Project:** This project improves and expands the PP capacity to 300 KTA, giving IRPC a total capacity of 775 KTA. Two mini-projects make up this project: PPE (PP Expansion Project), which grows capacity to 635 KTA and PPC (PP Compounding Project), where high-efficiency “In-line Compounding” technology is used for the 140-KTA operation. Today both projects are operated at full steam.

Production operations

IRPC’s goal is to raise processing efficiency with uninterrupted processes that are stable and focus on processing excellence. This year IRPC fed a total of 76.05 million barrels (208 KBD) into distillation processes. The capacity utilization then stood at 97%, a 13% rise over last year. Below are the highlights of production operations.

Process stability maintenance

IRPC carried out the Inspection Roadmap and the Plant Health Check Projects, and applied the Integrated Database Management System (idMS) to help it analyze all incidents. This year’s plant reliability posted 99.86% performance against the goal of 99.5%.

Energy management

IRPC raised energy efficiency by replacing fuel oil with more natural gas and controlled hydrocarbon compound losses while cutting pollutant emissions. The energy intensity index (EII) met the goal of 89%, equivalent to energy reduction of 939,206 gigajoules, or Baht 364 million’s saving.

Safety and occupational health management

IRPC relied on the TIS/OHSAS 18001 safety standard and promoted safety first for personal and process safety, the Total Recordable Incident Rate is 0.39 cases per million-man hours, which is better than target of 0.47 cases per million-man hours.

Improvement of environmentally friendly (green) processes

IRPC executed strategies for efficient resource management by improving green processes, promoting clean energy, and applying the 3Rs (reduce, reuse, recycle) to the management of water, air, and waste.

Research and Development Operation

Leveraging the R&D Excellence strategy, IRPC upgrades its capability on a par with world-class corporations. The highlights of key R&D operation are as follows

- Introducing digitalization (innovation process) in project management, enabling systematic monitoring through an R&D Dashboard.
- Seeking new S-Curve and business opportunities through the De Novo Research R&D program focusing on electronic materials, energy storage, and nanomaterials. Work is due to start in 2019.
- Supporting new joint research efforts with leading academic institutions and leading corporations through an open innovation mechanism.
- Construction of the New IRPC Innovation Center to accommodate product R&D tasks, set to rise in the future, with a completion date in 2019.
- Modification of the Product Development Committee meeting format to stress mutual decision-making among all business units involved.

Product highlights

HDPE PE100 HDPE PE100 “Convert HDPE Plant to Specialty Pipe Grade”, High Density Polyethylene Pipe (HDPE) PE100 is engineering plastic pipes that are pressure resistant, impact resistant and crack resistant. It has superior quality to other plastic pipes, including more than 50 years’ longevity, sunlight resistance, environmental stress resistance, easy installation both inside and outside buildings, hydraulically smooth operation with no strain, pressure resistance with zero leak, ductility and self-restraint. In addition, HDPE PE 100 is highly popular and in high demand. The quality of polymers and pipes are controlled by international standards such as ISO/DIS 9080 and ISO 4427. This product won “Best Innovative Company Awards” at SET Awards 2018.

Bio-Maxx L-Cement: The New Direction for Cement Product Designs A bioplastic with good compatibility with other fillers. Using Bio-Maxx with cement reduces time required for work piece production. Using Bio-Maxx L-Cement allows simple injection molding. It produces lighter-weighted, sturdy work pieces, reduces production time, and enables recyclability.

High Thermal Conductivity Acetylene Black for Tire Bladder Acetylene black carbon powder increases thermal conductivity efficiency and shortens the curing process of rubber compounds while maintaining the balance of reinforcement. Good thermal conductivity enhances tire life and reduces production costs.

EPS Flame Retardant HBCD Free DIN 4102 B2 Class for Building and Construction This EPS has the property of a fire retardant under DIN 4102 Class B2 Expanded Polystyrene (EPS) standard. It has long-lasting insulation properties, suitable for construction work. IRPC’s fire retardant is also environmentally friendly.

UHMWPE for Li-Ion Battery Separator UHMWPE serves as a separator in lithium-ion batteries. This IRPC powder product suits film molding with thickness less than 30 micrometers for separators that meet the United States Advanced Battery Consortium (USABC) standard. The micro-porous membrane separates the anode from contact with the cathode. The membrane prevents fires and explosion of batteries if the temperature of the batteries is excessive.



Level up the R&D and Innovation Capability to Become World-class Fast Follower by 2020



Current research projects number 60. Projects currently in the R&D Portfolio are worth Baht 940 million. This year IRPC had 15 research projects that brought new products to the market worth Baht 223 million. IRPC continued proposing more new research projects so that R&D efforts can add value to constantly meet targets.



Increase R&D budget by

1.5%

of Petrochemical sales



Increase R&D personnel employment to carry out product research by

4

people /1 new product



Increase the proportion of doctoral personnel by

30%



Budget of THB

732

million for the construction of the New IRPC Innovation Center



For more details on “Research and Development Operation”, please refer to the 2018 Annual Report pages 187-191 at http://www.irpc.co.th/en/pdf/Annual_Report_2018_en.pdf



RISK MANAGEMENT PERFORMANCE

Risk Management Policy

IRPC strives to develop systematic risk management in line with international practices. The Risk Management Committee defines a policy and oversees corporate risk management. This year IRPC restructured its risk management for more inclusiveness by appointing a Risk Management and Internal Control Committee and a Hedging Committee to provide oversight and efficiently track risk management outcomes. IRPC has also applied

the ISO 31000:2009 (Risk Management – Principles and Guidelines) and COSO – Enterprise Risk Management to risk management. Tools were developed to give risk management more effectiveness and aid analysis of business risk factors in parallel with the advocacy and cultivation of risk management as part of corporate culture.

Business risk mitigation approaches



Price volatility risks

IRPC closely monitors and analyzes price situations for preparedness and constantly finds new grades of crude oil for greater flexibility in choosing diverse grades with lower costs. It cuts production costs by managing energy and fuel efficiency and duly manages inventories.



Financial risks

IRPC structures its loans and debentures in foreign currencies by relying on natural hedge. In short, the management of foreign-currency loans proportionally to revenue tied to foreign currencies. IRPC manages funding risks for its business plans through monitoring factors affecting or involving capital sourcing so as to secure capital as planned at a suitable cost of funds.



Operation risks

IRPC systematizes a production stability management system for continuity and efficiency. It focuses on integrated enterprise environmental management and applies OEMS fully to ensure that various aspects of work are always efficient and effective. It develops a BCP (business continuity plan) for emergencies.



Capital project risks

This year IRPC initiated the Maximum Aromatics (MARS) Project to add value to refined products by converting them to petrochemicals, including paraxylene. IRPC has prepared risk mitigation measures to support and efficiently drive the project toward its goals in a comprehensive manner.



Policy and regulatory risks

IRPC forges awareness among employees in strictly complying with policies, laws, and regulations. It monitors and prepares for public policy-making that may affect businesses. It develops risk management plans and an up-to-date regulation database for efficient compliance with various regulations.

IT security risks

IRPC operates a Security Operation Center (SOC) to supervise and audit access to various corporate systems and quickly under ISO 27001 (Information Security Management System) certification to boost confidence in the effectiveness and corporate IT security.

Organizational capability risks

IRPC nurtures and develops organizational capability through its core values. The Power of People element has therefore become part of key strategies by cultivating the corporate culture for work through the IRPC DNA. It defines a suitable corporate restructuring and defines succession plans for key positions to enable job transfers to go smoothly.

Community and social risks

IRPC proceeds under the CSR approach called CSR in process, develops social impact assessment (SIA) and social return on investment (SROI) through its social projects, which include the Open House activities, for community residents to visit operation up-close to establish their appreciation. IRPC also regularly joins emergency drills with communities and public agencies.

Emerging risks



World oil output capability risks

The world oil output capacity to satisfy consumers' demand is currently at its peak (Peak Oil), or 2030-2040, after which world oil output will dwindle with lower demand. This phenomenon is caused by technological changes, much improved engine efficiency, and the growing popularity of EV cars. Therefore, IRPC has drawn up a long-term management approach by defining strategies for conversion of petroleum into petrochemicals, implemented in 2014-2023. A case in point is the UHV Project. In future, heavy naphtha and aromatics will undergo conversion to paraxylene; this project is due for completion in 2023.



Climate change risks

IRPC has devised measures to prevent and mitigate these risks by investigating the application of carbon pricing in assessing future project viability defined a measure to lower the intensity of greenhouse gas emissions; and prepared the corporate carbon footprint. Finally, IRPC has eased the impacts of drought and flooding through its sustainable water management plan, for instance, its water resource management project under the community water management project.

Environmental risks

IRPC focuses on strict business compliance with laws, safety and environmental protocols, the TIS/OHSAS 18001 management standard for occupational health and safety, and the ISO 14001 environmental management standard. It also commands VOCs reduction along with vigilance at risky points by taking proactive action and cooperating with the Department of Industrial Works in developing an EIZ (Eco-Industrial Zone).





MARKET OVERVIEW AND INDUSTRY OUTLOOK

Petroleum Market Overview and Outlook

2018 Overview

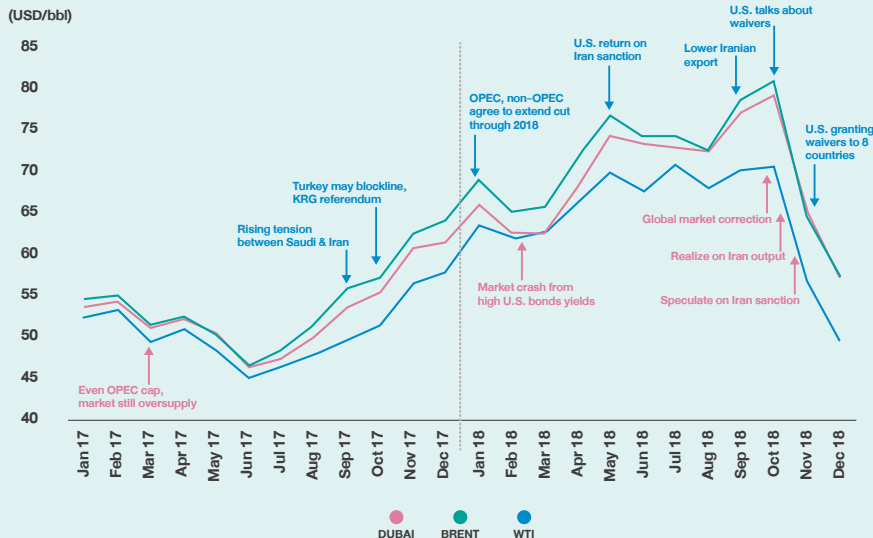
- The 2018 Dubai oil price averaged USD69/bbl, increasing from USD53/bbl in the previous year, due to rising demand for crude oil and the agreement between members of the OPEC and no-OPEC bloc on an output cut. The oil market was, however, under pressure from the U.S. economic sanction on Iran.
- The Dubai price drop began after the U.S. announcement of economic sanctions on Iran with a relaxation term to allow exports from Iran to China, India, South Korea, Turkey, United Arab Emirates, Japan and Taiwan for the first 180-day period. The price nosedived further to USD57/bbl at the end of 2018, when additional supply was added from Russian production increase and the return of crude oil exports from Iraq after the one-year frozen period.
- Thailand's 2018 overall domestic energy consumption rose (2.2% for gasoline, 1% for diesel) due to 4.2% GDP growth in the first nine months. Electricity consumption rose 2.3%. Gasohol 95 consumption rose 7.2% and gasohol E85, 12.3%.

