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POWER DRIVES US TOWARD **FURTHER SUSTAINABILITY**



**2017 CORPORATE
SUSTAINABILITY REPORT**
IRPC Public Company Limited

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CEO STATEMENT



Throughout the past 11 years of continuous development and improvement, Project after project, IRPC has invested in years ago, has begun to fructify. Projects include “Delta” a work process improvement project, began in 2015; the UHV (Upstream Project for Hygiene and Value Added Products) project, which has been in full production since the second quarter of 2017; the polypropylene production expansion project (PP) with capacity of 300,000 tons per year started its commercial operation date in the third quarter of 2017; Meanwhile, the EVEREST project has joined the herd since the beginning of 2016 to increase more than THB 7,000 millions in EBIT. As a result of these aforementioned projects IRPC has posed a very strong 2017 overall performance with a net profit of THB 11,354 millions, 17% growth from 2016.

To continue on a path of business prosperity, IRPC has cash availability for investment at least THB 100 billions in its five-year business plan (2018–2022) according to the GDP strategy, which will drive the organization to success and accomplish the vision to be leading integrated petrochemical complex in Asia by 2020.

With awareness of the value of human resources that is an important driving force in IRPC’s growth. Therefore, IRPC has begun sowing the seeds of consciousness in its employees under the core values of i SPIRIT, which is about empowering IRPC employees by giving them a sense of ownership of the organization and a sense of responsibility for business performance. This is to give confidence and power to all parties in their ability to coordinate work, and to continually create excellent work and new innovations based on sound work ethics and social responsibility. To drive the organization towards such ideals, we have to harness the value of i SPIRIT as a belief and way of life that is embedded in the DNA of the organization and its people. Whenever an employee or executive is hesitant in decision making, he or she will need to use IRPC DNA to make that decision. In the end, when everyone in the organization believes and understands i SPIRIT values, and cultivates the DNA that the organization needs, effective corporate culture is created. Hence, stakeholders will see that IRPC is an organization that has identity, is reliable, and has an excellent track record of achieving sustainable goals. IRPC also pays attention to human resource development and is developing its employees’ potential to support the company’s growth. In 2017, IRPC allocated a budget of over THB 190 millions for staff development and its human resource development plan implementation to safeguard its employees and stakeholders. IRPC is promoting a culture of safety for its employees and contractors with the objective of ‘Zero Harm for Everyone, Everywhere’. The goal is to be a safe enterprise where there are zero work-related accidents for both employees and contractors, and to have a good safety culture throughout the organization.

In addition to business development, with every step of development accompanying responsibility for all stakeholders, IRPC is committed to creating sustainable growth for the community, society and environment as well. IRPC recognizes the importance of developing an eco-factory as a model for industrial plants that are strong in environmental quality management while focusing on cost-effective and efficient use of materials and energy by systematic planning. To increase production efficiency, a cooperative network between factories in the area has been established. This increases production efficiency, reduces environmental impact and reduces waste, which results in lower costs, increased profits and increased competitiveness for IRPC. Currently, all 24 plants are certified as Eco-Factories by the Industrial Environment Institute, The Federation of Thai Industries. IRPC will raise its operations level to that of an Eco-Industrial Zone (IRPC EIZ) that cooperates and exists with the community holistically. This is to improve the quality of life and economy of the area so that the community can grow with IRPC sustainably. Finally, IRPC will integrate and upgrade its operations to develop an Eco-Industrial Town by working with government agencies. IRPC's sustainability is a 360-degree concept, which means that sustainability is not restricted to within the organization, or is simply about responsibility for the surrounding society, or benefits to the community such as donations. IRPC can add benefits and give back to society and community more by the continuous driving of social projects under the concept of 'Care' 'Share' 'Respect'. The model project that the company is proud of for having created significant social benefit is the Lam Sai Yong Model Project. This was initiated using the knowledge and experience of the company in the management of water resources in the Ban Nong Yang community, Lam Sai Yong Sub-District, Nang Rong District, Buriram Province, which experienced water shortage and drought. This project helped improve the quality of life of the community, giving them water for consumption throughout the year. Another project that the company has done for the seventh year running now is "From Bench to

Community" for which the company donated plastic pellets used in the production of prosthetics to the Prothesis Foundation of H.R.H the Princess Mother and has also created prosthetics-making units in various areas working together with the aforementioned foundation, helping improve the quality of life for the disabled.

The success of IRPC's sustainable business approach has been reflected in its selection as a member of the Dow Jones Sustainability Indices (DJSI) Oil & Gas Refining & Marketing Industry for the fourth consecutive year. IRPC has also been chosen as one of the top 100 companies listed by Thai Pat Organization for its outstanding performance in environmental, social and governance (ESG) for the third year running. IRPC also plays a role in driving sustainability working with national and international organizations through being a signatory member of the Thai Business Council for Sustainable Development (TBCSD), which supports the UN's Sustainable Development Goals, a member of Thailand's Private Sector Collective Action Against Corruption, and a member of Global Compact Network Thailand. This is to push for the implementation of the UN Global Compact's ten international principles and to support the implementation of the 17 UN SDGs.

Finally, on behalf of IRPC, I would like to thank all the stakeholders for their contribution to the success of the company and for continuing to support IRPC. IRPC will be undergoing a makeover starting today. From 2018 onwards, the opportunity to see IRPC's success in becoming the leading integrated petrochemical complex in Asia will not be hard. IRPC continues to strive to create shared values for society and all stakeholders in order for Thailand to develop and flourish sustainably.

**SUKRIT SURABOTSOPON****President**

ABOUT IRPC

FOR OVER A DECADE AS THE LEADING INTEGRATED PETROCHEMICAL BUSINESS, IRPC ASPIRES TO CONTINUOUSLY OPERATE AND DEVELOP OUR BUSINESS TO BE A STRONGLY GROWTH ORGANIZATION ALONG WITH BUILDING SUSTAINABLE SHARED VALUES FOR OUR STAKEHOLDERS.



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



INDIVIDUAL OWNERSHIP

having entrepreneurial spirit
or mindset



RESPONSIBILITY FOR SOCIETY

growing with a sense of
responsibility to society and the
environment, committed to
response all stakeholders' needs



SYNERGY

working together to reach
common goals



INTEGRITY AND ETHICS

believing in working with honesty
with transparent management
and good governance



PERFORMANCE EXCELLENCE

setting challenging targets,
work hard to achieve a better
result by continuous
development and
improvement process



TRUST AND RESPECT

building trust and confidence
among customers, employees,
suppliers and every stakeholder



INNOVATION

increasing capability and skills
to create innovation based on
knowledge about products,
services, operations and processes

DESIRABLE BEHAVIORS

**INDIVIDUAL OWNERSHIP**

Work smart with the energy and determination to go forward. Do not give in to the obstacles in the spirit of entrepreneur in order to be able to create better for the organization.

**RESULT - ORIENTED**

Set clear goal, face challenges, work towards the goals and aims for the best possible result as professionals.

**PROMISE AND DELIVER**

Be a trustworthy individual who keeps their words by prioritizing over the limitations and various factors. Aim to complete the agreed tasks to successfully accomplish with quality and within scheduled time.

**CONTINUOUS IMPROVEMENT**

Think outside the box. Be open to and seek for new approaches and different methods of working. Push the idea forward into actions to produce effectiveness, value, and inspiration in order to be accepted by the surrounding people and constantly pursuing betterment.

**DO THINGS TOGETHER**

Pursue cooperation and empower all relevant sectors without discrimination for the organization to reach above and beyond the set goals. We also help, support and cooperatively cultivate success with the belief that helping others to succeed is considered to be a success of our own.

**NO BIAS**

Believe in the principles and approach of the company which emphasizes on knowledge, talent and skills and achievements. We vouch for tolerance of diversity in results as well as to celebrate and value individuals who have shown results, talents and higher potential with the best intention for them.

**ACTIVELY SOLVE THE PROBLEM**

Be farsighted. Able to quickly identify both the opportunities and obstacles. Plan proactively and make decision professionally with sagacity and creativity.

STRATEGIC GOALS

BIG

REVENUE GROWTH OF 5%
EBITDA GROWTH OF 10%

STRONG

1ST QUARTILE ROIC
IN PETROLEUM AND
PETROCHEMICAL
INDUSTRY

LONG

MEMBER OF DJSI
EMERGING MARKET
UNIVERSE



IRPC PUBLIC COMPANY LIMITED IS THE FIRST EVER INTEGRATED PETROCHEMICAL COMPANY IN SOUTHEAST ASIA WITH THE REFINING CAPACITY RANKING THIRD IN THAILAND. AS OF CURRENT, IRPC MAINLY OPERATES IN RAYONG PROVINCE WHICH IS AN INDUSTRIAL ZONE UNDER THE MANAGEMENT OF IRPC WITH THE BASIC INFRASTRUCTURE TO SUPPORT BUSINESS OPERATIONS INCLUDING DEEPWATER PORT, OIL DEPOT AND POWER PLANT. THE BUSINESS OPERATES UNDER THREE CORE BUSINESS CATEGORIES WHICH ARE PETROLEUM BUSINESS, PETROCHEMICAL BUSINESS AND OTHER SUPPORTING BUSINESSES.

PETROLEUM BUSINESS



For petroleum operations, IRPC's refinery has a total capacity of 215,000 barrels per day ranking as the third highest in Thailand. Products of petroleum consisted of Naphtha, Gasoline, Diesel, LPG and fuel oil. Furthermore, IRPC also has a Lube Base oil Plant with the production capacity of 320,000 tons per year as well as an asphalt plant with the production capacity of 600,000 tons per year which is the highest capacity in Thailand.

Additionally, IRPC continues to develop TDAE (Treated Distilled Aromatic Extract) and RAE (Residue Aromatic Extract), which are additive substances to manufacture tyres for vehicles to be less Carcinogenic in order to reduce health impact to consumers.

PETROCHEMICAL BUSINESS



IRPC is the leading manufacturer of upstream petrochemical such as olefins and aromatics with production capacity of 1,221,000 and 367,000 tons per year, respectively. These products are then used as feedstock for downstream petrochemical manufacturing which includes polyolefin pellets (HDPE, PP and Polyol) under production capacity of 940,000 tons per year and styrenics pellets (ABS, SAN, EPS and PS) under production capacity of 334,000 tons per year. The finished products are sold to plastic manufacturers for readymade plastic products both domestically and internationally under the brand called 'POLIMAXX'.

Moreover, IRPC also intends to raise the potential of petrochemical business in the midst of higher competitiveness as the consequence of economic changes

and the demands of consumers by inventing innovative products with various other leading companies; for example, plastic pellets from natural rubber which can replace synthetic rubber, plastic pellets with natural color extracts and plastic pellets from recycled pellets produced from leftover wood chips from furniture and wooden toys manufacturing. All of the aforementioned products promotes maximization of natural resources to its worthiest potential. In addition to the products with natural extracts, IRPC has also developed TDAE and RAE products which are tire additives with lower carcinogenic along with various other products with special features for different purposes.

OTHER SUPPORTING BUSINESSES



BASIC INFRASTRUCTURE AND PUBLIC UTILITIES

IRPC produces and sells electricity and steam along with providing water system service, air compressor system service and wastewater treatment service to industrial customers and Electricity Generating Authority of Thailand (EGAT). Furthermore, IRPC also provides other services to fully support integrated business operation under the volume and quality that meet Industrial Estate standards.

DEEPWATER PORT

IRPC operates deepwater port business which provides harbor services for domestic and international freight forwarding. In doing so, we offer modern and internationally standardized infrastructure and public utilities as follows:

- Bulk & Container Terminal (BCT) – Being 900 meters in length and 44 meters in width, the terminal contains 6 wharves with the capacity to support vessels with the size of 800 – 150,000 tons. The terminal provides general cargo handling services such as steel, palm shell, coal, granite, sand, fertilizer and structural goods. As of current, there are approximately 2 million tons of goods being handled per year through which the port have handled approximately 260 vessels per year.
- Liquid & Chemical Terminal (LCT) – With 1,623 meters in length, this terminal consisted of 6 large wharves with the capacity to support vessels with the size of 1,000–250,000 tons. This terminal provides cargo handling services for petrochemical products, liquid petroleum and gas. Approximately 15 million tons of products are being handled per year through which approximately 2,100 vessels are being handled per year.

PETROCHEMICAL AND PETROLEUM STORAGE TANKS

IRPC has over 300 petrochemical and petroleum storage tanks with up to 2.9 million tons of storage capacity to support the selling of petroleum products and providing services to outsiders. All together there are 5 oil depots including Rayong Oil Depot, Phra Pradaeng Oil Depot, Ayutthaya Oil

Depot and Chumphon Oil Depot; all of which are company's properties except for Maeklong Oil Depot whereby the company rented to operate. Each of the oil depot contains harbor to provide cargo handling services that will facilitate efficient operation and distribution as well as to save costs and time for customer's product transportation.

PROPERTIES AND LAND MANAGEMENT

IRPC manages a total of 12,000 rai (approximately 4,743 acres) of land properties located in Rayong province and other provinces with the aspiration to develop these lands into ecological projects for both industrialization and other potential possibilities. The purpose is to aid the expansion of industrial sector and support Eastern Economics Corridor Development (EEC) which is one of the government's policies for investment promotion. Accordingly, land management has been divided into three major groups:

- Industrial zone project: IRPC's industrial zone at Muang Rayong district in Rayong province
- Industrial estate project: Rayong Industrial Estate (Baan Khai) at Baan Khai District in Rayong province
- Potential land: Large land plots with the potential for development in Jana district of Songkla province and other land plots in Rayong, Chiangmai and Lamphun provinces

INVESTOR SUPPORT SERVICES WITHIN IRPC'S INDUSTRIAL ZONE

IRPC provides services to support investor's businesses within IRPC's industrial zone under the business called "IRPC Solutions Provider". The business provides services within IRPC's expertise such as factory and machinery maintenance service; system installation service and information technology trainings; laboratory testing and analysis services; metrology service center certified by ISO/IEC 17025; engineering services; logistics services; truck weighing service; industrial safety training services and metallurgical services.

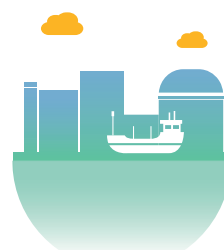
**SALES
REVENUE*** **214,101** THB
MILLIONS



**PETROLEUM
BUSINESS**
THB **150,637**
MILLIONS



**PETROCHEMICAL
BUSINESS**
THB **59,730**
MILLIONS



OTHER BUSINESS
THB **3,734**
MILLIONS

**SALE REVENUE FOR
SPECIALTY PRODUCTS
AND ECO-FRIENDLY
PRODUCTS INCREASED TO**

43%
OF THE
TOTAL



Remark: *Sales includes Petroleum Sales (including excise tax), Petrochemical Sales, Power and Utilities Sales, Sales of storage tank and port service, etc.