2019 Outlook

- With the current global GDP projection of 3.7%, the crude oil market is expected to grow by 1.1-1.3 million bbl/day. The main factor against economic growth will be the trade war between the U.S. and its global trade partners. The supply is predicted to be tight.
- The PRISM Expert team of PTT predicted the Dubai crude price to swing within the USD70-80/bbl range during 2019. Other long-term factors contributing to the global crude price are the Green policy and digital technology, which will transform the entire industrial supply chain and eventually alter consumers' behavior and the demand pattern of energy.



Crude Oil Price Movement 2017-2018



Source: Platts & Reuters

Petrochemical Market Overview and Outlook

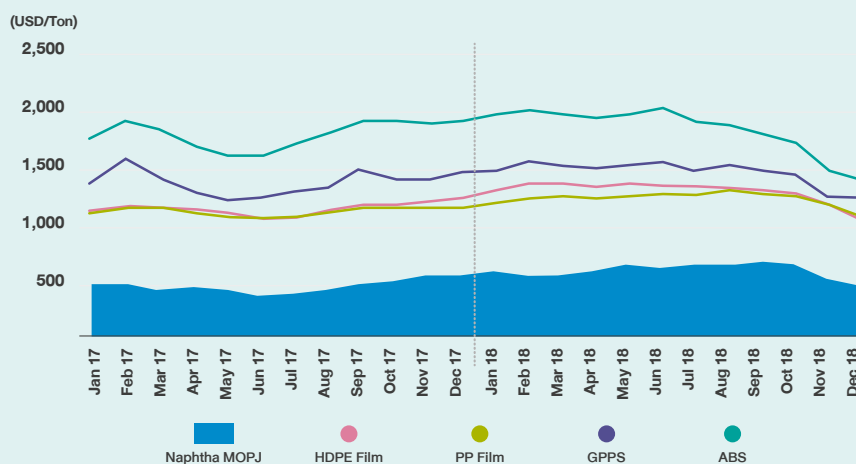
2018 Overview

- NESDB reported its projection of the 2018 Thai GDP at 4.2-4.7%, also driving petrochemical growth, supported by the economic expansion following continuous growth in domestic consumption and recovery of exports.
- The 2018 domestic demand for petrochemical products grew by 3.0-4.5%. Exports of Thai polymers are set to grow only 1-3% per year since Thailand's main markets, namely China, Indonesia, and Vietnam had rising capacities and lower imports; however, the export value grew 5-10% per year, corresponding to the increase in petrochemical prices and demand.
- The prices of polypropylene rose 16.87% to average USD1,324/ton, high-density polyethylene (HDPE) increased 17.21% to average USD1,351/ton, polystyrene jumped 8.89% to average USD1,324/ton, and ABS grew 16.87% to average USD1,882/ton. The prices of monomers moved in the same direction: ethylene rose 7% to average USD1,147/ton, propylene jumped 20% to average USD979/ton, and styrene monomers increased 5% to average USD1,307/ton.

2019 Outlook

- The petrochemical industry in 2019 will fluctuate with the world crude price due to OPEC's revised lower demand projections. Down by 70,000 bpd, OPEC's latest projection will grow by only 1.29 million bpd. Production from the non-OPEC bloc will likely increase to 2.23 million bpd.
- The impacts of the trade war would likely check the economic growth of the U.S. and China in 2019, with numbers down to 0.2% and 1.16%, and 0.27% and 0.95% in 2020. Because of the U.S.-China trade war, members of the ASEAN-5 group (Malaysia, Indonesia, Philippines, Singapore and Thailand) will be under more pressure from China. The growth of the group could drop from 5.3% in 2018 to 5.2% in 2019.
- NESDB reported on November 19, 2018, that the 2019 Thai economy would grow by 3.5-4.5%, supported by household spending and higher investments by the public and private sectors. A negative factor remains on the trade war between the U.S. and China, as the Chinese RMB currency becomes weak under China's policy to cushion impacts. With a prediction that the U.S. Fed will increase the interest rate three more times in 2019, the baht will likely become volatile. Under this assumption, Thai petrochemical export is likely to increase by USD1 billion and import by USD1.4 billion.

Chart: display prices of raw materials/feedstock and petrochemical products



Source: ICIS



Port and Tank Business Market Overview and Outlook

- IRPC deployed strategies to attract new customers and generate more revenue from major customers. It made improvement in the port for petrochemicals and liquefied petroleum gas (LPG) to support shipment of its new products generated from various projects and from external projects. These products accounted for 16.5 million tons. For the tank services, more than 760,000 tons was delivered through pipes in 2018. The increase was made possible by expansion of the tank system mostly for ethanol and methanol, with some crude oil and refined products.
- With growth projection of 3.5-4.5%, the economic growth of Thailand will be driven by export, which is set to rise 4.6%, and private consumption and investment are also set to rise by 4.2% and 5.1% respectively. The overall economy will likely be boosted by several mega-projects, most of which are initiated by the government. These sizeable projects will subsequently drive growth in the steel industry. Higher volumes of port activities are therefore expected.
- IRPC will focus on offshore services, fabrication projects and marine commodity transport, to support the EEC mega-project. For port services for petrochemical and liquefied petroleum products, IRPC focuses on development and expansion plan in 2019 to cope with more production.



Asset Management Business Market Overview and Outlook

- With WHA Industrial Development Public Company Limited (WHAID), IRPC founded a new company to prepare for asset management business opportunities in the EEC mega-project. The Eastern Special Development Zone Act was promulgated on May 14, 2018.
- Several land properties have been upgraded for more value, including the annexation of land property in Pa Yup Nai Subdistrict, Wang Chan District, Rayong, to the EECi (Eastern Economic Corridor of Innovation) to support the national strategy.
- IRPC, in addition, plans to develop their valuable land properties in Chana District, Songkhla. The 2,200-rai land plot is to be developed for an industrial park and commercial services to support future expansion of a deep-sea port and a power plant under the Southern Economic Corridor (SEC) scheme.



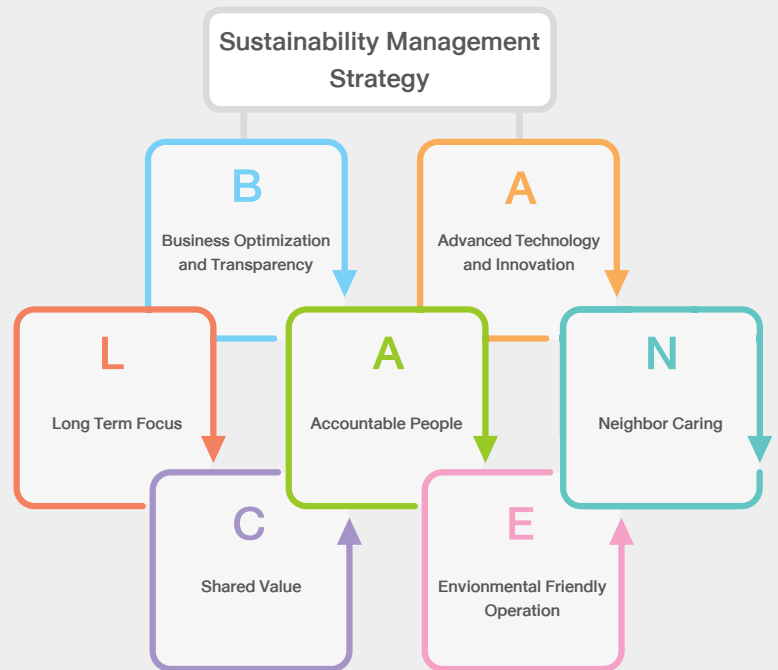
SUSTAINABILITY MANAGEMENT PERFORMANCE

Sustainability Management Policy

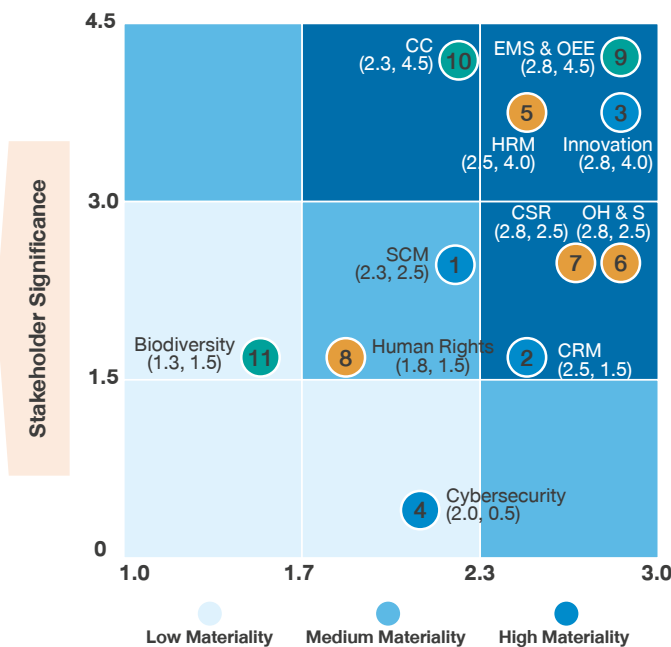
IRPC's Sustainability Management Office manages overall corporate sustainability strategies. IRPC Group's Sustainable Business Operation Committee defines sustainability policies and strategies embracing promotion of business in parallel with economic, social, environmental, and corporate governance aspects and oversees, monitors, supports, and promotes execution of sustainability tasks for IRPC.

Materiality Assessment

Each year IRPC conducts stakeholders' sharing of views through its questionnaires and interviews to obtain their views, expectations, and concerns. All these play a vital role in IRPC's success. It leverages the input in conducting "materiality assessment" for defining corporate strategies.