COMMUNITY INVESTMENT BUDGET **413** THB MILLIONS



COMMUNITY
DEVELOPMENT
THB **365** MILLIONS



CHARITABLE
DONATION
THB **31** MILLIONS

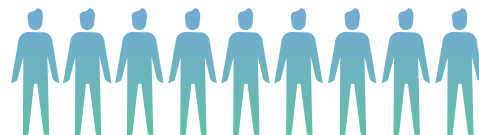


COMMERCIAL
INITIATIVES
THB **17** MILLIONS

NUMBER OF EMPLOYEES

5,498
PERSONS

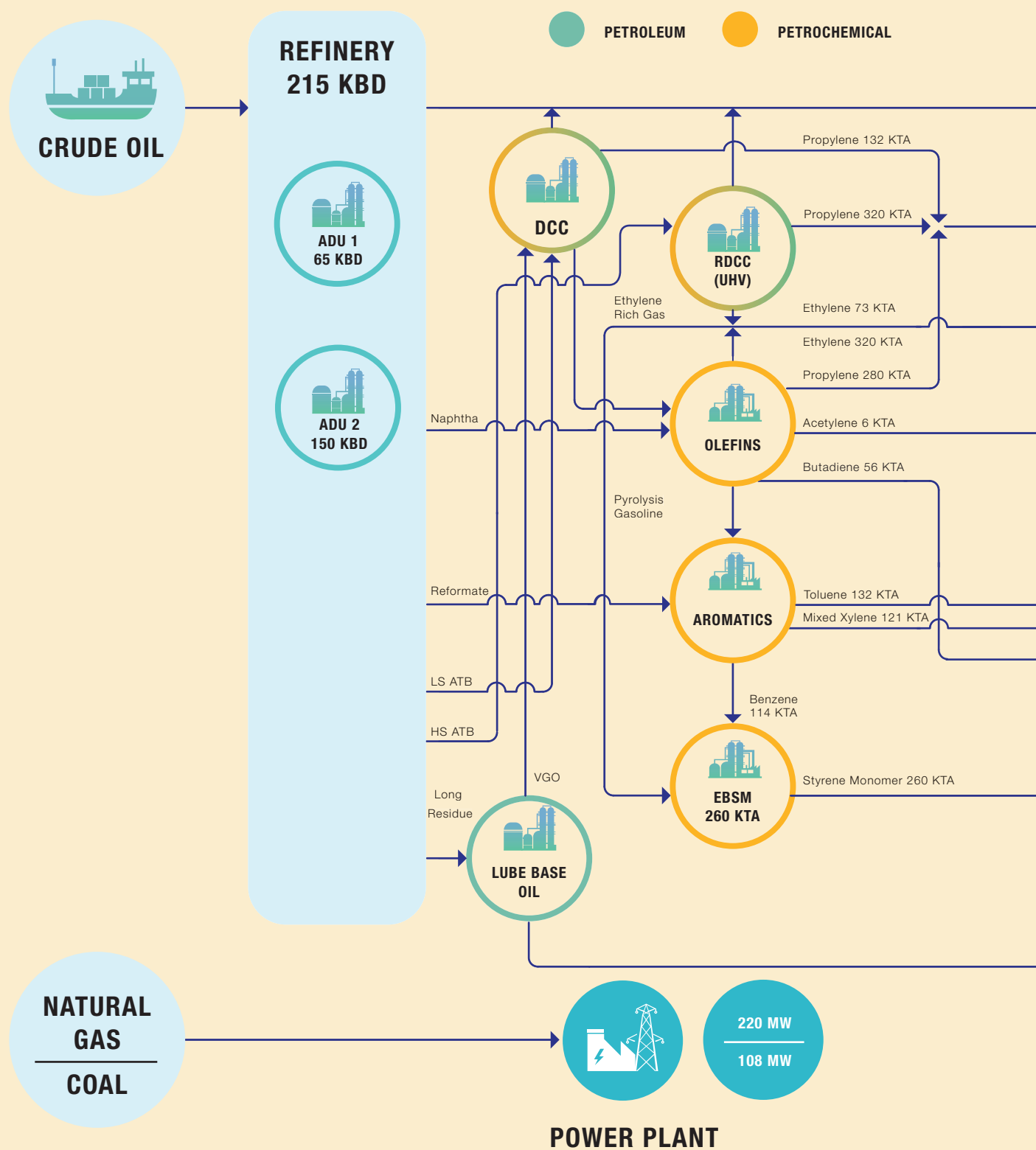
MALE
4,554
PERSONS

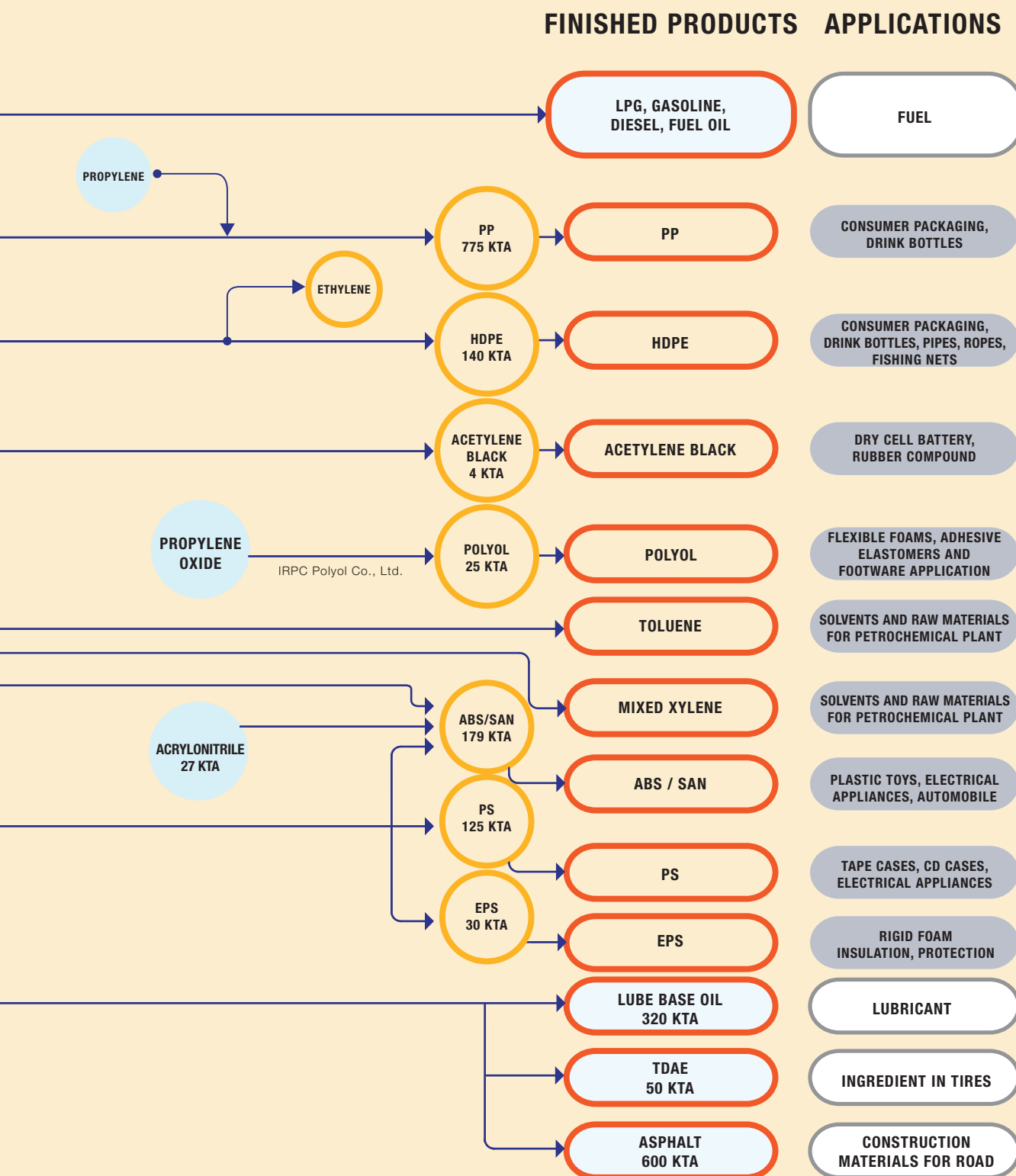


FEMALE
944
PERSONS



INTEGRATED REFINERY AND PETROCHEMICAL COMPLEX FLOW CHART







BUSINESS STRATEGY

IRPC HAS ESTABLISHED BUSINESS OPERATION STRATEGY IN THE PURSUIT OF BECOMING THE LEADING INTEGRATED PETROCHEMICAL COMPLEX IN ASIA BY 2020.

In doing so, we have conducted strategic projects to empower and strengthen core business through operational efficiency improvement and product and service improvement simultaneously along with capacity and products expansion. IRPC also values and strives for the organization to become the role model for sustainability by building a foundation for responsible operations towards stakeholders, society and environment as well as to employ the principles of good corporate governance in business operation.

Accordingly, IRPC has proceeded with a major project that corresponds to the building of potential for core business and strategic plan since 2009 whereby IRPC has reviewed and adapted operational approaches in order to achieve the objectives and comply to economic and societal contexts at the time. Project operations from the past year up to present is as depicted as follows:



2009 - 2014

Project Phoenix was conducted in the purpose of developing environmentally friendly production, improving effectiveness of machinery and empowering business competition all the way to pursuing sustainable growth for the organization.



2014 - 2015

Project Delta was created to improve performance and generate added value by utilizing up-to-date software and finest operating system.



2015 - 2017

Building onto Project Delta was a critical strategic step to raise potential of the organization, whether through hardware, software as well as strengthening organization health, in order to achieve the ultimate targets and be completely sustainable.



2018 - 2020

Planning to expand investment boundary for continuous business growth by cooperating with business partners to develop products and generating mutual benefits through innovations complementary to that of the changing of eras into digitalization of business and industrial operations as driven by the strategy of three major powers under the acronym "GDP".

THE PROGRESS FOR IRPC'S STRATEGIC PROJECT OPERATIONS IN 2017 ARE AS DESCRIBED BELOW





PROJECT EVEREST

Project EVEREST is a core strategy that begun back in October 2015 in the attempt to raise organization's potential by applying Best Practice in operations, marketing and commercial, procurement and corporate management. The effort also includes improving organizational health by enhancing all dimensions of human resource management to promote self-improvement along with establishing a system of mindset, core value and culture. The aim is to reinforce human resource potential to be able to operate and drive business efficiently in order to elevate competitiveness capability and produce greatest benefits to the organization both in short-term and long-term.

Project EVEREST generated an additional profits (EBIT) from commercial operations in the amount of THB 7,218 millions in 2017. Such a success derived from cooperative efforts and talents of employees throughout the organization. Additionally, IRPC has developed performance analysis and monitoring system in order for the operations of Project EVEREST to achieve the outlined objectives as well as to constantly utilize the mentioned system to drive organization's core strategy efficiently.

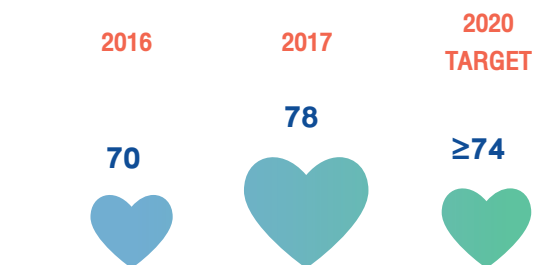


IN **2017**
PROJECT EVEREST
HAS DEVELOPED AND
PROPOSE TO GENERATE
EBIT OVER
THB **10,339**
MILLIONS
IN 2018

EBIT FROM PROJECT EVEREST (THB MILLION)	2016	2017	2017 TARGET	2018 TARGET
Operations Area Improve Crude Oil Efficiency and increase yield through production unit adjustment including improving energy efficiency, maintenance efficiency and reducing operational losses.	1,091	3,011	2,751	4,736
Commercial Area Multiplying trade value from petroleum refining and petrochemical products	778	3,256	3,269	4,326
Procurement Area Improving time and costs efficiency in case of refinery's equipment inspection and maintenance shut down as well as bettering effectiveness in procurement of equipment in large amounts and also for costly products.	277	411	353	491
Corporate Area Develop capacity for maintaining efficiency in continuous production.	165	540	1,143	786
Total				
	2,311	7,218	7,516	10,339








ORGANIZATION HEALTH INDEX (OHI)
PROMOTE HUMAN RESOURCE
POTENTIAL THROUGHOUT
THE ORGANIZATION WITH
THE TARGET OF 1ST QUARTILE



Correspondingly, Project EVEREST has proposed to make additional profits (EBIT) in the amount of THB 10,339 millions in 2018 whereby will help IRPC achieve the targeted return on investment (ROIC) over 14 percent bringing it into the Top Quartile by 2020. In order to sustain the capability in

maximizing profits, Project EVEREST has, therefore, proceeded to improve organizational health with the Top Quartile goal of at least 74 in Organization Health Index. Such operation will play a role in helping IRPC maintain the ability to compete after the completion of the project.

TOP5 INITIATIVES FOR PROJECT EVEREST IN 2017

INITIATIVES	DESCRIPTION	BENEFITS (THB MILLION PER YEAR)	FUTURE INITIATIVES
 <p>Initiative for gasoline production unit reformation</p>	Reformation of gasoline production unit for additional production capacity to be able to produce up to 120 million liters of gasoline per month from the current 95 million liters. As a result, the company will receive an additional profits of THB 760 millions per year.	760	Adjust production condition to accommodate higher gasoline production capacity to 130 million liters per year in 2018.
 <p>Initiative to reduce crude oil costs by increasing crude oil usage from cheaper sources</p>	Lowering costs by using more crude oil from cheaper sources that can still produce as high of the quality of petroleum and petrochemical products resulting in an additional profit of THB 750 millions per year.	752	Find low cost crude oil sources that can be used as additional raw material to steadily reduce crude oil costs.
 <p>Initiative to improve Plants Reliability</p>	Design planning and examine machinery and equipment in the factories to always ensure readiness and reliability in order to promote factory stability to support full production capacity which will result in an additional profit of THB 415 millions per year.	415	Examine machinery and equipment in the factories accordingly as planned and expand area of examination to cover the entire company.
 <p>Initiative to improve efficiency in heat transfer and storage in industrial furnaces</p>	Improving efficiency in heat transfer and storage in industrial furnaces will help reduce the costs of fuel consumption in production by up to THB 200 millions per year.	201	Adjust production control to accommodate effective fuel consumption to reduce waste gas.
 <p>Initiative to enhance efficiency in waste gas management</p>	Reduce loss of combustion gas flared from the combustion chamber by transferring leftover fuel to other in-need factories in order to cut costs by up to THB 170 millions per year	177	Adjust production control to allow maximal efficiency of fuel consumption and to reduce leftover fuels.