Sustainability Materiality Prioritization



GENERAL DISCLOSURE

- A Business Diversification & Digitization
- B Business Ethics & Corporate Governance
- C Risk & Crisis Management
- D Stakeholder Engagement

ECONOMIC

- 1 Supply Chain Management
- 2 Customer Relationship Management
- 3 Innovation & Product Stewardship & Specialty Products
- 4 Cybersecurity **NEW**

SOCIAL

- 5 Human Capital Development, Labor Practica Indicator, Talent Attraction & Retention
- 6 Asset integrity & Occupational Health and Safety
- 7 Contribution to Community and Society & Managing Impacts on Communities
- 8 Human Rights

ENVIRONMENTAL

- 9 Environment Management, Operational Eco-Efficiency
- 10 Climate Change Adaptation & Water Related Risk Management
- 11 Biodiversity Management **NEW**

"For more details on "Sustainability management", please refer to the 2018 Annual Report pages 236-241 at http://www.irpc.co.th/en/pdf/Annual_Report_2018_en.pdf and the 2018 Corporate Sustainability Report pages 122-123 at [http://www.irpc.co.th/en/pdf/Sustainable_Development_Report_\(SD%20Report\)_2018_en.pdf](http://www.irpc.co.th/en/pdf/Sustainable_Development_Report_(SD%20Report)_2018_en.pdf)

Assessment of Human Rights Impacts

IRPC defined a human rights policy in 2017 and included human rights principles in its policy on legal compliance and compliance with its articles of association and corporate governance. For impact assessment for human rights of IRPC Industrial Zone, this year the company extended such assessment to five oil depots (Ayutthaya, Phra Padaeng, Rayong, Mae Klong, and Chumphon), embracing six aspects of the value chain, namely labor rights, community rights, supply chain, security, the environment, and consumers' rights. The findings would find their way toward planning for thorough management of impacts of the human rights issue.

Sustainability Management Performance

DJSI Industry Leader ranking



MEMBER OF
**Dow Jones
Sustainability Indices**
In Collaboration with RobecoSAM

Our DJSI membership was certified for a fifth consecutive year (with a top score) as an Oil and Gas Refining and Marketing leader for 2018 along with the Gold Class Sustainability Award 2019 from RobecoSAM. The assessment and ranking of sustainable development embraces economic, social, and environmental aspects through transparent disclosure as captured below

- **Economic:** Added value through the Everest and GDP strategies, fostering thorough confidence
- **Environmental:** Continually reduced pollutant release and improved the efficiency of energy management, and exercised stewardship of the surroundings and communities
- **Social:** Respect for human rights, employees' participation, improvement of organization health, and continual engagement of external communities.

SD Academy Project

This project of six workshops for the top management from vice presidents, division heads, to section heads, as well as the key units in charge of sustainable development, was offered in 2016-2017. This year the office extended such training to operators in Rayong.

TQC certification

IRPC was named one of the 13 business entities that won TQC (Thailand Quality Class) awards in 2018. It is obliged to present its best practices to other entities to share expertise, which represents collaboration to develop capability and heighten competition in other domestic industries.

IRPC ECO Industrial Zone

IRPC's EIZ certificate application underwent assessment by a panel of auditors and assessors. Endorsement and certification by an EIZ town development expert committee resulted in IRPC EIZ Level 5 (Happiness)—the top level. IRPC was also certified for five more plants for a total of 25; the goal is to achieve certification for all plants by 2020.



QSHE Policy

- 1 Systematically manage by employing six codes, P-E-O-P-L-E, under the Operational Excellence Management System (OEMS) covering 12 elements and promote the use of quality management tools.
- 2 Systematically plan and manage risks, establish control measures to reduce risks and demonstrate social responsibility for security, safety, occupational health, environmental and energy management related to the operations in all organizational processes.
- 3 Comply with laws, regulations, covenants and requirements related to quality, security, safety, occupational health, the environment and energy management.
- 4 Develop plans, establish goals and implement the plans to control risks and mitigate impacts under international standards and best practices in the petrochemical and refining industry by using 7Rs principles in parallel with engineering control of resource management, waste management, greenhouse gas emissions, energy management, and process safety management.
- 5 Care for and promote health, occupational health and work environment for the workforce and communities.

QSHE Performance

Quality

IRPC implements OEMS as its core quality management system in the corporation, consisting of 12 core operational scopes and the components for effectiveness evaluation in content, deployment, conformance and performance. It also applies quality improvement tools, including 5S, QCC and Kaizen to increase operational efficiency of machine maintenance under Total Productive Maintenance and Management (TPM), integrating it with OEMS.

Safety

IRPC values safety and forges safety awareness under the i-CAREs safety culture to move toward becoming a safe organization, accident-free and without emergency incidents as well as implementing the ISO 45001 throughout the corporation.

Personal Safety

IRPC stipulates policy requirements and goals to the workforce and contractors so that they may share a common responsibility to create accident-free and emergency-free operations through key projects and activities, including the “Safety Walk & Talk” activity, the “Safety Excellence Award” program, and the GOAL ZERO program, progressing to Step 4, with the longest period of 135 days without any accident. IRPC initiated the Behavior Safety Management (BMS), a program designed to encourage the workforce to demonstrate the safety culture through a sense of caring, complimenting safe behavior.

Process Safety

IRPC operates under OEMS and complies with U.S. OSHA (U.S. Occupational Health and Safety Administration) and Center for Chemical Process Safety (CCPS) standards to maximize process safety efficiency, including development of the E-Contractor, E-Permit, E- MoC and idMS (Incident Management System) and centralize contractor database management and all incident management. The goal is to generate more confidence among the workforce in process safety.

Occupational health

IRPC implements proactive health care by conducting industrial hygiene surveys to identify heat, light, sound and chemical exposure to improve the work environment and assess health risks among employees. An annual medical examination plan is in place for employees as well as risk-based checkups. An E-Health Book tracks the results of personal examination and forms part of databases in accordance with laws.

QSHE Management Statistics

Process safety statistics

	Process Safety Events Tier 1 (Case)	0	0	0	0
	Process Safety Events Tier 2 (Case)	2	0	0	0
	Plant Reliability (Percentage)	99.9	99.4	99.5	99.6
	Operational Availability (Percentage)	97.5	97.4	97.6	97.6
	Unplanned Shut Down (Case per year)	11	9	7	5
Key Performance Indicators		2018 Performance	2018 Target	2019 Target	2020 Target

Personal safety

Employee and Contractor	TRIR (case per million hours worked)	0.40	0.47	0.43	0.38	0.36
	TROIR (case per million hours worked)	0	0	0	0	0
	Goal Zero Accident Target (Day)	135	599	599	999	999
Key Performance Indicators		2018 Performance	2018 Target	2019 Target	2020 Target	2021 Target

Environment

IRPC is certified with ISO 9001, ISO 45001, and ISO 14001 international standards. Using the Integrated Management System (IMS) as a scope for environmental management efforts resulted in more efficient resource management. In addition to environmental quality monitoring both inside and outside IRPC premises, environmental performance data are verified by external parties every year.

Air pollution management

Greenhouse Gas Emission Reduction

IRPC recognizes the criticality of reducing greenhouse gas emissions and of moving toward becoming a low-carbon society. It has also established a Life-Cycle Inventory (LCI) together with a goal for reducing greenhouse gas emissions by 13.19% by 2020 from 2012.

Managing Volatile Organic Compounds (VOCs)

IRPC has executed a plan to continually improve and control VOCs emissions and releases, control emission at sources and reduce wasteful emission, together with regular air monitoring to ensure no impact on the environment and communities. This year IRPC implemented a program to eliminate odor from the central wastewater treatment system at an initial investment of Baht 30 million. IRPC continued its efforts to reduce VOCs released from the internal tank shell, due to begin in 2019.

Air Quality Control and Surveillance

IRPC has established six air monitoring stations around the premises to monitor air quality 24 hours a day. Online monitoring data are displayed publicly on screens at over 15 locations. Air Quality Measurement Daily Reports (AQMs Daily Reports) are also shared via social network, such as LINE and Facebook.

Waste management

IRPC recognizes potential significant impacts on the environment concerning soil and groundwater contamination by reducing the quantity of industrial waste to be disposed of by landfill, such as shipping waste for cement kilns for use as fuel. Efforts also included using more environmentally friendly disposal methods. All efforts have resulted in a reduction of waste disposed at landfill of less than 0.4% of the total waste generated this year. IRPC has established a goal to reduce waste disposal to landfill to zero by 2020.

Water management

IRPC harnesses water management strategy to lower dependence on natural water sources, develop water sources, and manage water to meet communities' and its own demand. It establishes community engagement in water management for mutually sustainable development. In 2019 IRPC plans to launch the i-water project to improve its integrated water management database, in which data can be leveraged for planning and managing future water consumption.

Complaint management

IRPC appointed a committee in charge of resolving environmental complaints to track problem-solving and fund efforts to ease environmental impacts, causing a steady drop in complaint statistics. It also requires employees and contractors to report safety risks through a center for safety complaint-handling at all times; they are also entitled to stop work at once amid unsafe work conditions.

Green Industry **4**
Awards
9 Plants

5 consecutive year of **DJSI** membership

with the top score among the leaders of the oil and gas refining and marketing

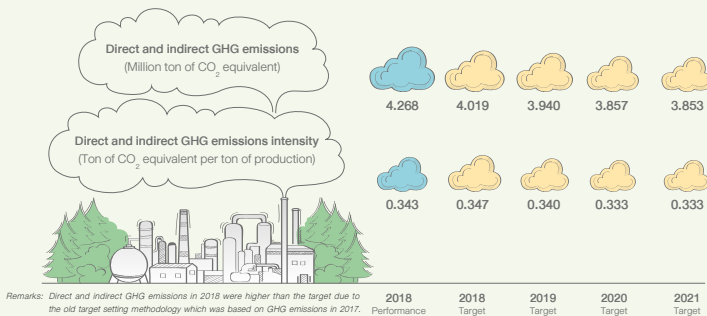
for **2018** 

IRPC was ranked in a **Gold Class** and The **Industry Mover** with the highest score, and highest score improvement from the previous year.

Environmental Management Statistics

Air pollution management statistics

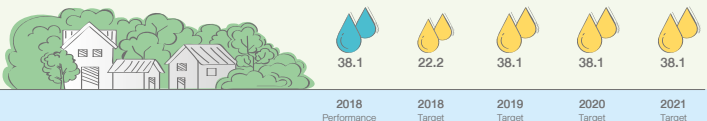
GHG Emissions Reductions



Water management statistics

Water Resource Management

Accumulated Reduction of Water Withdrawal from Natural Water Sources (Percentage)



The Ministry of Industry's **Eco Factory** award
for IRPC's standard achieved by **5** plants

- ✓ Refinery (REFY)
- ✓ Ethylene Plant
- ✓ Lube Plant
- ✓ NANO Chemical Plant
- ✓ Combined Heat and Power Plant



CSR PERFORMANCE



IRPC has defined operational and strategic plans of both short-term and long-term CSR tasks by driving the excellence of good corporate governance and CSR strategies (CG & CSR Excellence). A policy was also formulated that truly values social activities by allocating its specific annual budget to ensure stakeholders of the commitment to continuous and appropriate social activities.