BUSINESS OPERATION STRATEGY FROM 2018 TO 2020: STRATEGIC PLAN GDP

IRPC is determined to continuously generate higher profits to be in the Top Quartile of Petrochemical Business Group. In doing so, we analyze current circumstances of the organization to identify strengths and weaknesses that can contribute to company's advantages over competitors. We also investigate for opportunities and obstacles both from internal and external factors that will help promote or pose as limitations in business strategy adjustments. Some of the factors are oil supplier agreement (both OPEC and Non-OPEC), politics, society, economy, regional environmental policy and the direction of related industries. Moreover, as digital transformation became more relevant in business operation

IRPC established a new strategic plan to drive the organization forward under three core powers with the acronym "**GDP**" (Power of **G**rowth, Power of **D**igital, and Power of **P**eople) which will pose as the core strategy to endorse the pursuit of becoming the leading integrated petrochemical complex in Asia by 2020.



POWER OF DIGITAL

IRPC will adopt up-to-date digital system and innovation to lift the standards of working procedures, reduce work process, manage supply chain and enhance production plant's performance as well as to develop a complete digitalized customer service system.



POWER OF GROWTH

IRPC plans to expand the scope of investment in order to continuously grow by emphasizing on increasing capacity for environmentally friendly production in petrochemical industry, expansion of products market to ASEAN, cooperating with business partners to generate additional values and develop high value products with exceptional innovations.



POWER OF PEOPLE

IRPC has adjusted organizational structure to promote agility, suitability and strength as corresponded to the direction of personnel growth together with cultivating organization's desirable behaviors (IRPC DNA) through creating incentive for work, leadership development and appropriate personnel selection in order to establish IRPC organizational culture in the future.

NEW BUSINESSES

IRPC has proceeded the following to pursue opportunities in new business investment in order to reinforce growth and sustainably add value to the organization.

PROJECT ETP REVAMP

Project ETP Revamp is the expansion of ethylene production capacity to an additional 1.8 hundred thousand tons per year along with an additional 90 thousand tons of propylene per year from the current 3.24 hundred thousand tons per year. The project is in its research phase which requires comparison between ETP Revamp and New Cracker together with examining for derivative to support olefins produced.

PROJECT MARS (MAXIMUM AROMATICS PROJECT)

Project MARS is dedicated to one million tons per year production of Paraxylene and 300 thousand tons per year production of Benzene by using existing raw materials that are currently have to be sold into the market. This results in the added value to the unused raw materials. Consequently, the highest integration value can be achieved in the market. This project requires approximately USD 1,000 millions investment. The operation will help increase production ratio of petrochemical products from 15 percent to approximately 25 percent which is the highest production ratio of the integrated petrochemical manufacturer. The project is currently in its initial design phase to determine the exact investment costs and to submit for approval from the board of directors meeting at the end of 2018. Project operation is estimated to take 5 years.





CORPORATE GOVERNANCE

FOR IRPC, GOOD CORPORATE GOVERNANCE IS THE ABILITY TO MANAGE THE ORGANIZATION AND BUSINESS WITH EFFICIENCY, TRANSPARENCY AND AUDITABILITY. IN ESSENCE, IT IS A CRUCIAL FOUNDATION THAT CAN HELP MAXIMIZE BENEFITS FOR THE BUSINESS AND ALL STAKEHOLDERS HARMONIOUSLY.

BUSINESS DRIVER

IRPC places highly emphasis to be a role model organization for good corporate governance with the commitment to operate business with vision, ethics and advocacy of environmental and societal quality. We commit in adhering to good governance principles to cultivate business potential in order to compete and grow sustainably and instill confidence amongst investors while simultaneously operate business responsibly towards society and environment. This is to ensure sustainable relationship between IRPC, local community, society, and country which is a significant contributor for IRPC to become an organization with excellent operation and sustainability.

MANAGEMENT APPROACH

IRPC has devised corporate governance policy and handbook in compliance to United Nations Global Compact (UNGC), advanced level policy for Stock Exchange of Thailand, and criteria for ASEAN Corporate Governance Scorecard. We have adopted the stated policies as the standards of our business ethics and morality for our board of directors and employees of all levels. In addition, we also support and follow the 10 Principles of the United Nations Global Compact and the 17 Sustainable Development Goals proposed by United Nations.

STRATEGY AND POLICY

- Corporate Governance Excellence
- Corporate Governance Policy
- Anti Corruption Policy
- No-Gift Policy
- Good Corporate Citizenship Policy
- Corporate Compliance Policy

MANUAL/STANDARD PROCEDURE

- Having a Corporate Governance Handbook which requires all employees to sign off for acknowledgement and to strictly adhere to the guideline along with having channels for whistleblowing on non-compliance to corporate governance and business ethics.
- The audit committee is responsible to review the internal control system and internal audit system to reassure that business operation is in compliance to SET requirements, corporate governance and international practices.

INFORMATION SYSTEM

- Providing online training system for employees on morals and ethics in business.
- Board Portal is an operating system for Board of Directors that allows a quick and effective access to information through online. Accessible information consists of board of directors and sub committee meeting agenda from past to present, knowledge development plan, important news and information for board of directors and etc.
- Publishing E–Ethic report online that requires employees of all levels to report on conflict of interest as stated in corporate governance handbook in order to foster conscience for operational transparency.

- Continuous Control Monitoring System (CCMS) is a monitoring system for suspicious information recording on SAP. The system would notify executives or authorized individuals for acknowledgement and verification whenever there is a suspicious transaction in order to be able to handle matters in timely manner, resulting in an effective and systematic internal control.

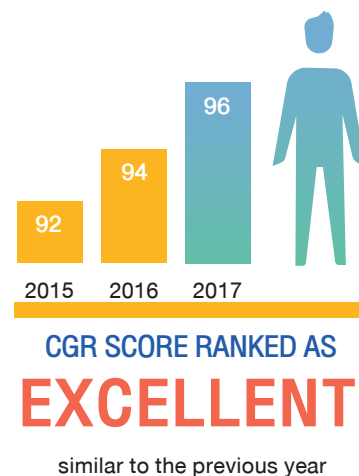
- Audit Information System (AIS) is one of the module in SAP that was designed to support internal audit system, particularly to review the business data that users have recorded on SAP system.



For further information regarding Corporate Governance,
Please visit <http://www.irpc.co.th/en/cg.php>

PERFORMANCE

Performance of the Board of Directors are assessed internally by the Board of Directors annually and assessed by external independent auditor once every three years. In doing so, the chairman of the board will direct the improvement and development per the recommendations of external independent evaluator. The next evaluation will occur in 2018 where the performance will be reported to Corporate Governance Committee, the Board of Directors and shareholders, respectively. Furthermore, we also have received an evaluation score of 96 (from 100) from Good Corporate Governance of Thai Listed Companies (CGR) in 2017 by Thai Institute of Directors (IOD) whereby the evaluation results ranked in “excellent” similar to the previous year. The scores have also been increasing when compared to 2015 and 2016 where the scores were 92 and 94, respectively. Additionally, IRPC also annually organizes a general meeting of IRPC shareholders to present annual performance. In 2017, IRPC has consecutively been awarded for full score of 100 for the second year, from Quality Assurance Program by Thai Investors Association for the annual general meeting of shareholders in 2017.



As for the promotion of transparent and ethical business operations, IRPC has cultivated the working mindset amongst employees as dictated in IRPC’s ethics and principles in business operation. All employees are required to sign off on the ethics in business operation for acknowledgement and to receive ethics training for business operation that are available in orientation program for new employees, online training system and CG Day activities for IRPC and PTT Group. For 2018, IRPC plans to add training for whistleblowing and Three Lines of Defense for department managers, division managers, section managers, and employees in Bangkok and Rayong.

The aim is to further understanding and awareness in working towards organization's goals under rules and regulations along with emphasizing on organizational culture of being active when witnessing wrongdoing. The training will first commence with the department responsible for The Second Line of Defense with at least two trainings per year. In the future, IRPC will initiate functional KPI for Compliance to develop Compliance Culture and ultimately an organization with Zero Non-compliance.

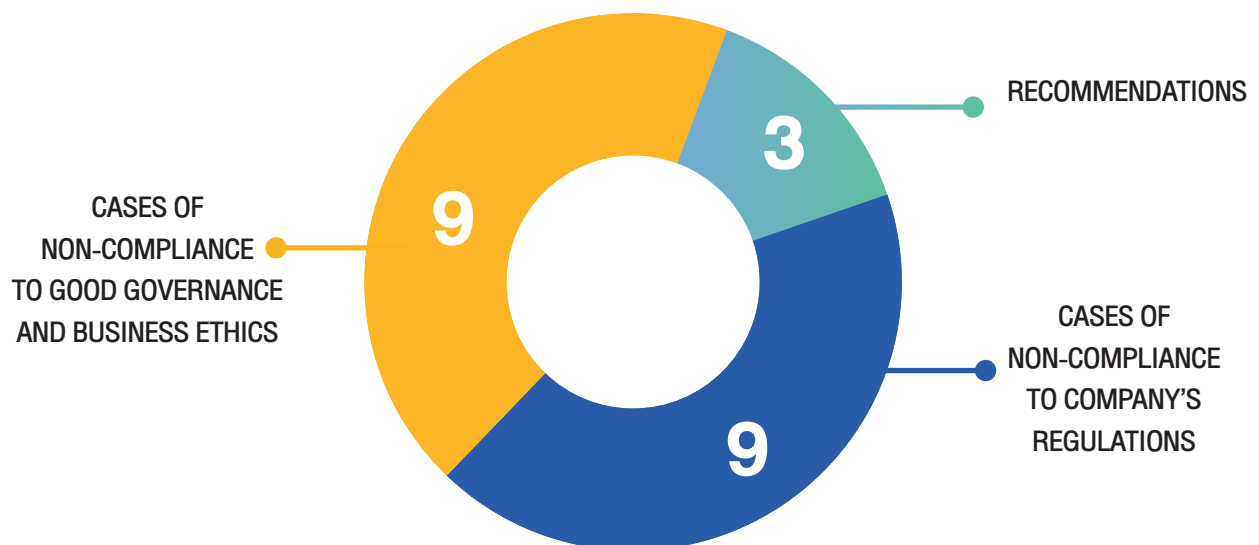
At IRPC, whistleblowing on non-compliance operation to good corporate governance and business ethics can be done via website, letters, e-mail and PO Box 35. The received information will be incorporated in the evaluation of good corporate governance performance. In 2017, IRPC received a total of 21 complaints, which are 18 non-compliance to good corporate governance and business ethics cases and
























3 recommendations. In summary, 17 cases have closed while another 4 are still on process. As a consequence, disciplinary action was taken fairly and transparently against each violation case, however, there was no complaint found relate to anti-corruption policy or fraudulent and no significant damage found. The cases were assigned to Office of Corporate Internal Audit and relevant business units for verification and the reports were made to the Audit Committee and the Board of Directors as well as the related party in a sequence specified in Complaint Management Procedure.



**IN 2017, 100 PERCENT
OF EMPLOYEES ACHIEVED THE TARGET
REPORTING ON CONFLICT OF INTEREST.**

NUMBER OF NON-COMPLIANCE COMPLAINTS IN 2017 (TOPICS)



KEY PERFORMANCE INDICATORS		2017 TARGET	2017 PERFORMANCE	2018 TARGET
	ASSESSMENT ACCORDING TO THE CORPORATE GOVERNANCE REPORT (CGR) OF THAI LISTED COMPANIES (SCORE)	94 Excellent	96 Excellent	96 Excellent
		 	 	 
	NUMBER OF EMPLOYEES SIGNED OFF ON ETHICS IN BUSINESS OPERATION ACKNOWLEDGEMENT (PERCENTAGE)	100	100	100
				
	NUMBER OF EMPLOYEES WHO RECEIVED TRAINING FOR ETHICS IN BUSINESS OPERATION (PERCENTAGE)	100	80	100
				
	BUSINESS UNITS THAT RECEIVED PLANNED INTERNAL AUDIT (DEPARTMENTS)	23	23	25
				
	ANTI-CORRUPTION INVESTIGATION AND PREVENTION PLAN (NUMBER OF DEPARTMENTS HAVING POTENTIAL CORRUPTION RISK)	6	6	6
				

MANAGEMENT STRUCTURE

IRPC is fully aware of the impact of structure, size and composition of the Board of Directors and sub-committee on corporate performance. Therefore, IRPC has designed a structure with appropriateness in size, category and business complexity to promote transparency and remain free from the influence of authorized shareholders in order to establish accountability in business management for stakeholders.

IRPC established nomination and remuneration committee to ensure that directors nomination process is transparent and impartial; free of discrimination against gender, age, race, nationality and/or religion. The process should regard to diversity in profession or expertise in order to nominate the most suitable individual for the organization. Pertaining to director's remuneration structure, IRPC has stipulated clearly written principles and format for directors and subcommittee. Specifically, remuneration has to be approved by shareholders and should reciprocate the size of the business both sufficiently and impartially in order to motivate and retain quality directors while remaining compliance to the benefits of shareholders. Precisely, remuneration refers to retainer fees, meeting fees, bonuses as pertinent to and varies by performance as well as other forms of compensation; both monetary and non-monetary.

BOARD OF DIRECTORS HIGHLIGHT DASHBOARD



PERCENTAGE OF FEMALE
BOARD OF DIRECTORS

13.33%



THERE ARE

9 DIRECTORS WITH ENERGY,
PETROLEUM AND
PETROCHEMICAL EXPERTISE

2 DIRECTORS WITH ECONOMICS EXPERTISE

15 DIRECTORS WITH CORPORATE
GOVERNANCE EXPERTISE.



THE MEETING ATTENDANCE
OF THE ENTIRE
BOARD OF DIRECTORS

IS AN AVERAGE OF **96%** PER YEAR
(75% AS MINIMUM REQUIREMENT)



THE AVERAGE
BOARD TENURE IS **3** YEARS



THE AVERAGE AGE
OF THE BOARD
OF DIRECTORS **58** YEARS



DIRECTORS MUST NOT HOLD
MORE THAN **4**

OTHER EXTERNAL DIRECTORSHIPS IN LISTED
COMPANIES WHILE EXECUTIVE DIRECTORS
SHOULD NOT HOLD THE POSITIONS IN MORE THAN
2 OTHER LISTED COMPANIES

MORALS AND ETHICS IN BUSINESS OPERATION

IRPC has stipulated ethics as one of the core topic in Corporate Governance Policy by detailing it in Corporate Governance Handbook and communicated throughout the organization to nurture understanding and daily implementation.

Moreover, IRPC also stipulated and announced Anti-corruption Policy and No Gift Policy in addition to Corporate Governance Policy as a method to secure IRPC's transparent and impartial business operation.

As a result of our meticulous adherence to the policy, no breaches on SET regulations and laws on business conduct and environment were made in 2017. There were also no case of non-compliance to anti-corruption policies and trade monopoly as well as no significant damages were found.

ANTI-CORRUPTION NETWORK COUNSELING PROGRAM

IRPC is distinctly committed to our position of being a transparent organization and to advocate a national level anti-corruption. In 2017, IRPC received the extension of Collective Action Coalition Against Corruption (CAC) membership; consecutively for the second time after first joining in 2014. We are also determined in expanding anti-corruption network to our subsidiaries. Due to such determination, IRPC POLYOL Company Limited and IRPC Technology Company Limited were able to earn CAC membership in 2017.

Furthermore, since 2016, IRPC has been organizing counseling program for suppliers in becoming CAC members. As of current, there are 27 suppliers who have declared interest in earning the membership.

ANTI-CORRUPTION

Corresponding to our good corporate governance and social responsibility, IRPC has received NACC Integrity Awards consecutively for the second year from The Office of the National Counter Corruption Commission in their 7th Annual Transparency Awards Ceremony 2017 in the theme “NACC for Zero Tolerance”. Respectively, IRPC will remain committed to good corporate governance and as a reliable contributor to a better Corruption Perception Index (CPI).



CG DAY

IRPC has arranged for IRPC CG DAY and annually participated in PTT Group CG DAY organized by PTT Group.

- IRPC CG DAY 2017 was organized by Corporate Governance Division, Corporate Affairs under the theme “Tone at the Top” with the discussion topic of “How Good Corporate Governance Makes Corporate Sustainability”. The discussion aims to communicate and foster comprehension and value for good corporate governance through the experience of Corporate Governance Committee who are responsible for business direction and strategy. The forum hopes to enlighten perspective of managers and employees which will help benefit in their workings and promote their engagement in making IRPC an organization of sustainable business.



KHUN SUKRIT SURABOTSOPHON
PRESIDENT

A critical factor that will help shape sustainable corporate governance is the fact that every employee deliberately respect and follow good corporate governance. There should also be a verification system for corporate governance, for instance, digitalization of procurement system for equity data collection and analysis to help sustain transparency in procurement process as well as to reduce risks of corruption.



IRPC CG DAY

- PTT Group CG DAY 2017 was organized under the theme ‘CG in DNA: Together WE Can’ to cultivate conscience for all levels of employee of PTT Group. The program aimed to instill ethics and morality into their DNA such that all employees would operate with honesty, integrity and be prepared for monitoring at every stage of operation. Moreover, IRPC intends to implement such efforts further onto our suppliers and other groups of stakeholders.





RISK AND CRISIS MANAGEMENT

IRPC RISK MANAGEMENT FOCUSES ON THE CONTINUOUS IMPROVEMENT OF RISK MANAGEMENT SYSTEM TO KEEP THE IMPACTS TO BUSINESS OPERATION, SOCIETY, AND ENVIRONMENT WITHIN THE RISK APPETITE. IRPC RISK MANAGEMENT INTEGRATES CRISIS MANAGEMENT AND EMPOWERS INDIVIDUAL RESPONSIBILITIES THROUGH RISK CULTURE AT ALL LEVEL OF THE ORGANIZATION.

BUSINESS DRIVER

IRPC recognizes and places importance on the efficiency of the enterprise risk management in order to protect and reduce potential losses from economic, environmental, social as well as political, technological, and regulatory risks that can affect IRPC's business continuity and build confidence to stakeholders on achieving business objectives and goals. In addition, IRPC can analyze opportunity in business operation from the systematic risk assessment, which helps IRPC to create value from future business opportunity.

MANAGEMENT APPROACH

STRATEGY AND POLICY

- Risk Management Policy that covers the overall of organization risk management and systematically connects other management systems throughout the organization.

- Risk management framework, which has been developed to be appropriately applied as part of organization-wide management system.

MANUAL/STANDARD PROCEDURE

- Risk management system that is in line with international risk management framework and process (ISO 31000:2009) and Operational Excellence Management System (OEMS)
- Business Continuity Management system that is line with international standard (ISO 22301:2012).
- Enterprise Risk Management Manual that consists of risk management principle risk management and framework and risk management process.

INFORMATION SYSTEM

- Enterprise Risk Management Program is a tool to allow risk management to be applied throughout all level in the organization efficiently. As well as, its function on connecting with performance index program and construct knowledge on risk management through intranet.



For further information regarding Risk and Crisis Management,
Please visit <http://www.irpc.co.th/en/sustainable.php>

RISK MANAGEMENT FRAMEWORK



MANDATE AND COMMITMENT OF EXECUTIVES

That will follow strategy and risk management plan as well as support employees at all level to be motivated in managing risks together.



RISK MANAGEMENT FRAMEWORK DEVELOPMENT

By creating perception on organization and context of the company, establishing risk management policy, assigning responsibility and qualification of related persons in risk management, and integrating risk management principles with organization operating process.



CONTINUAL RISK MANAGEMENT FRAMEWORK IMPROVEMENT

By using the results of monitoring process and continuous improvement of risk management to develop decision making guideline with the purpose of improving risk management framework, policy, plan, and culture.



RISK MANAGEMENT FRAMEWORK IMPLEMENTATION

By assigning reasonable timeframe and strategy, integrating risk management principles with organization operating process, complying with laws, and creating knowledge and understanding to employees at all level.



RISK MANAGEMENT FRAMEWORK MONITORING AND REVIEW

By considering the conformity of risk management performance index, risk management plan, and company's internal and external context.

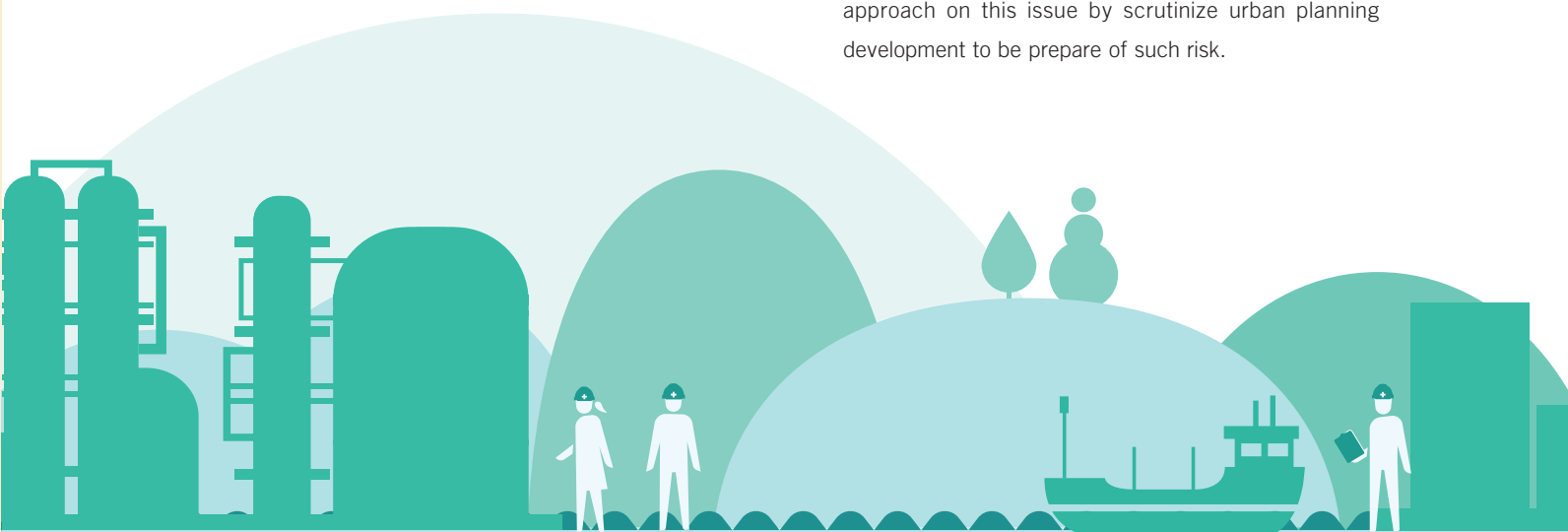
PERFORMANCE

IRPC consistently develops risk management plan in line with corporate strategies by considering both short and long-term business risk and opportunity in terms of price volatility risk, operational risk, capital projects risk, organizational capability risk, policy and regulatory risk, IT security & crime risk. For more information about these risks can be found in IRPC Annual Report 2017, page 160–163

Furthermore, IRPC also conducts risk assessment on anti-corruption in accordance to Collective Action of the Private Sector Against Corruption (CAC) which is initiated by Thai Institute of Directors Association (Thai IOD). Companies joining this program must adopt framework and procedures under United Nations Global Compact (UNGC) 10th Principle Against Corruption (Business Principles for Countering Bribery) which assigned by Transparency International organization. In 2017, IRPC conducted risk assessment on anti-corruption in department and operating process with high risk level such as procurement process, monetary receiving and paying process, project management process, government related permitting process. As result, every process with high risk level has in place risk management plan.

In addition, IRPC is aware of Emerging Risks, which could significantly impact or create opportunity on new business for the company by assessing and revising Emerging Risks that may arise in the next 3–5 years. At present, Emerging Risks of IRPC are the following:

- Risk from Policy for endorsing Eastern Economic Corridor (EEC) because of such policy covers the area of IRPC Industrial Zone which may affect the company in both positive and negative direction. For the positive impact, IRPC can gain opportunities on operating business in Eastern Economic Corridor area. In which, IRPC has an approach to manage these opportunities by establishing strategy and management team to examine in every aspect such as sales and marketing that will be booming, utilization of land use that belongs to the company, endorsement industries, public infrastructure, and other benefits that the company will receive. On the other hand, IRPC may be threaten by the negative impact of this risk such as migrating population and higher density of population in IRPC Industrial Zone that can lead conflict and more complaints in the area. IRPC sets a managing approach on this issue by scrutinize urban planning development to be prepare of such risk.

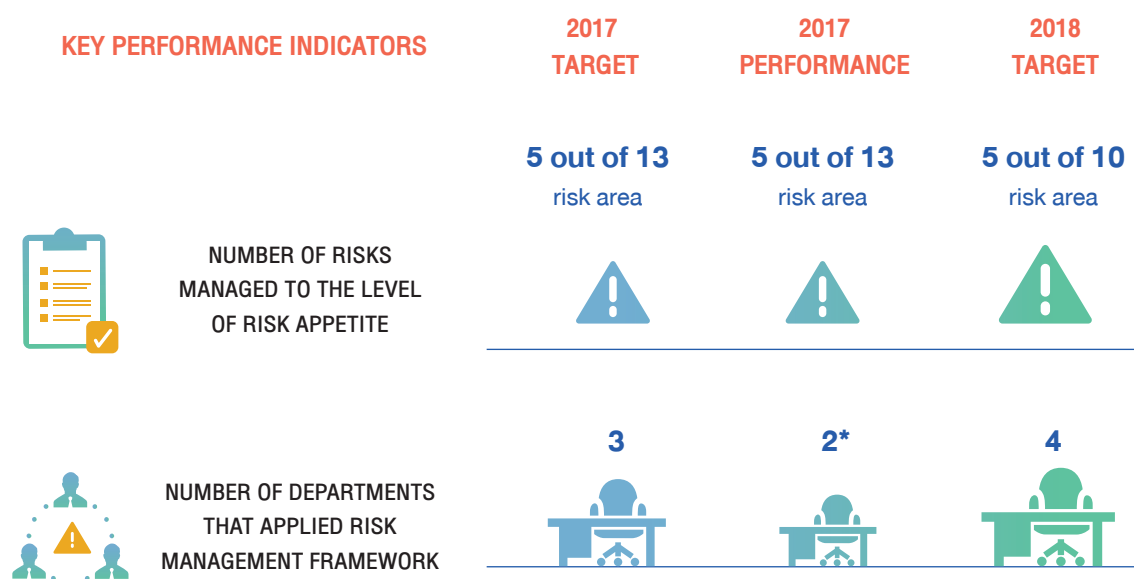


- Risk from the incoming of Electric Vehicle Car (EV Car) technology that may affect business operation in the future especially in petroleum products line because the sale volume may decrease from the increasing amount of EV Car. IRPC analyzed growth in EV Car market and the result shown that significant impact will occur in the next 5–10 years. Thus, IRPC plans to mitigate this risk and be proactive by shifting petroleum business to petrochemical, conducting research, and develop on products in respond to needs of the future market, and creating partnership with suppliers to expand the market or sourcing for more marketplace.

IRPC recognizes on the importance of managing risks at corporate level within risk appetite by setting number of risks to be managed to the level of risk appetite as one of Key Performance Indicators (KPI) of Corporate Planning Department and Risk Management Division. For 2017 performance result, both department and division

effectively achieved their targets. This accomplishment was the result of the execution of works as planned, which included quarterly monitoring and auditing risk management plan, communicating, effective supporting tools and processes, setting Key Risk Indicator (KRI) as a warning and monitoring tool on possibility events of risk.

Additionally, IRPC also focuses on making sure that risk management is applied throughout the organization by setting number of departments implemented risk management framework as one of Key Performance Indicator of Risk Management Division. IRPC follows such plan by communicating and seeking for supports from management through various meetings, and creating motivations and co-targeting with other departments.



Remark: * Performance result did not achieve the target as a result of changes in organization structure and responsibility.

CRISIS MANAGEMENT

IRPC pays close attention to operating business with continuity. In 2017, IRPC conducted two business continuity plan drills. The first drill was at IRPC Industrial Zone, Rayong Province together with Royal Navy of Thailand and Rayong Province. The event assumed a case of heavy storm hit on the shore in front of the IRPC's deepwater port which a crane that was lifting a motor fell on Main Suction Line (size 16 inches) in the area of tanks farm and resulted in leakage of Propylene, which is a flammable chemical. The event was uncontrollable so the company declared the emergency at level 1, level 2, level 3, respectively. The second drill was carried out in Bangkok office. The scenario imitated the event of fire on the 8th Floor of the office building and resulted in an announcement of emergency at level 3. IRPC's managements participated in both trainings in order to reviewing responsibility, and assessing the severity and impacts of the event as well as making decision on using business continuity plan to recover company's business operation and reputation back to the normal condition.