Corporate Social Responsibility Projects which are tied to National Strategy

IRPC has consistently operated its business on the foundation of corporate governance in conformity to UN Global

Compact which stresses on honesty, transparency coupled with a concern on social and environmental responsibility and human rights with an effort to achieve 17 sustainable development goals. Such objectives are tied to sustainable development goals, national strategy, economics of the nation and social development plan no.12 and also enforced in the Constitution of Thailand, section 65 which states that the objective of sustainable development must be included in the strategic plan. IRPC; therefore, strongly believes that the organization striving to create innovation for sustainability and operate its business with responsibility will successfully become the future leader.

Problems and sustainable development goals	SUSTAINABLE DEVELOPMENT GOALS–SDGs	Business	IRPC's projects
<p>1. Disparity between the rich and the poor (Ref TDR1)</p> <p>Strategic plan no. 3 the development and reinforcement of people's capability</p> <p>Strategic plan no.4 the creation of opportunity social equality</p>		<ul style="list-style-type: none"> Eco Industrial Zone Sustainable Development 	<ul style="list-style-type: none"> Lam Sai Yong model project Community enterprise project Prostheses Foundation of Her Royal Highness the Princess Mother Give Never Stop project
<p>2. Premature pregnancy</p> <p>Strategic plan no. 3 the development and reinforcement of people's capability</p>			<ul style="list-style-type: none"> CSR educational project Promotion of women's right project Muslim Foundation for Underprivileged Youth Project
<p>3. Changing climate affecting epidemic incidence</p> <p>Strategic plan no.1 Security issues</p> <p>Strategic plan no. 3 the development and reinforcement of people's capability</p> <p>Strategic plan no.4 the creation of opportunity social equality</p>		<ul style="list-style-type: none"> Eco Industrial Zone Promote Innovative products for quality of life and environment 	<ul style="list-style-type: none"> Restoration, conservation and protection of mangrove forest project National trail and mangrove forest view tower Reforestation project to protect waves (Chumporn)
<p>4. Changing educational values</p> <p>Strategic plan no.3 the development and reinforcement of people's capability</p> <p>Strategic plan no.4 the creation of opportunity social equality</p>		<ul style="list-style-type: none"> IRPC Technology College 	<ul style="list-style-type: none"> Cubic Academy project 1 for 9 project School for elderly, Amphoe Mueng Rayong The Legend of Mon Phra Padaeng
<p>5. Medical treatment right</p> <p>Strategic plan no. 3 the development and reinforcement of people's capability</p> <p>Strategic plan no.4 the creation of opportunity social equality</p> <p>Strategic plan no.6 balance adjustment and development of public management</p>			<ul style="list-style-type: none"> Health Promotion Fund for communities surrounding IRPC Industrial Zone KVIS VISTEC Pan Nam Jai Clinic GIVE NEVER STOP project Mobile medical unit to check-up health for community Project to monitor the wellness of people
<p>6. Medical treatment right</p> <p>Strategic plan no. 3 the development and reinforcement of people's capability</p> <p>Strategic plan no.4 the creation of opportunity social equality</p> <p>Strategic plan no.6 balance adjustment and development of public management</p>		<ul style="list-style-type: none"> Power of People Human Resource Development IRPC Technology College 	<ul style="list-style-type: none"> San Palung Social Enterprise Co., Ltd. Employment opportunity for mooring rope project CONNEXT ED Project

17 Goals to Transform Our World

1. No Poverty
2. Zero Hunger
3. Good Health and Well Being
4. Quality Education
5. Gender Equality
6. Clean Water and Sanitation
7. Affordable and Clean Energy
8. Decent Work and Economic Growth
9. Industry, Innovation and Infrastructure
10. Reduced Inequalities
11. Sustainable Cities and Communities
12. Responsible Consumption and Production
13. Climate Action
14. Life Below Water
15. Life on Land
16. Peace, Justice and Strong Ins



Problems and sustainable development goals	SUSTAINABLE DEVELOPMENT GOALS–SDGs	Business	IRPC's projects
<p>7. Natural disaster and its prevention</p> <p>Strategic plan no.1 security issues Strategic plan no.2 the creation of competitiveness Strategic plan no.5 the building of growth on environmental friendly quality of life Strategic plan no.6 balance adjustment and development of public management</p>		<ul style="list-style-type: none"> Eco Industrail Zone Green Port (MARPOL) 	<ul style="list-style-type: none"> Restoration, conservation and protection of mangrove forest project Lam Sai Yong model project
<p>8. Drought and need for agricultural products</p> <p>Strategic plan no.1 security issues Strategic plan no.2 the creation of competitiveness Strategic plan no.5 the building of growth on environmental friendly quality of life</p>		<ul style="list-style-type: none"> Eco Industrail Zone - Reservoir for the Community 	<ul style="list-style-type: none"> Lam Sai Yong model project Community Enterprise project Smile Farm for Chance project
<p>9. Promotion of maximization of space utilization</p> <p>Strategic plan no.2 the creation of competitiveness Strategic plan no.5 the building of growth on environmental friendly quality of life Strategic plan no.6 balance adjustment and development of public management</p>		<ul style="list-style-type: none"> Asset Management Eco Industrail Zone Combined Heat and Power Plant IRPC Technology College 	<ul style="list-style-type: none"> Lam Sai Yong model project Protection Strip project
<p>10. Coastal fishery area and inundation</p> <p>Strategic plan no.5 the building of growth on environmental friendly quality of life Strategic plan no.6 balance adjustment and development of public management</p>		<ul style="list-style-type: none"> Eco Industrail Zone Green Port (MARPOL) 	<ul style="list-style-type: none"> Restoration, conservation and protection of mangrove forest project Fish Aggregating Devices, Chumporn Depot
<p>11. Promotion of tourist attractions in various dimensions</p> <p>Strategic plan no.2 the creation of competitiveness Strategic plan no.5 the building of growth on environmental friendly quality of life Strategic plan no.6 balance adjustment and development of public management</p>		<ul style="list-style-type: none"> Business operation with Corporate Social Responsibility 	<ul style="list-style-type: none"> The Legend of Mon Phra Padaeng Rak Le Rak Slip Tin Tai project Restoration, conservation and protection of mangrove forest project National trail and mangrove forest view tower Plastic Rights project
<p>12. Thailand, a door to the new world</p> <p>Strategic plan no.1 security issues Strategic plan no.2 the creation of competitiveness Strategic plan no.6 balance adjustment and development of public management</p>		<ul style="list-style-type: none"> Petrochemical and Refinery Business Supporting Business Promote Innovative products for quality of life and environment 	<ul style="list-style-type: none"> KVIS/ VISTEC
<p>13. New energy source from waste management</p> <p>Strategic plan no.2 the creation of competitiveness Strategic plan no.5 the building of growth on environmental friendly quality of life</p>		<ul style="list-style-type: none"> Eco Industrail Zone 	<ul style="list-style-type: none"> Protection Strip project Plastic Rights project
<p>14. Life safety and waste management area</p> <p>Strategic plan no.4 the creation of opportunity social equality Strategic plan no.5 the building of growth on environmental friendly quality of life</p>		<ul style="list-style-type: none"> Green Port (MARPOL) Sustainable Development 	<ul style="list-style-type: none"> Love Rayong River project Plastic Rights project

CSR Strategies

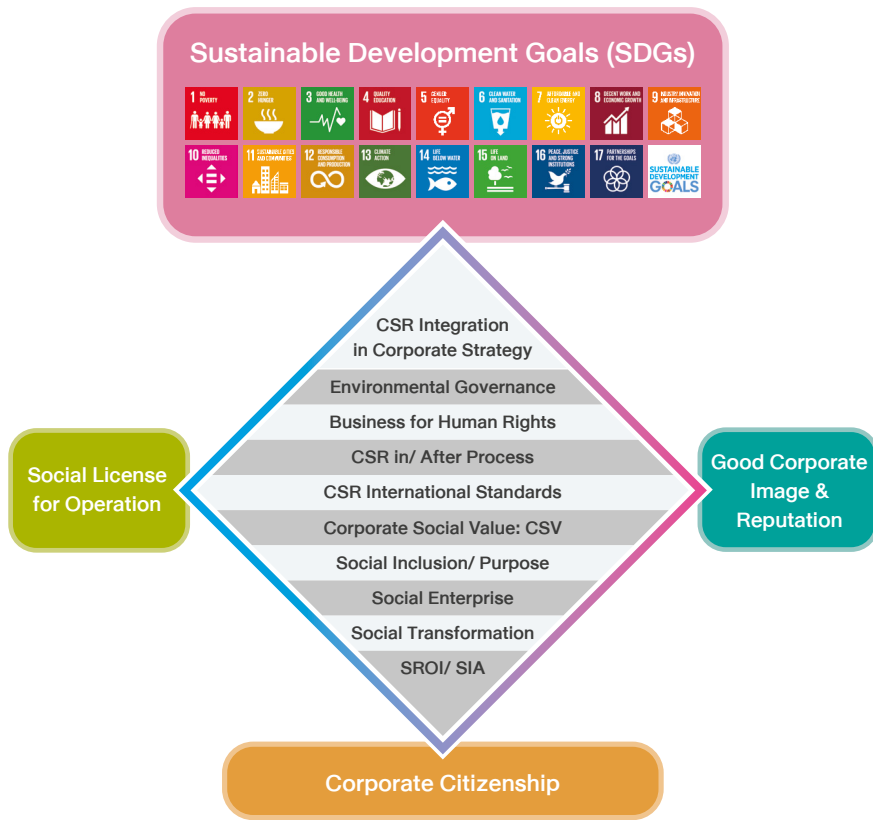
1 / IRPC determines selection criteria for CSR projects based on international practices of excellence and CSR as part of the organizational strategies on sustainable growth, covering good governance, the environment, human rights, and in accordance with the Sustainable Development Goals (SDGs) of the United Nations.

2 / This year the Board formulated a policy allowing IRPC to allocate 3% of the average net profit of the past three years for annual social activities to ensure sufficient budget for them. Moreover, criteria were formulated to ensure that CSR projects were selected for maximum benefit, including the use of budget, anti-corruption, and benefits for all stakeholders.

3 / IRPC complies with SDGs 17. Between 2017 and 2018, it successfully performed and met all 17 goals. IRPC evaluated business sustainability by employing DJSI, of which it has been a certified DJSI member for five consecutive years.

4 / IRPC conducts business in line with the UN Global Compact (UNGC) by responsibly implementing 10 international principles encompassing four major issues. To this end, it has specified a Good Corporate Citizenship Policy to be enforced in the Company and IRPC Group.