RISK CULTURE

IRPC encourages and cultivates risk management to be a part of an organization culture. The culture embeds knowledge and understanding for the board of directors, managements, and employees on the importance and obligation for practicing standard risk management framework to allow IRPC to grow sustainably and firmly. IRPC has in place dedicated committee to oversee implementation of risk management framework by managements and employees and continuously report the progress in board level, management level, and operation level as well as improving and reviewing management approach in a timely manner. The committee is also responsible for communicating risks throughout the organization through various channels such as Board of Director's meeting, Management Committee meeting, Function meeting, Operation meeting, E-mail notification, E-learning, and training.



SUSTAINABILITY AT IRPC

AT IRPC, WE HAVE A PHILOSOPHY FOR BUSINESS OPERATION FOR SUSTAINABLE GROWTH. WE INSTILL CONFIDENCE AMONGST OUR STAKEHOLDERS THROUGH OUR EXCELLENT AND TRANSPARENT OPERATIONS AS WELL AS CONTINUAL EFFORT TO IMPROVE OUR INNOVATIONS WHILE STILL ATTENDING TO THE NATURAL RESOURCES AND ENVIRONMENT. OUR EFFORT ALSO EXTENDS TO ESTABLISHING GREAT RELATIONSHIPS WITH AND IMPROVING THE QUALITY OF LIFE OF THE LOCAL COMMUNITIES ENSURING THEIR SUITABLE LIFESTYLE. THE AIM IS TO SUPPORT OUR VISION OF BECOMING THE LEADING INTEGRATED PETROCHEMICAL COMPLEX IN ASIA BY 2020.

MANAGEMENT APPROACH

In 2015, IRPC group announced the policy for sustainability management to be used as a framework for management and as a practical guideline in line with international standards. Our approach for sustainability management under the supervision of sustainability management office

The IRPC group's sustainability committee, as appointed by company's president, have defined strategic framework for Sustainability Management Excellence. Particularly, business operation should go hand in hand with creating balance for society and environment as in compliance to Operational Excellence Management System: Sustainability Management Element as follows:



BUSINESS OPTIMIZATION & TRANSPARENCY

Effective commercial business operation with transparency



ADVANCED TECHNOLOGY & INNOVATION

Development of technology and innovation



LONG TERM FOCUS

Reaching long-term goals

**TO MEASURE THE SUCCESS
OF SUSTAINABLE MANAGEMENT,
IRPC HAS DETERMINED 4 FOLLOWING OBJECTIVES:**



1

To become the leader of Dow Jones Sustainability Indices: DJSI in Oil & Gas Refining and Marketing Industry

2

Obtaining Eco-Industry certification from the Industrial Environment Institute of the Federation of Thai Industries for every factory as well as becoming Eco Industrial Zone in compliance to Eco-Industry Development Framework from Department of Industrial Works (DIW)

3

Building Sustainability Mindset amongst IRPC employees

4

Undergoing Digital transformation for business via Big Data Management



For further information regarding IRPC's sustainability management, Please visit <http://www.irpc.co.th/en/sustainable.php>



**ACCOUNTABLE
PEOPLE**

Responsible personnel



**NEIGHBOR
CARING**

Attentiveness to our stakeholders



**CREATING
SHARED VALUE**

Creating shared values



**ENVIRONMENTAL
FRIENDLY OPERATION**

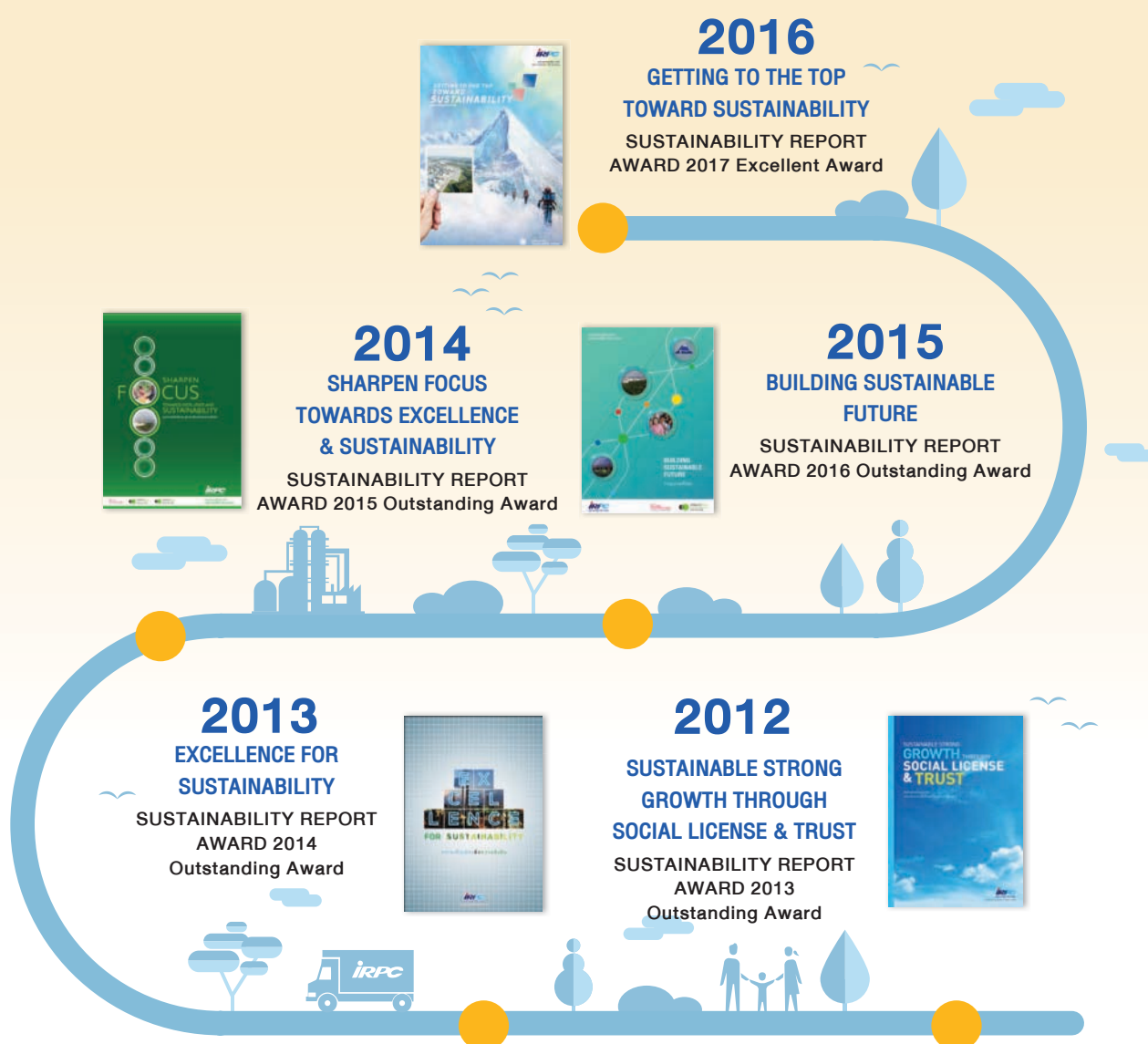
Environmentally friendly production

PERFORMANCE

As a result of our dedication and commitment to achieve the challenging sustainability management goals, in 2017 IRPC have accomplished the following in:

	THE OBJECTIVES FOR SUSTAINABILITY MANAGEMENT	PERFORMANCE
	To become the leader of Dow Jones Sustainability Indices: DJSI in Oil & Gas Refining and Marketing Industry	Selected as Dow Jones Sustainability Indices (DJSI) member under Emerging Market in Oil & Gas Refining and Marketing Industry consecutively for the 4 th year and receiving 2018 RobecoSAM Silver Class Award
	To become Eco Industrial Zone	Earning Eco-factory certifications for 24 of IRPC's factories from the Industrial Environment Institute of the Federation of Thai Industries.
	Building Sustainability Mindset amongst IRPC employees	<ul style="list-style-type: none"> • Cultivating desirable organizational behavior (IRPC DNA); further details provided in the Chapter of Human Resource Management (pg.78) • Fostering knowledge and understanding on sustainability management for targeted employees and mid-level managers
	Undergoing Digital transformation for business via Big Data Management	<ul style="list-style-type: none"> • Devising Power of Digital strategy; further details provided in the Chapter of Business Strategy (pg.20) • Operating via digital system; further details provided in the Chapter of Innovation & Digitization (pg.61-63)

IRPC has published sustainability report to cultivate understanding and confidence amongst shareholders as well as local and international investors by presenting our objectives and performance on the basis of nurturing long-term balance between economy, society and environment. In doing so, IRPC has received Sustainability Report Award 2017 in “Excellent” from Sustainability Report Award which is a collaborative project by CSR Club from Thai Listed Companies Association of Securities and Exchange Commission Thailand and Thaipat Institute. The purpose of the awards is to promote and support Thai listed companies in the stock market and private companies to disclose their information regarding environment, society and governance which could be more beneficial to the investors. In 2017, the company has received a better ranking award than the previous years.





STAKEHOLDER ENGAGEMENT

STAKEHOLDER ENGAGEMENT IS A CRITICAL PROCESS FOR IRPC TO UNDERSTAND THE EXPECTATIONS STAKEHOLDERS HAVE TOWARDS OUR BUSINESS OPERATION WHICH WILL LEAD TO GREATER IMPROVEMENT AND PROGRESS FOR SUSTAINABILITY MANAGEMENT.

BUSINESS DRIVER

Understanding stakeholders' perspectives, expectations and establishing great relationship with stakeholders are most crucial to IRPC's success. Under the pressure of world's ever-changing circumstances such as the development of technology that facilitates more communication or the development of industrial technology that is replacing the human workforce or the changes in population structure due to advancement in medical science or even global warming, IRPC continues to sustain stakeholder engagement in order to be able to adapt organizational strategy in response to the ever-changing surroundings.

MANAGEMENT APPROACH

STRATEGY AND POLICY

- IRPC has defined sustainability strategy in "BALANCE Stakeholder Expectations" with the aim to establish harmony between business operation and stakeholder's expectations. In addition, IRPC also devised Good Corporate Governance Policy which constitutes for business operations to consider the best return for every group of stakeholders and to treat all stakeholders equally and impartially per the ethics of responsibility towards each group of stakeholders.

MANUAL/STANDARD PROCEDURE

- At IRPC, there's stakeholder engagement procedure which construes roles, responsibilities, procedures and key performance indicators. Performance results are reported to Corporate Governance Committee and communicated to stakeholders via various channels as well as are used as feedback for improving sustainability management.

INFORMATION SYSTEM

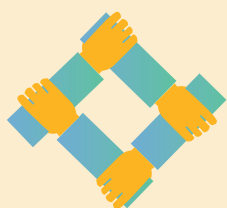
- A knowledge management system, also known as KM Treasury, contains information regarding operational mistakes including issues, obstacles and improvement needed matters in order to share organization's experience, best practices, and employ lesson learnt toward stakeholder engagement aspect as a tool for decision making and making improvement for future operations.



For further information regarding Stakeholder Engagement,
Please visit <http://www.irpc.co.th/en/sustainable.php>

IRPC ASPIRES TO MANAGE STAKEHOLDER ENGAGEMENT TO FORM MEANINGFUL RELATIONSHIP THROUGH HONEST AND TRANSPARENT OPERATIONS AS WELL AS AIMING TO CREATE A COOPERATIVE FOUNDATION OF SUCCESS BETWEEN IRPC AND STAKEHOLDERS THAT CAN RESPOND WELL TO BOTH THE CURRENT AND FUTURE CHALLENGES.

IRPC'S APPROACH TO CREATING STAKEHOLDER ENGAGEMENT



CO-CREATION



MULTI-LEVEL ENGAGEMENT



**DEEP
ENGAGEMENT**

IRPC CULTIVATES SHARED VALUES WITH STAKEHOLDERS BY HEARING OUT OPINIONS FROM ALL SECTORS AS WELL AS ENSURING TRUE COMPREHENSION OF THE PROBLEMS AND SUSTAINABILITY OF THE BUSINESS WITH THE BELIEF THAT THIS STRAIGHTFORWARD AND HONEST APPROACH WILL FOSTER CERTAINTY AMONG STAKEHOLDERS.

PERFORMANCE

IRPC annually reports stakeholders' desires and recommendations to Corporate Governance Committee. For 2018, IRPC plans to increase the frequency of the report from annually to quarterly in order to follow up and initiate measures to respond more promptly.

Moreover, IRPC also plans to improve the Key Performance Indicators for stakeholder's engagement to enhance effectiveness in evaluation as well as Lesson Learnt Tracking System for feedback to strengthen the working process to its maximum potential.

IRPC HAS ESTABLISHED KEY PERFORMANCE INDICATORS FOR STAKEHOLDER ENGAGEMENT FOR EACH GROUP OF STAKEHOLDERS VIA SATISFACTION SURVEY



SHAREHOLDERS

Survey of shareholder satisfaction towards annual general meeting and visitation to IRPC Industrial Zone



EMPLOYEES

Survey of employee engagement



CUSTOMERS

Survey of customer satisfaction

SUPPLIERS, COMPETITORS AND CREDITORS



Survey of supplier satisfaction



COMMUNITY, SOCIETY AND ENVIRONMENT

Survey of community satisfaction



Remark: *IRPC's overall report of sustainability management as corresponded to stakeholder's expectations

INITIATIVES

STAKEHOLDER ENGAGEMENT AND INCLUSION

IRPC recognizes the rising expectation amongst stakeholders in business engagement for future stability and sustainability. For this reason, we value risk management for sustainability in business operation and for long term value creation opportunities.

In 2017, IRPC conducted qualitative interview amongst stakeholders with the intention to acknowledge opinions on every aspects and to be able to legitimately understand stakeholder's perspectives. In addition, the learnings are also being utilized as part of Materiality Assessment to determine organization's strategy for becoming leading integrated petrochemical complex in Asia by 2020.

PROCEDURES FOR STAKEHOLDERS OPINION SURVEY



OBJECTIVES

- Acknowledge and understand all aspects of opinion from both internal and external stakeholders

OPPORTUNITY FOR IMPROVEMENT

- Engaging with stakeholders with true understanding of stakeholders' perspectives and remarks towards IRPC's approach and operation in order to progress sustainably and successfully pursue IRPC's vision.



- To be able to determine strategy for sustainable development and initiation of other related sustainability programs

- To be able to identify risks and opportunities in the pursuit of IRPC's vision



- Most of stakeholders' equity derived from IRPC's industrial zones operations.

- Stakeholders desire to be involved in strategy in order to add value to the business and uphold company's vision.



PROCEDURES

STEP 1 DEFINING OF OPERATION ESSENCE

- Outcome: Summary of conclusions and stakeholders' interview topics

STEP 2 IDENTIFICATION OF STAKEHOLDERS (INTERNAL AND EXTERNAL)

- Outcome: Identification of stakeholders' groups both internal and external of the organization

STEP 3 PLANNING AND DEFINING OF ENGAGEMENT TECHNIQUES

- Outcome: Interview plan for the representatives of each stakeholder's group to nurture engagement

STEP 4 INTERVIEW PROCESS

- Outcome: Interview results of every stakeholder's group

STEP 5 EVALUATION AND ANALYSIS OF RESULTS

- Outcome: Report of operation conclusions

STEP 6 DRAFTING OF FUTURE PROTOCOLS

- Outcome: Strategies, programs and approach to building stakeholder engagement in the future

PROCESS FOR STAKEHOLDERS' OPINION SURVEY



STAKEHOLDERS' OPINION SURVEY:

- **EVERY GROUP OF STAKEHOLDERS** perceive innovation development, product development and business expansion to new markets as extremely necessary for IRPC's future business operations. Moreover, they also perceive IRPC's educational program as the key strength to pursue development in local community and help the government in advancing the country.
- **EMPLOYEES** wish for more communication on strategy and direction of development for sustainability together with an emphasis on human resource development.
- **GOVERNMENT AGENCIES** would like IRPC to comply with the regulations and laws along with continuously creating reassurance for environmentally friendly production.
- **COMMUNITY LEADERS** proposed for IRPC to carefully assess its prominence on society when expanding business and to manage its rights for utilizing area in the operated zones.
- **SUPPLIERS** request for electronic auction to include evaluation of environment, society and good governance.
- **CUSTOMERS** proposed for IRPC to collaborately research and develop its products and services.

CUSTOMER INTERVIEW**TOPIC: IMPACT OF BUSINESS ON THE ENVIRONMENT****KHUN TEERAWAT VITOORAPAKORN**

MANAGING DIRECTOR OF EASTERN POLYPACK COMPANY LIMITED

Eastern Polypack have been developing products with IRPC for over 10 years. We believe that green products will be of relevance in the near future and will also help drive the economy forward. To this end, we'd like the government to issue regulations in support of this matter.

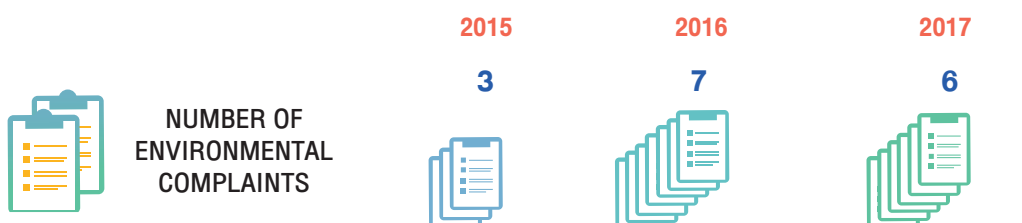
**COMMUNITY INTERVIEW****TOPIC: SOCIAL ISSUES THAT WILL AFFECT RAYONG COMMUNITY OVER THE NEXT FIVE YEARS****KHUN SIKANYA CHAIPINIT**

COMMUNITY LEADER OF CHERNG NERN DISTRICT

In the present, the local community still lacks education opportunities, hence the much needed support. In the future, the community will have to grow as a consequence of AEC and Thailand 4.0 which will lead to an increased in the amount and diversity of population that may cause illegal immigrant issues. As for the local governance, we'd like to see younger generation get more involved and play a role in determining their future.

**GRIEVANCE MECHANISM**

At IRPC, we have a complaints management procedure to handle complaints systematically in line with standards. Complaints can be made through a 24-hour Emergency Control Center to which will be forwarded to the Environmental Operation and Monitoring System Department, Communication Division and relevance operation units in order to inspect the particular area to investigate causes and then immediately report findings to the management committee chaired by CEO. The cause and solution will then be notified to the complainant within 1 hour after the complaints were made. Furthermore, IRPC also communicates with the local community to promote understanding via various public relation efforts including visiting the locals to clarify on the operations and projects that the company is working on. In doing so, the number of complaints in 2017 have decreased comparing to 2016. Nevertheless, IRPC will maintain complaint procedure as the frame for assessment in order to continuously improve complaints management in the future.



ECONOMIC DIMENSION

IRPC HAS BEEN DOING BUSINESS TO SERVE
THAI SOCIETY FOR MORE THAN A DECADE WITH
A STRONG COMMITMENT TO BUILD A GROWING
COMPANY AND CREATING SHARED VALUE WITH
ALL STAKEHOLDERS IN A SUSTAINABLE WAY.



**SUPPLY CHAIN
MANAGEMENT**



**CUSTOMER
RELATIONSHIP
MANAGEMENT**



**INNOVATION
AND DIGITIZATION**





SUPPLY CHAIN MANAGEMENT

IRPC CONDUCTS EFFICIENT SUPPLY CHAIN MANAGEMENT BY CONTINUOUSLY IMPROVING ITS SUPPLY CHAIN MANAGEMENT, CONDUCTING SUPPLY CHAIN RISK GOVERNANCE, AND ADAPTING TECHNOLOGY TO SUPPORT SUPPLY CHAIN MANAGEMENT, AS WELL AS CREATING POTENTIAL ON SUPPLIERS FOR THE ACHIEVEMENT OF SUSTAINABLE BUSINESS.

BUSINESS DRIVER

IRPC's sustainable supply chain management focuses on the procurement of quality products and services in sufficient quantities, which are managed through risk management along the whole supply chain that covers aspects on environment, society and governance (ESG). Such approach can ensure the continuity of IRPC's business, promote efficiency in production, and generate business profitability,

which encourages suppliers to have effective business operations through good environmental, social and governance management. IRPC focuses on raising awareness on sustainable supply chain management of both IRPC and suppliers by using effective tools to facilitate operational efficiency and convenience, while ensuring transparency of the supply chain management system such as digital procurement management system.

MANAGEMENT APPROACH

STRATEGY AND POLICY

- Procurement Excellence policy and supply chain management strategies that focus on product quality and service and sustainability management.

MANUAL/STANDARD PROCEDURE

- IRPC Sustainable Procurement Management Manual is sustainable purchasing approach that covers code of conduct, sustainable supplier practices and procurement risk assessment.
- IRPC Supplier Code of Conduct covers business ethics and conduct issues regarding human rights, environmental, occupational health and safety and legal compliance, as well as encourages suppliers to improve their own code of ethics for their procurement to support sustainable operations for all trading suppliers.

- IRPC Purchaser Code of Conduct covers conflict of interest, data confidentiality and social and environmental responsibility.
- The process of analyzing, evaluating and setting risk mitigation measures for the purchase of goods and services.
- Supplier Verification Process takes into account the environmental, social and governance risks of the suppliers.



INFORMATION SYSTEM

- Continuous Control Monitoring System: CCMS for screening and monitoring abnormalities in the procurement process
- Procurement Web Portal System – for communicating information related to procurement, such as tendering, E–Sourcing and supplier registration that allowing convenience, agility, transparent, and accountability at every step.

- Digital Procurement System that supports the use of digital management tools according to international standards for the efficiency improvement towards procurement processes. Such tools are E–Auction, E–Catalog, and E–Buyer.



For more information regarding
Supply Chain Management

Please visit <http://www.irpc.co.th/en/sustainable.php>

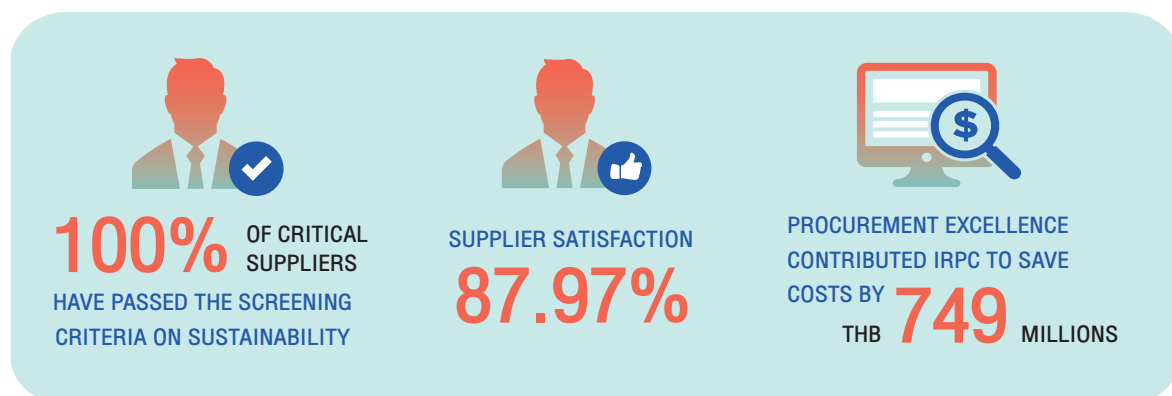
PERFORMANCE

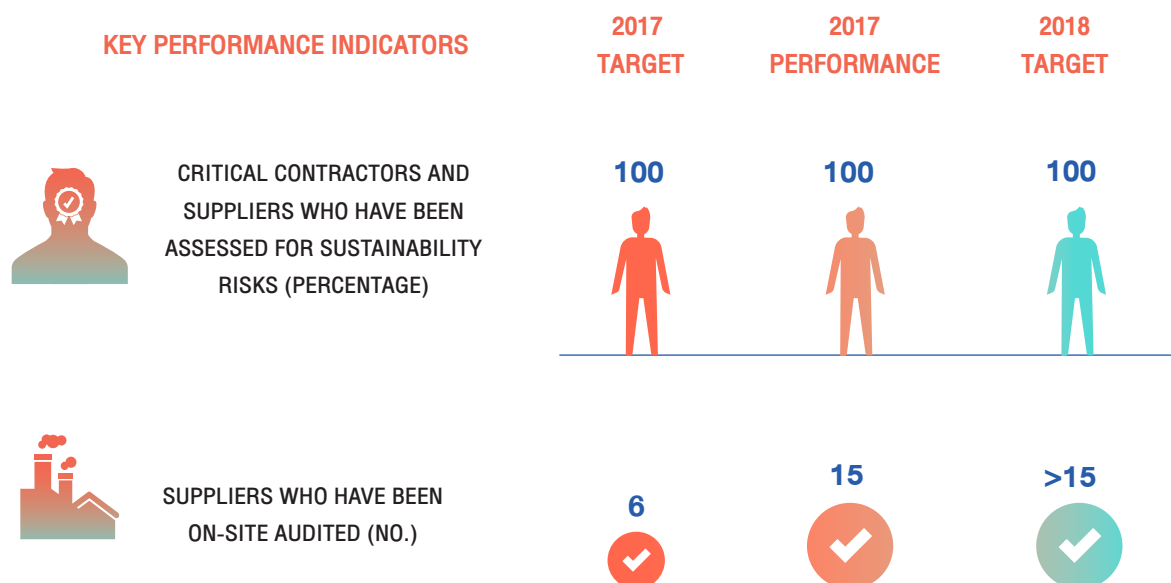
In 2017, IRPC managed the supply chain in accordance with Procurement Excellence Policy by following the code of conduct by procurement staffs and focusing on the ESG approach to sustainability as below



In addition, IRPC has developed and improved the procurement process by applying digital systems to support a systematic supply chain management. IRPC has done an online suppliers' satisfaction survey regarding to our procurement operations, which the survey was conducted by external parties

to ensure the transparency. In 2017, the satisfaction score was 87.97 %. The key issues highlighted by the suppliers was the intensely competitive pricing of the online auction program (E –Auction) may resulting to decrease the product quality and service proposed, these issues are valuable to IRPC in order to improve the E–Auction to be more efficiency.





INITIATIVES

ESG SUPPLY CHAIN MANAGEMENT

IRPC is committed to promoting sustainable operations throughout the supply chain by requesting our suppliers to sign an acknowledgement of code of conduct and to strictly adhere to it. In 2017, there were 44 out of 126 critical suppliers who voluntarily signed. In addition, IRPC has set an approach on supplier management by requiring new register suppliers to assess on their capability and self-assess Pre-Qualification Questionnaire. This is to evaluate the capability and readiness of suppliers before doing business with IRPC. Moreover IRPC has adopted its sustainability criteria with the new supplier screening process, which including aspects on environment, labor rights, human rights and social impact.

To promote sustainable procurement and reduce the potential impact from procurement process, IRPC assesses the risks of suppliers and contractors. In 2017, IRPC assessed 414 suppliers and 54 contractors, which

63 new suppliers passed the assessment. In case of any supplier fail the assessment in any criteria, IRPC will work with supplier to develop joint approach on improving its operations. IRPC has cooperated with the PTT Group to monitor PTT Group's business suppliers and share information. In order to integrate work within the PTT Group and reduce operating expenses. In 2017, IRPC cooperated with the PTT Group to check operational premises and monitor the operation of 15 suppliers, which exceeded the target.

IRPC launched channels for suppliers to report complaints in case of non-compliance with the Code of Conduct for Supplier Relations, The Code of Conduct for Procurement Officers and IRPC's Code of Conduct through the IRPC PO. Box No. 35, e-mail, and letter of complaint, which directly reports to IRPC executives.

IMPROVEMENT OF SUSTAINABLE PROCUREMENT MANUAL

In 2017, IRPC updated the IRPC Sustainable Procurement Management Manual to cover the management of trading suppliers other than suppliers that deal directly with IRPC (Non-Tier 1 Suppliers). This content related to encouraging and supports suppliers in the development of a code of conduct for procurement process, which enable suppliers to manage their own suppliers sustainably. In addition, IRPC has also added details for the criteria in supply chain risks assessment and example of supplier risks assessment questionnaire.

COUNSELING PROGRAM TO JOIN THE ANTI-CORRUPTION NETWORK

IRPC encourages our suppliers to be certified as a member of the Collective Action Coalition Against Corruption (CAC) by creating a program that advises suppliers on joining the CAC program, which launched in 2016. Since the beginning of this program until now, 27 suppliers have announced their intention to apply for the CAC.

SMART DRIVER PROGRAM

IRPC recognizes the importance of developing quality and promoting transportation safety by focusing on raising the safe driving awareness of contractors. In 2017, IRPC continued to run the Smart Driver (Logistics) program to raise the safety awareness of plastic resins transporter truck drivers by conducted safe driver training and drug monitoring for all parties concerned. As well as developed a criteria for Smart Driver characteristics. IRPC presented the Smart Driver Award of the year in 2017 to five drivers who had safe driving behaviors and who received no customer complaints. With this commitment, the IRPC's accident rate from transportation in 2017 was 0.070 times per million kilometers, which meets the goal to not exceed the rate at 0.175 times per million kilometers.