Strategy: IRPC CSR Model for Value Creation & Social Transformation



Global Compact
Network Thailand



TBCSD

CSR Processes

IRPC has conducted CSR operation based on ISO 26000, Guidelines for Social Responsibility, and Guidelines for CSR Report of SET as follows:

1

Corporate governance

IRPC has strictly operated business under its corporate governance policy based on international standards, SET's policy, and the ASEAN CG Scorecard.

2

Fair business operation

IRPC has strictly conformed to its anti-corruption policies both within the Company and for business partners across the supply chain and regularly disseminated them through its communication channels.

3

Anti-corruption

IRPC has strictly conformed to its anti-corruption policies both within the Company and for business partners across the supply chain and regularly disseminated them through its communication channels.

4

Respect for human rights

IRPC respects and encourages the protection of human rights as declared in the UNGC with equitable treatment regardless of similarities or differences in race, religion, gender, age, education background and social status. It also values an individual's rights and freedom while striving to protect personal information as contained in the Corporate Governance Handbook. In 2017 it announced its policy on human rights accordingly.

5

Equitable treatment of labor

IRPC provides equitable treatment of labor based on international standards by setting up an operation system with emphasis on safety and appropriate workplace sanitation. It regularly improves and enhances employees' potential and skills under individual development plans and succession plans with the use of an efficient and fair performance management system while simultaneously supervising and improving employees' welfare as seen appropriate, including employees' involvement and satisfaction with the organization for future development.

6

Responsibility for consumers

IRPC takes into consideration different consumers' behavior and requirements while stressing maximum customer satisfaction, managing efficient product distribution channels, and establishing an IT system to handle important databases for each business type under the IRPC 4.0 Policy.

7

Community and society development

IRPC operates these projects under multiple dimensions. The Company has defined the criteria for selecting CSR projects which create balance between impacts on society, community, including IRPC and duration of projects that may cause such impacts to maintain the highest benefit concerning budget spending, anti-corruption, and benefits for all stakeholders.



CSR Projects in 2018



Education

VISTEC & KVIS Projects

IRPC in collaboration with the PTT Group has established Vidyasirimedhi Institute of Science and Technology (VISTEC) and Kamnoetvidya Science Academy (KVIS) to produce talented Thai personnel with excellence in science and research and with continuous supporting budget since 2014.

IRPC Technological College

IRPC established IRPC Technological College (IRPCT). Since the college opened its door in 1995, IRPC has provided support by annually donating funds. This year it donated Baht 47.2 million. Presently IRPCT has produced over 7,000 high-quality personnel for companies in the industrial and service sectors. Its educational standard was certified by the Office of the Vocational Education Commission (OVEC) and the Office for National Education Standards and Quality Assessment (ONESQA). Relentlessly managing quality education, IRPCT was the first educational institute honored with a Royal Award of H.M. the late King Bhumibol Adulyadej in 2010. Currently IRPCT is implementing the IRPCT 4.0 strategic plan to upgrade quality to reach its vision of "one of top five leading vocational college in Thailand by 2020".

Scholarships for Community

IRPC provided educational opportunities through the Scholarships for the Community Project. This year 305 scholarships worth Baht 2,085,000 were given to the youths who lived around IRPC Industrial Zone. These students were selected by the board of each community living in municipal areas of Choeng Noen Sub-District, Taphong Sub-District, Ban Laeng Sub-District, Na Ta Khwan Sub-District, and Rayong Municipality, Rayong Province.



Community development and environment

Flood Solution around IRPC's Industrial Zone

IRPC formulated plans to prevent and solve floods around its industrial zone. This year it provided heavy machinery for canal dredging in seven canals to add a water storage capacity location and slow down water in the rainy season. It was also ready for the measure to lower the level of water in reserved ponds in proportion to the amount of rain water and water in the Rayong reservoir.

Promotion of Community Enterprise

IRPC supported occupational groups of residents surrounding its industrial zone through enhanced potential, including knowledge, processing skills, product development, and marketing channels, and others. Five pilot groups successfully achieved robust, self-reliant business, with income generated from the promotion and development activities of Baht 325,390.32 per group.

Volunteers' Hearts for Community Development

IRPC encouraged its employees to apply their potential to involvement in community development activities such as improvement of buildings and the community tap water system, as well as teaching English to the elderly, among others. The project aimed to benefit communities and cultivate CSR DNA among employees. This year 2,242 employees joined the activities, with 6,880 hours spent.

Public Facilities

IRPC implemented projects contributing to public benefit and complementing the government's support such as improvement of the landscape of the building for the gathering of sub-district and district heads at Ban Laeng Sub-District, improvement of the landscape of Queen Sirikit Forest Park, Song Phi Nong community, and improvement of the building of Ban Nong Jok School at Cheong Neon Sub-District, and others.



“Lam Sai Yong Model”

The success of the “Lam Sai Yong Model” Project in Si Sa Ket Province, which consists in developing reserved water sources in the dry season, improves residents’ quality of life with a project operating budget of Baht 6,482,810, creating benefit of Baht 14,178,385.73, and an SROI of Baht 2.19 per Baht of investment.

$$\frac{\text{The benefit from the project}}{\text{Budget used in the project implementation}} = \text{Social return on investment} > \frac{14,178,385.73}{6,481.810} = 2.19$$

**For more details on “Lam Sai Yong Model Project”, please refer to the 2018 Annual Report pages 223-224 at http://www.irpc.co.th/en/pdf/Annual_Report_2018_en.pdf and the 2018 Corporate Sustainability Report pages 79 at [http://www.irpc.co.th/en/pdf/Sustainable_Development_Report_\(SD%20Report\)_2018_en.pdf](http://www.irpc.co.th/en/pdf/Sustainable_Development_Report_(SD%20Report)_2018_en.pdf)*

School for the Elderly, Muang District, Rayong

IRPC values life-long learning and the development of the elderly’s quality of life by setting up a school for them. Courses and learning activities were designed to enhance their knowledge and skills and provide them with the opportunity for social gathering or common activities. This year the school had 138 students and held 16 learning activities.

Community Network Learning Center

IRPC’s Community Network Learning Center promotes and develops the environment, occupations, and the economy of the communities as well as strengthening relations among community members and between communities and IRPC. The activities change regularly. This year 11,187 people joined the activities during weekends, and 27,356 people used the meeting room.

Open House

IRPC organizes an Open House every year. This annual event provides an opportunity for stakeholders to appreciate IRPC’s operations. This year it arranged trips to the 15 plants under EIA mitigation measure project and the deep-sea port (totaling 24 visits) with 1,003 visitors.

Communities around IRPC’s Tank Farms

IRPC annually operates the project for the communities around IRPC’s tank farms in Chumphon, Phra Pradaeng, and Ayutthaya. This year it arranged for area to accommodate fish spawning and monsoon harboring in front of Koh Samet, Chumphon, a heritage flag parade during the Mon people’s Songkran festival in Phra Pradaeng, and the Kathin ceremony at the Ayutthaya tank farm.

Thai Shadow Puppet Theater (Nang Yai), Ban Don Temple

IRPC joined in the conservation of this Thai cultural tradition. Nang Yai is a high-art performance which includes invaluable arts of handicraft, dancing, music, rhetoric, and literature. It provided a budget to cover operating costs to encourage youths residing in Rayong to master the puppetry art to instill in them pride and appreciation of their local arts, which would lead to further development and elevate it to the national level.

Lam Sai Yong Model Project

IRPC has intended the Lam Sai Yong Model Project to be a project model where the private sector could lend support to the public sector to solve drought problems for the people. The model in Si Sa Ket was a complete project from the beginning of the study of water sources to the end of the project.

- **Nong Khao Sub-District, Si Sa Ket**

This year IRPC operated the project in None E Pang Village, Phon Wua Village, Phon Kha Village, and Phon Sawang Village, Nong Khao Sub-District, Muang District, Si Sa Ket Province. IRPC dredged a Kaem Ling (water retention) canal to receive floodwater during the rainy season and water overflow from a natural water source, with a capacity of 60,000 cubic meters. It provided an opportunity for the communities of 6 villages and 470 households to use water from the canal for agriculture during the dry season.

- **Dan Na Kham Sub-District, Uttaradit**

This year IRPC operated the project at the Agricultural Nature and Creative Area Center at Dan Na Kham Sub-District, Muang District, Uttaradit Province. It dredged a reservoir of 1 rai and 6 meters depth to receive floodwater during the rainy season to be piped to the reservoir for storage at the center. At the end of the project, the reserved water for agricultural use in the dry season had an additional storage capacity of 9,600 cubic meters, profiting 10 additional households surrounding the center.

- **Nong Yang Village, Lam Sai Yong Sub-District, Buri Ram**

In 2014, IRPC initiated the project at Lam Sai Yong Sub-District, Nang Rong District, Buri Ram Province, with cooperation from the Foundation for Education and Public Welfare in dredging 5 reservoirs at Nong Yang Village with a total area of 18 rai, allowing the capacity to increase to 91,000 cubic meters. The reservoirs provided raw water supply for tap water for the village, allowing the number of communities to benefit from such reservoirs from 350 households to 440. In 2015, IRPC volunteers took part in improving the water supply system of the village, which had previously contained high concentration of sediments, rendering the water unfit for consumption, until the water became clear, clean, and standardized for consumption.

- **Don Jone Forest, Lam Sai Yong Sub-District, Buri Ram**

In 2016, IRPC volunteers installed PE pipes to divert water from Lam Sai Yong Sub-District, covering a distance of 1.2 km., to a reservoir in Don Jone Forest, Lam Sai Yong Sub-District, Nang Rong District, Buri Ram Province. A solar-powered water pump was installed for water diversion. As the reservoir was destined for rainwater, it received no incoming water. After the end of the project, the pump delivered water into the reservoir at an average of 5 hours a day or a storage capacity of an average of 1,350 cubic meters a day. As a result, the number of communities benefiting from the reservoir increased from 3 to 10.

Prostheses Project

IRPC, in collaboration with the Prostheses Foundation, developed plastic polymers for prosthetic sockets by replacing PP grade 2500H with PP grade 3340H, which was more transparent and allowed the producer to make adjustment so that the socket could fit the stump. It also donated a container truck to the foundation for its royal initiated mobile prostheses units. IRPC has continuously operated the project since 2011 and donated about 20 tons of PP each year to the foundation, including the foundation headquarters, royally initiated mobile prostheses units, and 74 royally initiated prostheses plants.

Plastic Rights

IRPC, in cooperation with Thammasat University and communities surrounding its industrial zone, organized the “Plastic Rights: garbage collection by boat to preserve Rayong River” Project with the participation of public and private agencies in Rayong. The activity raised awareness of conserving Rayong River to maintain cleanliness and reducing garbage in rivers in a systematic and sustainable manner. The “Plastic Rights with 3R market” activity campaigned for the promotion of responsible use of plastics and raised awareness of cost-effective use of plastics in line with the business sector’s respect for human rights.

IRPC Cubic Academy

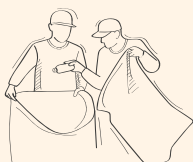
The IRPC Cubic Academy was intended for free social and governance activities. The academy has held five classes for 510 participants (425 IRPC employees, and 85 external interested participants). This year there were 130 participants in the courses conforming to the IRPC 4.0 policy. The satisfaction survey revealed an average satisfaction score of 4.85 (out of 5), or 97%.

Sarn Palang Social Enterprise Co., Ltd.

IRPC, in collaboration with the PTT Group, established Sarn Palang Social Enterprise Co., Ltd. to select and nominate CSR activities/projects with potential to operate sustainably, make a profit, and encourage employment. This year IRPC operated the Cafe Amazon project for the disadvantaged and a project to purchase coffee beans from communities. In 2019, a project will be PTT’s pre-school nursery.



Community satisfaction (percentage)



Employee volunteering hours (hour)



Hygiene

Pun Nam Jai Clinic

Since 2010, Pun Nam Jai Clinic, established by IRPC, has been providing free public health services and basic medical check-ups for all communities living around IRPC Industrial Zone. This year the clinic served 4,746 patients, and the number of IRPC cards increased from the previous year by 750. The total number of IRPC cards handed out was 9,841. Cardholders were entitled to health services at the clinic and discounts at IRPC service stations.

Mobile Medical Unit for the Communities

IRPC, in collaboration with Queen Sirikit Hospital, established a free, mobile medical service. IRPC personnel regularly acquainted the patients with information and news. This year the clinic served 2,049 patients living in the area surrounding the industrial zone, namely Ban Laeng Sub-District, Taphong Sub-District, Na Ta Khwan Sub-District, Choeng Noen Sub-District Municipality, and Rayong Municipality.

Project to Monitor the Wellness of People

IRPC set up a Geographic Information System (GIS) database of the communities in surrounding areas of its industrial zone to be used in formulating work plans and measures to prevent, rectify, and mitigate health impacts to the communities of 10,398 families (38,256 persons). Random sampling was repeatedly undertaken from 2015 to 2017. Analyzed air quality test results helped formulate a healthcare surveillance plan for these communities.

Community Health Promotion Fund for Communities surrounding IRPC Industrial Zone

IRPC set up a Health Promotion Fund for these communities to provide health care services around IRPC Industrial Zone under the management of the communities themselves. The occupational health service was provided by public health specialists. IRPC contributed Baht 6 million to the fund every year. This year 41 projects proposed by the communities meeting the criteria were approved by the Fund Committee.

CSR Management Statistics



88.50



87.00



88.50



27,954



18,456



18,456

2018
Performance

2018
Target

2019
Target



Human Resource Management Strategies

1

Culture transformation

Employees played a key role in performing their jobs through the IRPC DNA, a set of behavior promoting business competitiveness, including the mindset change to more of an ownership mindset. Cultivation of values and the work culture is ongoing together with performance measurement.



IRPC values the recruitment and retention of quality personnel together with their competency development to enhance career growth, stressing the cultivation and galvanization of a culture that blends in with the IRPC DNA core values. The aim is to become a role model for human resource management: an employer of choice.



Capability building

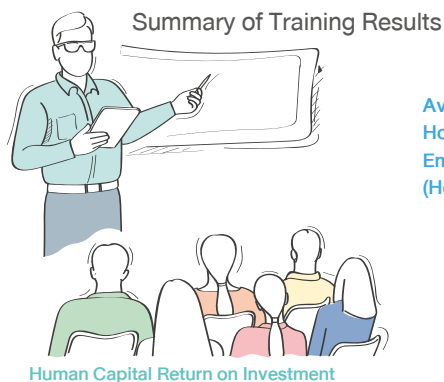
2

Everyone's roles and missions were modified, as was leadership compatible with business strategies. Allying with several institutes engaging in capability building in developing systematic personnel systems, IRPC instituted learning management systems linking personnel capability building with the development contents of the 10:20:70 approach—meaning learning, counseling, and doing jobs in that proportion. At the same time, employees were allowed to learn online by themselves with SkillLane, a training company, among others. Such development forms a basis for IRPC's rotation of employees to upskill and reskill. This will also groom employees for continually operating at full steam. IRPC also developed succession planning in parallel with development and recruitment of talents from inside and outside the corporation so as to land executive teams that are poised to drive IRPC into the next era.

3

Lean and agile organization

IRPC has devised strategic plans for its organization structure and workforce by promoting cross-functional work, flattening organizational layers, shortening the line of command, and applying digital systems to work, among others. Such plans aim for productivity based on the present workforce and those due to retire, coupled with challenges posed by less supply in the future labor market.



Human Resources Statistics

Average Training Hours for each Employee (Hour/Person/Year)



Top 30 Leadership Project

IRPC selected and developed 30 employees with high leadership potential and qualifications for becoming executives. These employees underwent a challenging job assignment. This project serves as an inspiration for all employees upon learning about growth opportunities and career progress.



Participated
782 persons

Promoted
30 persons



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

IRPC DNA

IRPC DNA is a set of behavior expected of employees to display continuously so as to turn into a culture under the desired corporate values. To this end, employee behavior is cultivated and enhanced for compatibility with the seven core values: Individual Ownership, Result-Oriented, Promise and Deliver, Continuous Improvement, Do Things Together, No Bias, and Actively Solve the Problem. This behavior drives employee participation in driving IRPC toward its sustainable success.

Employee Engagement Survey

IRPC undertook an employee engagement survey to find a score of 83%, echoing personnel management that is international, filled with growth potential, and competitive. In addition, IRPC benchmarked employee turnover with other companies in Thailand's petroleum and petrochemical industry to identify a human resource management approach of excellence, resulting in a higher organization health index, thanks to personnel with high potential and work inspiration.

Employee Engagement (%)



83

80

Organization Health Index (OHI) (%)



86

>74

2018
Performance

2019
Target



“

IRPC is committed to corporate governance (CG) principles which are internationally accepted through its compliance with the most stringent requirements of the United Nations Global Compact (UNGC) to drive the Thai business sector toward valuing the promotion of sustainability under four principles, namely human rights, labor, environment, and anti-fraud.

”

CG policy

The Board of Directors has revised previous guidelines and modified SET's 2017 CG Code for listed companies for suitable application to IRPC's business. It also ensured that IRPC commands business ethics and addresses stakeholders' expectations in a fair and suitable manner, adhering to the six CG elements (C-R-E-A-T-E). In addition, IRPC amended its articles of association under the resolution of the 2018 AGM to align with emerging public policy requirements: *Section 5 (31)*:

a shareholder or more with a combined share count of at least 10% of all sold shares can request the Board to hold an extraordinary meeting of shareholders (EGM) anytime. The Board is obliged to hold an EGM within 45 days of its receipt of the letter from the shareholder(s). *Section 4 (22)*: the Board is authorized to nominate and appoint the President, who is also to serve as director and secretary to the Board.

CREATE: CG Pillars



For more details on "CREATE", please refer to the 2018 Annual Report pages 110-111 at http://www.irpc.co.th/en/pdf/Annual_Report_2018_en.pdf

CG Development of 2018

★ Third-party director assessment every three years for director development planning; undertaken by KPMG Phoomchai Business Advisory Ltd., the 2018 assessment was the second one.

★ IRPC was named a transparent entity for 2018 by the Office of the National Anti-Corruption Commission (NACC) for the first time; it had previously been named a special-mention transparent entity for two consecutive years (2016-2017).

★ Commitment to development of corporate governance, aligning with other system implementation, was instrumental to IRPC winning TQC certification in 2018 and retaining DJSI membership for a fifth consecutive year with the top score in the Oil & Gas Refining and Marketing. It was ranked as a DJSI Industry Leader.



IRPC joined in the announcement of the "Human Rights as a Driving Force of Thailand 4.0 toward Sustainable Development" National Agenda. In so doing, it reiterated the government's commitment to promoting and driving the human rights movement into concrete implementation, and to provide understanding and guidance for all agencies and departments to adopt and efficiently adapt the agenda.



IRPC was honored with three Asian Excellence Awards 2018: Asia's Best CEO (Investor Relations) - Mr. Sukrit Surabotsopon, President Asia's Best CFO (Investor Relations) - Mrs. Rachadaporn Rajchataewindra, Senior Executive Vice President, Corporate Accounting & Finance, and Best Investor Relations Company for a fifth consecutive year



Mr. Sukrit Surabotsopon, President, as a founding member (among 15 co-founding companies) co-launched "Global Compact Network Thailand" (GCNT), aimed to accelerate a balanced, sustainable economic, social and environmental development under the United Nations Global Compact, a private sector network for sustainable development.

CG performance

This year IRPC and its Board were determined to run its business under SET's 2017 CG Code in eight key principles described below:

1. Awareness of the Board's roles and responsibility as the corporation's leader that contributes sustainable value to business

The Board was committed to the philosophy of sustainable business by personifying the philosophy and conveying it for corporate-wide practices. Its responsibility included the following:

- Defining the CG policy to guide the workforce's practices
- Defining directors' roles in the Board Charter and committees' charters, including the oversight of suitable Board and committee structures that align with corporate goals
- Revising and defining the corporate vision, mission, and strategies for the management and the rest of the workforce to move in the same directions
- Approving IRPC's key goals and annual budget to ensure adequate resources for successful business goal achievement
- Approving key investment projects beyond the management's authority
- Approving corporate management restructuring.

2. Definition of Corporate Objectives and Goals for Sustainability

The Board defined the objectives and policies compatible with the vision, mission, directions, and strategies while monitoring the management's implementation of such policies and plans. All aspects of the strategic plans are integrated so as to achieve the most challenging goals. The Board also implemented the "Board that makes a difference" strategy, which contains directors' best practices supporting stable and sustainable growth.

3. Enhancing Effective Board

The Board defined directors' structure and qualifications for their efficient performance that duly enabled them to define IRPC's growth directions in the following ways:

- Requiring directors to hold up to five directorships in SET-listed companies to allow them adequate time for efficient job performance

- Requiring directors to serve as directors and independent directors for up to three consecutive terms (nine years)
- Defining governance guidelines for IRPC and six subsidiaries to acknowledge progress and control operation under CG principles
- Organizing orientation for incoming directors to educate them on IRPC's business and regulations for efficient job performance and to undergo new IOD courses as necessary.

In addition, IRPC conducted third-party performance assessment of directors every three years. This year KPMG undertook the assessment (due for completion in May 2019); the internal assessment is done by the Board every year.