Remark: *2018 Target mark higher than its performance in 2017 due to business growth

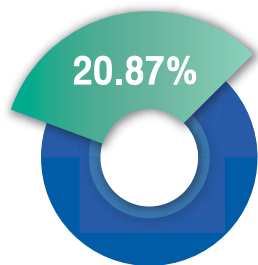
LOCAL PROCUREMENT

IRPC recognizes that the procurement of local goods and services can help sustain the economy by creating sustainable growth, and reduces logistics costs for the organization. Thus, IRPC promotes the procurement of products and services from local suppliers. In 2017, IRPC procured goods and services from manufacturers and

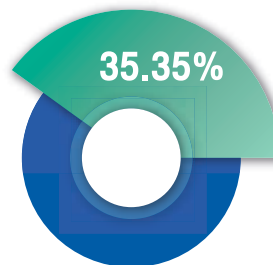
service providers in Rayong province such as purchasing chemicals for production process, hiring local workers to plant trees for protection strips, hiring local security services company, and etc. IRPC's spending on local procurement for 2017 is THB 2,894 millions or 20.87% of the total procurement budget

GREEN PROCUREMENT

IRPC encourages Green Procurement and promotes for the procurement of goods and services which are environmentally friendly. In 2017, IRPC procured green products and services such as verified REACH & RoHS products and green label products. IRPC's spending on green products and services is THB 1,995 millions or 35.35% of the total procurement budget.



LOCAL PURCHASING IN RAYONG ACCOUNTED
FOR **20.87%** OF THE TOTAL
PROCUREMENT
BUDGET



GREEN PROCUREMENT SPENDING
ACCOUNTED FOR **35.35%** OF THE TOTAL
PROCUREMENT
BUDGET

SUPPLIER MANAGEMENT

PRISM PROJECT

In 2017, IRPC cooperated with the PTT Group for the Petrochemicals and Refining Integrated Synergy Management (PRISM) project, which coordinates with the refineries in PTT Group's supply chain by having meetings among companies in PTT Group to manage crude oil transportation so that trips have a full hull for the most efficient transportation of crude oil. As a result of this approach, IRPC is able to reduce the cost of transporting crude oil by approximately THB 47 millions.

SUPPLIER SEMINAR EVENT

- IRPC invited 19 critical suppliers to attend the PTT Group CG Day 2017 organized by PTT Group to promote awareness of and compliance with the company's code of business conduct related to good corporate governance and anti-corruption policy.
- IRPC organized Supplier Recognition & Appreciation Day 2017 to thank our suppliers and

GROUP PROCUREMENT PROJECT

IRPC is engaged in co-procurement with the companies in PTT Group in approach of purchasing goods such as chemicals, maintenance equipment, office equipment, security and safety equipment, engineering and servicing equipment, and vehicle servicing equipment, which an annual review is conducted to improve co-procurement approach.

contractors for their contribution on the success of the major turnaround activities in 2017. In addition, the company has awarded suppliers and contractors that passed the assessment on environmental, social and governance (ESG) criteria and promote sustainability in their business operation, also communicated on business ethics regarding to human rights and workforce as well as

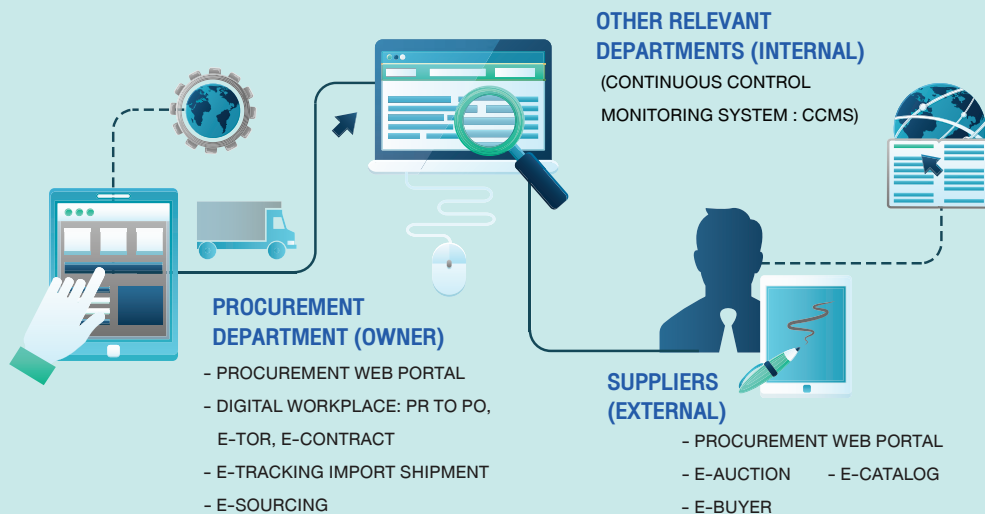
safety, occupational health, and environmental code of conduct for suppliers and contractors to strictly abide.

- IRPC organized training courses on supplier assessment based on environmental, social and governance (ESG) criteria by screening suppliers through the ESG self-assessment questionnaire for understanding preparation before on-site audit. This training is part of

a collaborative project between the companies in PTT Group to allow information sharing on monitoring result of suppliers on environmental, social and good governance performance. The training does not only on reduce operating cost of PTT Group but also creates good relationships with suppliers which leading to joint sustainable growth and development.

DIGITAL PROCUREMENT

IRPC used digital management technology to procurement management both within the procurement department and with IRPC suppliers. These digital procurement management systems can improve procurement efficiency in a number of areas such as reducing lead time in procurement process between suppliers and IRPC and creating a systematic collection of procurement information for market analysis.



PROCUREMENT EXCELLENCE

In 2017, IRPC continued to strive for procurement excellence. With this commitment, IRPC was able to reduce costs by THB 749 millions as a result of using digital procurement and improving demand management that procurement planning were designed with user departments. As a result, the company can lower order frequency and quantity of supply and service such as saving forklift rental fees for goods transportation. As well as, planning management on reducing the product's specification while maintain its efficacy function such as reducing walkie-talkie purchasing costs by using walkie-talkies with less features but are still fit for purpose.



CUSTOMER RELATIONSHIP MANAGEMENT

IRPC FOCUSES ON CUSTOMER RELATIONSHIP MANAGEMENT IN PURSUANCE OF CREATING GREAT EXPERIENCES AND SHARED VALUES WITH CUSTOMERS THROUGH PROACTIVE MARKETING STRATEGY BY PROVIDING HIGH QUALITY PRODUCTS AND SERVICES AND SATISFYING CUSTOMERS' NEEDS.

BUSINESS DRIVER

As a result of changes in customers' needs as well as increasing of business competition, IRPC is on the move to advance our approach on customer service. Therefore, IRPC studies behaviors and decision making process for product selection to gain an in-depth understanding of our customers and to be able to deliver values per their needs, which helps to develop a better relationship with customers. In addition, IRPC also aspires to foster excellence in marketing through digital transformation of customer relationship management system that will provide convenience to customers when engaging in commercial transaction with IRPC, thus forming a foundation for great customer relationship management.

MANAGEMENT APPROACH

STRATEGY AND POLICY

Corporate commercial and marketing strategic plan for 2016 – 2022 that has a customer relationship management plan as a part of the strategy

MANUAL/STANDARD PROCEDURE

- Petroleum business management procedure manual
- Petrochemical business management procedure manual
- Port and asset management procedure manual

Each procedure manual covers sales management methodology and marketing planning & analysis to ensure that products are sold in accordance with the term of contact, quality specification, ordered volume, and delivery period for IRPC's petroleum business, petrochemical business, port and asset management business, respectively. The objective for such implementation is to achieve the highest customer satisfaction.

INFORMATION SYSTEM

- Regarding information technology in customer relationship management, IRPC has invented management system for each group of customer data which are iCON Plus (IRPC Customer Oriented Network Plus) for petrochemical business, iRIS (IRPC Relationship Information System) for petroleum business, iCROWN (IRPC Customer Relationship Oriented Wisdom Network) for port services business, and iASSET for asset management business. The purpose these system is to acquire accurate, quick, and comprehensive analysis of problems and customer demands in order to better reciprocate their needs.

- Online complaint and customer support service system that uses as communication channel between IRPC and customers along with customer satisfaction surveys and continuous customers engagement activities.

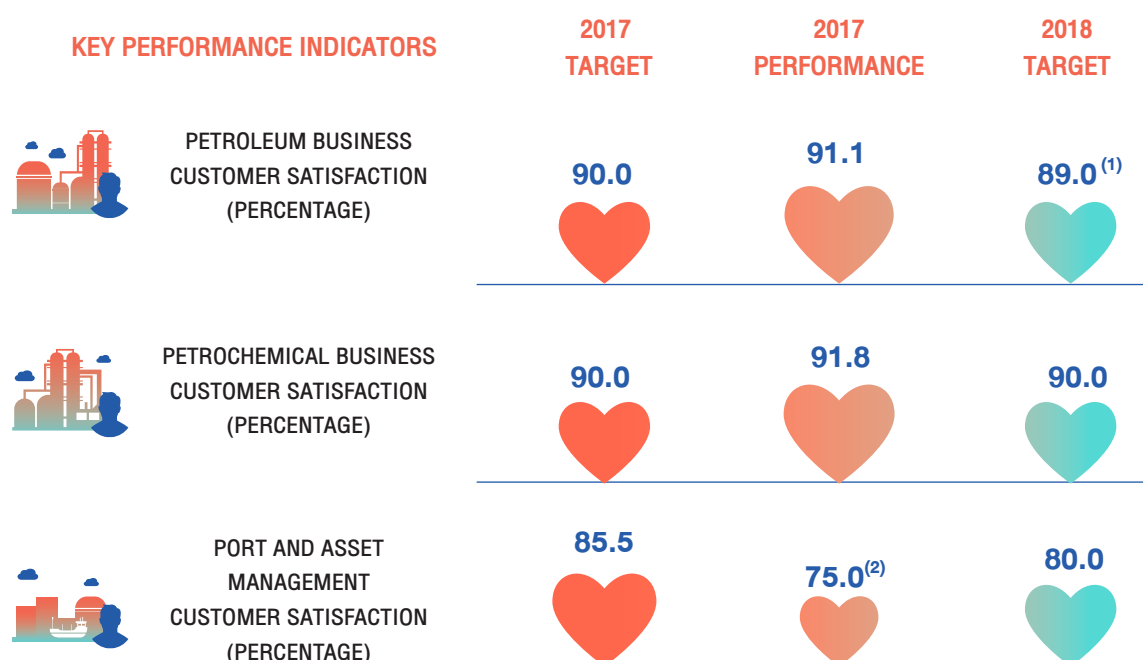


For further information regarding customer relationship management,
Please visit <http://www.irpc.co.th/en/sustainable.php>

PERFORMANCE

Due to the systematic customer relationship management, the results of customer satisfaction survey for petroleum and petrochemical business in 2017 have accomplished the targets. In regards to complaints, there were a total of 37 complaints in 2017 which were of products and services quality and freight. Accordingly, IRPC has responded to the issue with calibration of production process, preventive maintenance measures on equipment product quality examination prior to delivery, improved transportation vehicle condition to meet with criteria and organized meeting with customers to cooperatively find solutions.

However, no such cases were found in legal and regulations violation regarding the products and services including safety and occupational health, labeling codes, customer confidentiality and marketing communication.



Remark: ⁽¹⁾ The target for customer satisfaction in petroleum business has changed in 2018 due to a change result counting methodology from average counting to top and bottom box scoring (Top 2 Box) methodology which is in line with international methodology.

⁽²⁾ Customer satisfaction in port and asset management business was lower than the target due to fewer number of respondents, changes in the rating format and topic of complaints. In response to this, IRPC will devise a service improvement plan to communicate with customers and manage complaints in order to serve their ultimate satisfaction.

INITIATIVES

MARKETING COMMUNICATION

IRPC organizes marketing activities to build awareness, understanding and acceptance between IRPC and customers through various channels in hopes that marketing communication would contribute to market expansion, nurture reliability amongst existing customers and attract new customers. In 2017, IRPC has organized the following marketing communication activities.

• SEMINAR ON “MAXIMIZE YOUR BUSINESS WITH POLIMAXX”

The Petrochemical Business Sales Department has organized “Maximize Your Business with POLIMAXX” seminar for proprietors and manufacturers at Ho Chi Minh City, Vietnam. The seminar proposed to provide knowledge concerning market trends for plastic and petrochemical in ASEAN and Vietnam along with information regarding the various types of plastic pellets in order to allow proprietors and manufacturers to incorporate the given knowledge into their business decision making. Furthermore, the seminar also provided consultation with the expert team from IRPC on plastic pellet selection, which IRPC expects that the seminar would lead to an increase in plastic pellets sales in Vietnam and Indochina.

• IRPC BUSINESS FORUM 2017

Corporate Commercial and Marketing organized a business seminar with the theme of “Business transformation for 4.0” to provide knowledge on overall business operation of IRPC and petrochemical products. The seminar was led by highly qualified economic experts who gave speeches on the usage of technology and digital transformation to drive business forward. The purposes of the speeches are to share knowledge and open the new perception on the economics of Thailand 4.0. This occasion serves as a great opportunity for IRPC to strengthen relationship with proprietors and to support them to step forward into the digital economy era. Subsequently, IRPC surveyed participants’ opinion on the benefits and knowledge application of this seminar, the result shown that 90 percent of participants were satisfied with this seminar.



• PETROCHEMICALS AGENT SEMINAR

Marketing Petrochemical Business Department arranged a seminar as an opportunity for IRPC’s executives to discuss with every agent in order to exchange knowledge on plastic and petrochemical business situation, IRPC products, as well as concerns in business transactions. Such seminar contributes IRPC to establish a policy on collaborative solving problems and leads to a harmony business operation, and arranged in every quarter.

• SEMINAR ON DIRECTIONS FOR LOGISTICS 4.0 FOR THE DEVELOPMENT OF EASTERN ECONOMIC CORRIDOR (EEC)

The seminar was organized for customers in IRPC industrial zone to provide information regarding government’s policy and readiness for Industry 4.0, which was a good opportunity for IRPC to create good relationship with customers and support them for stepping into the 4.0 era with IRPC.

Moreover, IRPC has also sustained proximity, understanding in customer demands or concerns, and great relationship with our customers through various activities, both formal and informal; for example, domestic and international customer visits to gain feedbacks and recommendations, sports events between IRPC and customers, and customer appreciation souvenirs for different festive.