Summary of Board Assessment

Assessment	Average (%)	
	2017	2018
Entire Board	97.27	96.55
Individual directors		
• Self-assessment	97.7	97.25
• Cross-assessment	98.48	99.23

Summary of Committee Assessment

Committee	Average (%)	
	2017	2018
Nomination & Remuneration Committee	98.54	98.23
Corporate Governance Committee	96.44	98.97
Risk Management Committee	97.7	97.55
Audit Committee		
• By the Board Chairman	100	100
• By the entire Audit Committee	100	100
• Individual committee members	97.38	94.42

4. Recruitment and development of top management and personnel administration

Recruitment of top management: The Nomination and Remuneration Committee is responsible for recruiting qualified people and nominating them to the Board for appointment as President, as well as assessing and setting his compensation for the Board's approval under an explicit, fair, and suitable process.

Other positions held by the management: The Board required that the President's service in other companies must have its prior approval.

Succession plan: IRPC in conjunction with a world-class adviser improved the succession plan system for efficiency and prevention of interruption that would affect business.

Personnel administration and development: IRPC commanded a suitable process for incentive provision for its employees by way of intense development under the Power of People strategy, part of the GDP strategy, and definition of i-SPIRIT as a corporate value along with IRPC DNA as desirable behavior for vice presidents upward as role models for the workforce.

5. Promotion of innovation and responsible business conduct

Promotion of innovation: IRPC ran new projects under the GDP strategy's Power of Growth section. In place was control and planning of operation in an integrated way using digital systems to improve process efficiency and cost-effective resource consumption. This was part of the GDP strategy's Power of Digital, which included investment in product innovation for consumers' quality of life and establishment of knowledge that benefits industries in the supply chain.

Promotion of social innovation: IRPC invented social innovations in the form of new models that contributes in a participative way by communities and society, including the community health promotion fund project. Under this project, IRPC, communities, and the public sector jointly reviewed operating approaches for maximum benefit in co-existence and community benefit, to be managed by a community panel. This year the fund approved a total of 41 projects in eight areas, which accounted for about 10,000 residents.

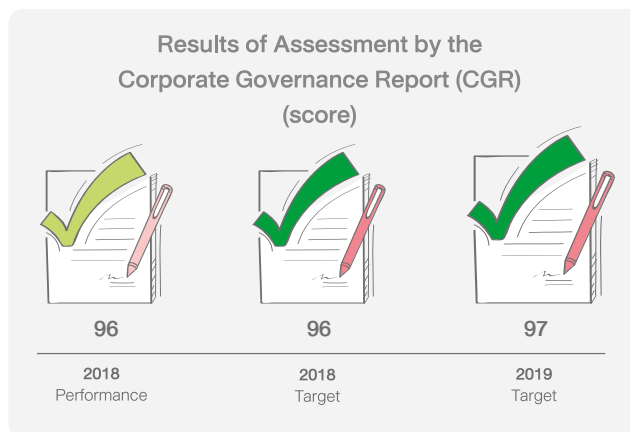
Responsible business: IRPC's social responsibility was echoed in the corporate strategic plans of all functions

with a goal of being a global corporate citizen under the UN Global Compact guidelines:

- *Human rights:* IRPC had defined its human rights policy for corporate-wide implementation since 2017 and had conducted due diligence to assess risks of human rights, with enough mitigation measures.
- *Labor:* IRPC boasted eight labor unions, a sign of freedom to form labor groups, certification of rights, and wide-open communication among the workforce
- *Environment:* IRPC followed best environmental practices under international standards and exceeded legal requirements.
- *Anti-fraud:* IRPC took seriously anti-fraud in all forms through its policy and concrete actions, including its anti-corruption and anti-bribery policy and its no-gift policy by publicizing these policies to promote network formation with all stakeholders. Its policy also allows whistleblowing by those inside and outside the corporation, and in place are procedures for the investigation and verification that is clear-cut, neutral, and transparent.

Due regard for stakeholders' roles:

- *Shareholders/investors:* IRPC created long-term value addition for good investment returns by seeking business opportunities under the GDP corporate strategic plan on growth.
- *Customers/consumers:* IRPC developed products and services meeting customers' needs and improving consumers' quality of life while developing technologies to manage databases from trading to delivery of goods
- *Business partners:* IRPC's policy is to treat business partners with equality and due regard for its best interests and on equal footing.



- **Competitors:** IRPC's policy is to treat competitors fairly and IRPC strives for honest business competition.
- **Creditors:** IRPC strictly honors agreements with creditors while striving to maintain sustainable relationship with them.
- **Workforce:** IRPC provided fair employment terms for employees in the short term and long term, and gives employees with potential grooming for future growth.
- **Communities, environment, and society:** IRPC values sustainable development under the Global Reporting Initiative (GRI) and advocates efficient, cost-effective resource consumption while requiring employees to perform their tasks with an awareness of safety and due regard for the environment.

6. Ensuring suitable risk management and internal control systems

Risk management and internal control: IRPC provided oversight of risk management by defining its policy and scope so that its risks may be manageable to foster confidence among all stakeholders.

Oversight of inside information: IRPC's policy and good practices about maintaining confidentiality are contained in the CG handbook, in which levels of confidentiality and access to company data are stated in its compliance policy, rolled out in 2018.

7. Maintaining financial credibility and information disclosure

Maintaining financial credibility: The Board monitored planning and control of IRPC's liquidity in keeping

with its activities; guidelines were defined for capital management for strong corporate security.

Dividend policy: Under its articles of association and the law, IRPC's policy is to pay out dividends of at least 25% of the annual net profit after all taxes and allowances.

Information disclosure and transparency: IRPC values accurate and complete disclosure of its key information in Thai and English within suitable time and with transparency by categorizing disclosure of the criteria and guidelines for CG by legal provision and SEC's/SET's requirements for equitable access to its information by stakeholders.

8. Advocacy of shareholders' engagement and communication

Shareholders' rights: IRPC provided protection and promotion of the exercise of shareholders' rights under the law and its articles of association. Before the AGM, meeting notices and proxy forms were mailed to the shareholders. The 2018 AGM took place on April 4, 2018, with adequate and equitable facilitation provided to shareholders. IRPC disclosed the resolutions on its website and through SET Portal immediately after the meeting; it also sent a summary of resolutions and a meeting report to all shareholders.

Equitable treatment of shareholders: IRPC offers only one class of shares, each share carrying one vote under its articles of association, without differentiating the rights of shares. All shareholders are treated equally and fairly through the provision of adequate information through readily accessible channels.

Whistleblowing/complaint channels:

E-mail :
auditor@irpc.co.th

Mail :
Chairman, Audit Committee
IRPC Public Company Limited
555/2 Energy Complex B, 6th floor
Vibhavadi Rangsit Road, Chatuchak
Chatuchak, Bangkok 10900

P.O. Box :
Mailbox 35, Sun Towers Office, Bangkok 10900

Number of Complaints

Recived through
the Whistleblower
System

24 Cases 



Ongoing Cases

21 Cases

Finished Cases

3 Cases



Total complaints received are divided to :

1. Case of non-compliance with corporate governance 18 18๕๖

2. Recommendations 6 Cases



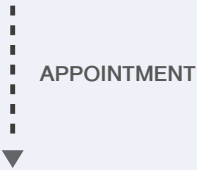
*For more details on "Complaint and whistleblowing system", please refer to the 2018 Corporate Sustainability Report pages 21 at [http://www.irpc.co.th/en/pdf/Sustainable_Development_Report_\(SD%20Report\)_2018_en.pdf](http://www.irpc.co.th/en/pdf/Sustainable_Development_Report_(SD%20Report)_2018_en.pdf)



MANAGEMENT STRUCTURE

SHAREHOLDERS

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



BOARD OF DIRECTORS

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

The Board of Directors has envisioned **IRPC to become a leading integrated petrochemical complex in Asia by 2020** by formulating short-and long-term strategic plan to assure that the Company growth will be in line with the targeted direction.

REPORT



SUB-COMMITTEE

AUDIT COMMITTEE

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

NOMINATION AND REMUNERATION COMMITTEE

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



INDEPENDENT DIRECTORS

is independent from major shareholders or group(s) of major shareholders. and the Company executives, The director's duties is to express their opinions freely under the assigned tasks as to protect benefit of all shareholders and stakeholders equally. As of end of 2018, the Independent Directors consists of 7 members. In the event where the chairman is not an independent director, the independent director may be elected to perform duty in the meeting in some occasions.



CHAIRMAN

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

CORPORATE GOVERNANCE COMMITTEE

is appointed by the Board and the sub-committee shall comprise of at least 3 members, 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

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

is appointed by the Board of Directors.

SENIOR EXECUTIVE VICE PRESIDENT

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

MANAGEMENT COMMITTEE

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

- President
- Senior Executive Vice President
- Executive Vice President

COMPANY SECRETARY

is appointed by Board of Directors. The duty is to perform secretarial tasks pursuant to the Securities and Stock Exchange Act B.E. 2535 and as stipulated by the Capital Market Supervisory Board as well as performing duties assigned by the Board.

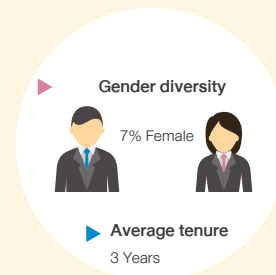
Board of Directors

As of December 31, 2018, the Board consisted of 14 members: 13 non-management directors (92.86% of the entire Board), one management director (President). Seven members were independent directors (50% of the entire Board), one of whom was female.

1. Mr. Chansin Treenuchagron Director/ Chairman	October 20, 2015 April 4, 2018	1 st term 2 nd term
2. Mr. Woothisarn Tanchai Independent Director/ Chairman of the Nomination and Remuneration Committee	June 19, 2015 April 4, 2017	1 st term 2 nd term
3. Mr. Nuttachat Charuchinda Director/ Chairman of the Risk Management Committee	April 29, 2016 April 4, 2018	1 st term 2 nd term
4. Mr. Somnuk Bomrungsalee Independent Director/ Chairman of the Audit Committee	April 9, 2014 April 4, 2017	1 st term 2 nd term
5. Mr. Anusorn Sangnimnuan Independent Director/ Chairman of the Corporate Governance Committee	August 27, 2016 April 4, 2017	1 st term 2 nd term
6. Gen. Sasin Thongpakdee Independent Director/ Member of the Corporate Governance Committee	September 1, 2014 April 3, 2015 April 4, 2018	1 st term 2 nd term 3 rd term
7. Gen. Theppong Tippayachan Independent Director/ Member of the Corporate Governance Committee	September 1, 2016 April 4, 2018	1 st term 2 nd term
8. Mr. Ekniti Nitithanprapas Director/ Member of the Risk Management Committee	November 17, 2015 April 4, 2017	1 st term 2 nd term
9. Mr. Jessada Promjart Independent Director/ Member of the Audit Committee	March 16, 2016 April 4, 2017	1 st term 2 nd term
10. Ms. Ruenvadee Suwanmongkol Independent Director/ Member of the Audit Committee	April 1, 2016	1 st term
11. Mr. Kris Imsang Director/ Member of the Corporate Governance Committee	December 2, 2017	1 st term
12. Mr. Preecha Pocatanaawat Director/ Member of the Nomination and Remuneration Committee	September 19, 2018	1 st term
13. Mr. Worawat Pitayasiri Director/ Member of the Risk Management Committee	September 19, 2018	1 st term
14. Mr. Sukrit Surabotsopon Director (Management Director)/ Member of the Risk Management Committee/ President/ Secretary to the Board of Directors	October 1, 2013 April 3, 2015 April 4, 2018	1 st term 2 nd term 3 rd term

Board component

Structure of entire Board 15 (1 seat is available)
independent 7
non-executive 13
Executive 1



Average age

58 years

Average board meeting

Attendance: 97 % of meetings
(minimum required 75 %)

13

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

13

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



* For details of the "Directors' Profile",
please log on to pages 24-37 of the 2018 Annual Report at
http://www.irpc.co.th/en/pdf/Annual_Report_2018_en.pdf

Sub-Committees

1 Audit committee

Consists of at least three independent directors. Independence must be duly qualified under the notifications of the Capital Market Supervisory Board. It must have at least one director who commands sufficient knowledge and experience to review the reliability of financial statements.

2 Nomination and remuneration committee

Consists of at least three directors, at least one of whom must be an independent director. It recruits and nominates qualified directors, sub-committee members, and the President; it also sets fair and sensible compensation for them.

3 Corporate governance committee

Consists of at least three directors, at least one of whom must be an independent director, with the duties of recommending guidelines and CG advice to the Board and steering execution.

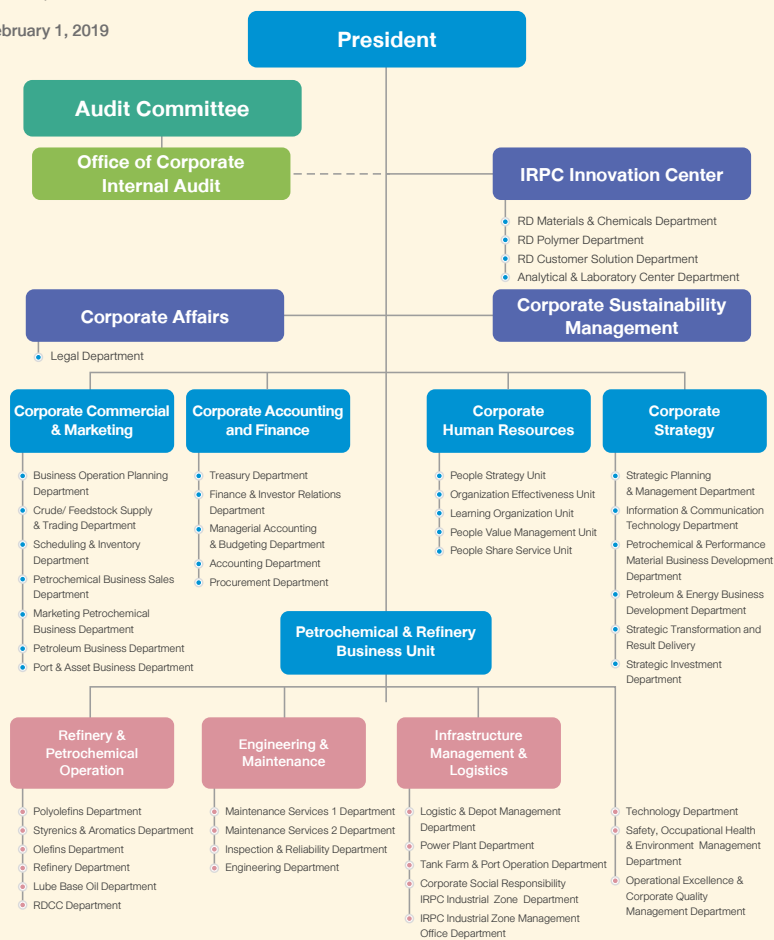
4 Risk management committee

Consists of at least three directors who are experts in the petroleum or the petrochemical business with the duties of defining the risk management policy, risk management plans, and enterprise risk management process.

Management

The President is the chief executive officer responsible for the management of operations assigned by the Board in the best interests of IRPC and the shareholders. This year IRPC adjusted its management structure by setting up a Corporate Strategy function (merging Business Development, Corporate Business Planning, and Corporate Strategy Management & Mobilization) to enhance suitable and a concise span of control in the best interests of IRPC.

As of February 1, 2019



The president

The Board assigns the President as the chief executive officer of the management team to manage IRPC's business under IRPC's objectives, articles of association, and Board-defined policies. Work regulations are issued by him for the workforce to acknowledge and observe.

Top management

Their mandate is to ensure that the President-defined policies and goals are carried out and to be responsible for the management of the operations to achieve the goals, objectives and short-term and long-term strategic plans within the management scope under the organization structure. Also, support sustainable corporate growth under corporate governance and a socially and environmentally responsible organization.

Management committee

To counsel the President on key issues influencing strategies, business directions, operating and investment

plans, and resource allocation for efficient business management, the President appointed a Management Committee, consisting of himself, Senior Executive Vice President and Executive Vice President in every business unit with the Executive Vice President, Office of Corporate Affairs, serving as its secretary.

Company secretary

In conformity to the Securities and Exchange Act, B.E. 2535 (1992) and the announcement of the Capital Market Supervisory Board, the Board appointed Ms. Piyada Jongpayuha, Executive Vice President, Office of Corporate Affairs, to serve as Company Secretary. It also established Corporate Secretary and Compliance Division under the Company Secretary's care to establish compliance operation scope and look after IRPC's compliance with laws and corporate governance principles.

As of December 31, 2018, the Management Team consisted of 15 people, as shown below:

No.	Name and Position
1.	Mr. Sukrit Surabotsopon President
2.	Mr. Pongpraphan Titathavewatana Senior Executive Vice President, Petrochemical & Refinery Business Unit
3.	Mr. Somkiat Lertritpuwadol Senior Executive Vice President, Corporate Commercial and Marketing
4.	Mrs. Nidcha Jiramethanakij Senior Executive Vice President, Corporate Accounting & Finance
5.	Mr. Thammasak Panyowatkool Executive Vice President, Acting Vice President, Office of Corporate Internal Audit
6.	Mr. Pravet Assavadakorn Executive Vice President, Office of Corporate Research and Development
7.	Mrs. Peyada Chongpayuha Executive Vice President, Office of Corporate Affairs/ Company Secretary
8.	Ms. Awrapin Ketranakul Executive Vice President, Office of Sustainability Management
9.	Mr. Kraisit Anukoolutaiwong Executive Vice President, Corporate Human Resources
10.	Ms. Wanida Utaisomnapa Executive Vice President, Corporate Business Planning/ Acting Executive Vice President, Office of Corporate Management and Strategic Implementation
11.	Mr. Chalor Panutrakul Executive Vice President, Corporate Business Development
12.	Mr. Veerawat Srinoradithlert Executive Vice President, Engineering and Maintenance
13.	Mr. Woravuth Sivapetranart Executive Vice President, Corporate Operation Production
14.	Mr. Vichit Nittayanonte Executive Vice President, Operation Support
15.	Mr. Phothiwat Paopongchuang Executive Vice President, assigned to the President.

Members of IRPC management that reached retirement age or resigned during 2018:

1. Mr. Pongprapan Titathavewatana	Senior Executive Vice President, Petrochemical & Refinery Business, retired on December 31, 2018.
2. Mr. Pravet Assavadakorn	Executive Vice President, Office of Corporate Research and Development, retired on December 31, 2018
3. Mr. Chalor Panutrakul	Executive Vice President, Corporate Business Development, retired on December 31, 2018
4. Mrs. Ratchadaporn Rajchataewindra	Senior Executive Vice President, Corporate Accounting and Finance, retired on September 30, 2018.
5. Ms. Monwipa Chooipiban	Executive Vice President, Office of Corporate Affairs/Company Secretary, retired on September 30, 2018.
6. Mr. Sirimet Leepagorn	Senior Executive Vice President, Office of Corporate Management and Strategic Implementation, resigned on September 30, 2018.

Board and Management Compensation

1. Board and committee compensation

Board and sub-committees' compensation in 2018, approved by the 2018 AGM, are the same as those of 2017.

Directors	Monthly compensation/ person (Baht)	Meeting allowance/ person (Baht)
1. Board		
Chairman	60,000	60,000
Director	45,000	45,000
2. Members of the 4 sub-committees and other committees to be established.		
Chairman	-	60,000
Director	-	45,000

2. Management compensation

IRPC annually assesses management performance at every level under the Performance Management System, which results in compensation for all management team members. The President's compensation was defined under explicit, transparent, and fair criteria to be administered by the Nomination and Remuneration Committee and tabled for the Board's approval.

In 2018, compensation for 18 management members including three management team members who retired or resigned in 2018 under SEC's definition in the forms of salaries, bonuses, and contributions to the provident fund, totaled Baht 128.03 million.

(Unit: Million Baht)

Compensation	2017 (16 persons)	2018 (18 persons)
Compensation		
Salary	77.30	81.45
Bonus	32.08	39.05
Other compensation		
Provident fund	6.87	7.53
Total	116.25	128.03



* For details of the "The Management's Profile", please log on to pages 42-56 of the 2018 Annual Report at http://www.irpc.co.th/en/pdf/Annual_Report_2018_en.pdf

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In 2018 IRPC netted a 31% revenue rise and a THB 7.735 billion profit.

”

This year IRPC posted a net sales revenue of Baht 258.919 billion, a 31% rise over last year, due to higher prices and sales volumes. Its refinery processed 208 KBD of crude oil (16% more than last year). As a result, it posted a market GIM of Baht 33.607 billion (USD13.60/barrel), equivalent to a 4% rise. EBITDA amounted to Baht 18.344 billion (a 10% drop from last year). IRPC earned more benefits due to investment promotion of various projects, notably environmental projects, contributing to its net profit of Baht 7.735 billion.

IRPC remains focused on driving for sustainable growth by conduct business with balanced economic, social, and environmental consideration in response to all stakeholders. At the same time it relentlessly forges ahead with the development of the quality of life for communities around its industrial zone for its ultimate goal of sustainable mutual growth.

Please follow our economic, social, environmental performance and other data at www.irpc.co.th



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