INNOVATION AND DIGITIZATION

IRPC IS FOCUSED ON ADDING VALUE TO ITS PRODUCTS THROUGH INNOVATIONS AND THE USE OF DIGITAL TECHNOLOGY IN ITS OPERATIONS. THIS IS TO PROMOTE DEVELOPMENT IN EVERY ASPECT OF THE ORGANIZATION; WHETHER IT BE PRODUCT AND SERVICE DEVELOPMENT, MANAGEMENT SYSTEM IMPROVEMENTS, OR CREATING VALUE FOR SOCIETY AND THE ENVIRONMENT.

BUSINESS DRIVER

The development of innovation and digital technology is one of IRPC key strategy. IRPC's stakeholders, whether they be customers, partners or employees, expect IRPC to be the leader that drive innovation and digital technology. It is important to transform IRPC into a digital business as part of the push into the digital 4.0 era; it also makes business operations more efficient and reduces operating costs, creating long-term business sustainability potential.

MANAGEMENT APPROACH

STRATEGY AND POLICY

- Research & Development Strategy from 2017 to 2022 – focus on developing new products to strengthen the core business and generate revenue continuously by promoting organizational change to enter the digital economy; developing prototype technologies to create new business opportunities, and to cultivate the value of innovation in employees.
- Research & Development Policy – to promote research and technological development and innovation following the 'R & D Excellence' strategy. A budget for research and technological development activities of 3 percent from petrochemical product sales revenue has been allocated.

MANUAL/STANDARD PROCEDURE

- IRPC's Innovation Research and Development Process – this starts with the collection of research ideas and innovations from R&D staff and other divisions in the organization, new ideas and innovations from external parties are also considered. After that, innovations are selected based on criteria such as the value of the product's creation and investment cost reduction.
- Product Innovation & Research Center works closely with the Customer Relations department to get feedback from customers to improve and develop products that truly valuable to both IRPC and its customers.



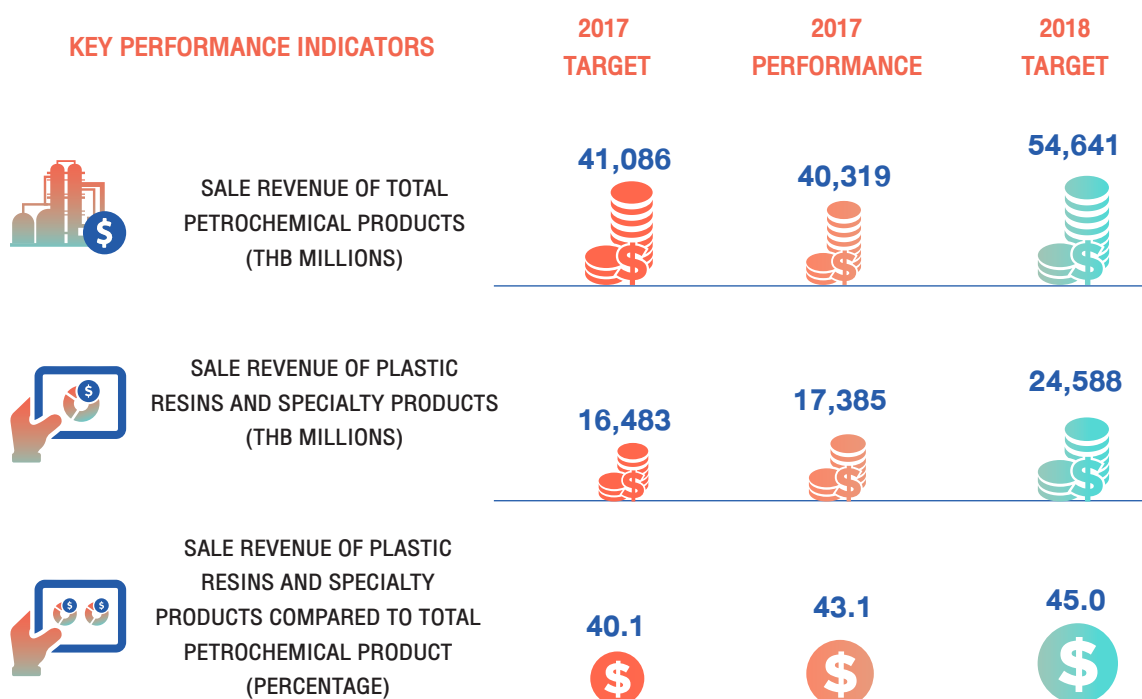
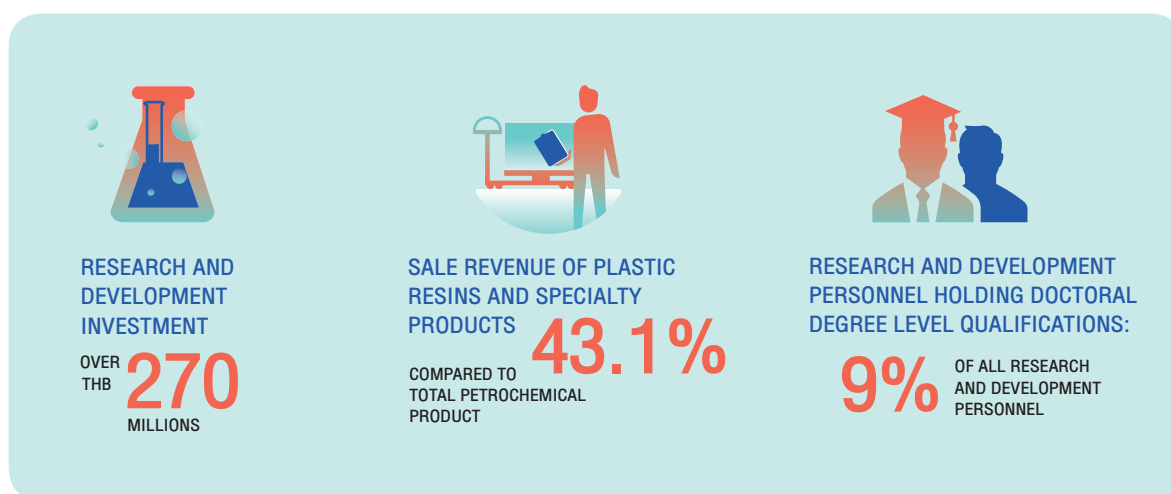
For further information regarding Innovation and Digitization,
Please visit <http://www.irpc.co.th/en/sustainable.php>

PERFORMANCE

In 2017, IRPC continuously developed and expanded its research and improves its products. This is to enhance its competitiveness and add value to its products, which aligns with its sustainable business growth strategies. In doing so, more manpower is required. There are currently 116 research personnel, with a total of 9% of all personnel holding doctoral degree level qualifications. IRPC also provides the necessary tools and research equipment, and has added improvements to and expanded its laboratory

for greater research and development. The budget for research and technological development and innovation was THB 270 millions or 0.67% of the total petrochemical sales revenue.

To strive for international excellence, IRPC will enhance its research, development and innovation capabilities to be on par with the world's leading companies. It has designed a new management process developed from best practices, and has adapted it to IRPC's corporate culture.



INITIATIVES

PRODUCT INNOVATION

IRPC is dedicated to researching and developing a wide range of products for both domestic and international markets. This is in line with its innovative product strategy that aims to increase profits and revenue through product developments.

• POLIMAXX PRODUCTS CONTAIN NATURAL MATERIALS

The Research Center for Innovative Products has developed products that use natural materials as components in plastic resin manufacturing to add value to its product, and to increase the business potential of products that have environmental and social benefits. In

addition, POLIMAXX products that contain natural rubber also help to sustain Thailand's rubber farmers and the rubber industry during rubber price decline crises. Example of POLIMAXX products are as follows:



POLIMAXX GREEN ABS

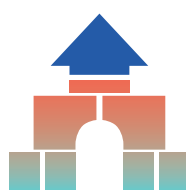


- Use of natural rubber as a component in plastic resin production in place of synthetic rubber.
- Reduces greenhouse gas emissions by 0.7 tons of CO₂ equivalent per year.



POLIMAXX GREEN PS

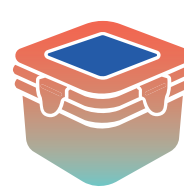
- Use of natural rubber and styrenic compounds in place of synthetic rubber produces plastic that is shock-resistant and shape-retaining.
- Reduces synthetic rubber usage by 30%.



POLIMAXX WOOD PLASTIC COMPOSITE



- Use of scrap wood to produce plastic wood which can also be used in food packaging and furniture.
- Reduces usage of plastic from petrochemical products by 20-30%



POLIMAXX NATURAL PIGMENT COLOR COMPOUND

- Use of natural colouring to produce plastic pellets to reduce synthetic colors usage and reduce toxicity and heavy metal composition.

• NEW POLYURETHANE FOAM FORMULA

IRPC has developed a new compound polyurethane foam formula that contains a new blowing agent, SYNCOPOL AE-16 A002 and SYNCOPOL AR-04 C001 which does not contain any Hydrochloro Fluorocarbon / HCFC-141b. This HCFC was banned in Thailand since mid-2017 as it is ozone depletion substance which impact to global warming.

The blowing agent in the new formula has properties that enable it to be used in the formation of solid polyurethane. It has good insulation properties and is easy to use. Its other benefits are that it does not corrode machines and has been widely used in the insulation industry for cold room or freezers, and can be used to replace polyurethane for all traditional uses. Furthermore, it helps reduce ozone depletion and is more environmentally friendly.



For further information regarding POLIMAXX,
Please visit <http://www.irpcmarket.com/products.php>

• EXPANDABLE POLYSTYRENE: EPS

IRPC has developed another new innovation: Expandable Polystyrene: EPS – using halogen flame retardant substances that have environmental-friendly polymer structures. It has developed a technique to coat expandable polystyrene resins that is highly effective and that consumed less steam during the formation process. EPS has excellent properties such as compressed force resistance and shock resistance.

Expandable polystyrene is suitable for insulation construction and can save electricity used by 15% which also reducing the impact on global warming and structure loading. It can also withstand fire, and release limited smoke, making it safer during fire escapes. This new product will be available at the beginning of 2018 for both domestic and international markets.

• BIOFUELS

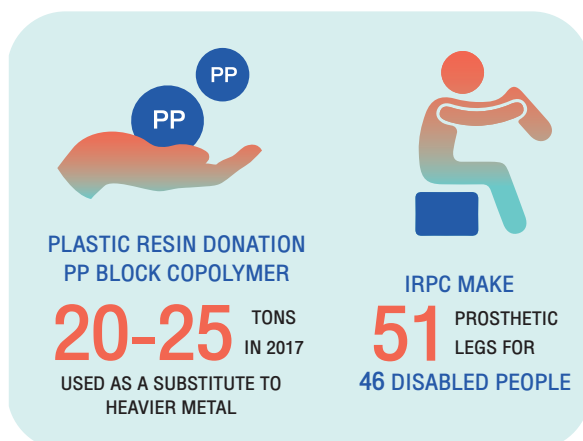
IRPC develops and distributes biofuels including gasohol, which contained ethanol, and biodiesel for engine use. IRPC's products will help reduce greenhouse gas emissions at consumers as a result of the use of these fuels. Since 2017, these products have been contributing to the reduction of greenhouse gas emissions by emitting about 227,075 tons of CO₂ equivalent.



SOCIAL INNOVATION

FROM BENCH TO COMMUNITY PROJECT

IRPC promotes the use of the POLIMAXX BANBAX material, a special polypropylene plastic resin, in prosthetics. This material is lighter than metal and has anti-bacterial properties, and is therefore suitable for making prosthetic limbs. IRPC donated POLIMAXX BANBAX and collaborated with the Prostheses Foundation of H.R.H. The Princess Mother in the production of artificial limbs for the disabled. This has helped improve the disabled's quality of life and enabled movement, allowing them to live a normal life. IRPC is currently further researching plastics that can be used to make transparent prosthetic limbs, which allows doctors to observe patients for any side effects more effectively.



IRPC also collaborated with the Prostheses Foundation of H.R.H The Princess Mother in the research and development of artificial knees for children using Ultra High Molecular Weight Polyethylene (UHMW-PE). IRPC is the only developer and manufacturer in South East Asia of UHMW-PE. This material is resistant to abrasion, disintegration and forceful impact and is used conventionally in artificial knees, for hip replacements, and even in the body.



POL GEN ADUL SAENGINGKAEW

MINISTRY OF SOCIAL DEVELOPMENT AND HUMAN SECURITY

SOURCE: MATICHON (DAILY); "PLASTIC RESINS FOR THE DISABLED"

AUGUST 2ND, 2016



The production of prosthetic limbs is an important project because of its inventions and developments in modern production processes, which follows and contributes to medical science and international standards.



ROBOTIC SUITS DEVELOPMENT FOR PARAPLEGIA

IRPC has cooperated with the Prostheses Foundation of H.R.H. The Princess Mother and Sripatum University in medical device and equipment research and development. This is to help the disabled or those who are paralysed from the lower half of the body down. UHMWPEs, a special type of resins, is used for these robots, as it is abrasion-resistant and forceful impact-resistant. It is also lightweight, enabling better movement, and therefore suitable for replacement parts.

INTERVIEW



KHUN SUKRIT SURABOTSOPON

PRESIDENT

SOURCE: HEALTH FOCUS "INNOVATIVE ROBOTIC FOR DISABLED"

SEPTEMBER 1ST, 2017



This collaboration is a learning challenge where we can share our experiences in public health with the Institute of Education and Society. This developments give the disabled equal opportunities, access to medical and educational innovations, and help reduce social inequalities. Thailand is entering the '4.0' era of innovation and technology, which will create a better quality of life for society.



TECHNOLOGY DEVELOPMENTS TO CREATE NEW BUSINESS

Not only does IRPC conduct research and development to create competitive business advantages and expand its core businesses, IRPC also does so to pursue new business opportunities and create an 'S-Curve'. Through its De Novo research and development program, which focuses on new trending of technology research and development as well as Mega Trends, i.e. new materials for energy storage and electronic applications. It also focuses on nanotechnology research and development to create a technology platform for nano-materials. Nano materials can be used to enhance the company's products' properties such as by making anti-bacterial, or enhancing its thermal and electrical properties. Research in the application of nanoparticles in other fields is also conducted.

INNOVATIVE CULTURE

Creating a culture of innovation to support learning, new initiatives and imaginative thinking, is at the heart of IRPC's sustainable business. Whether it be for a new product, process or business model development, IRPC promotes an innovative culture. It is one of its values, and IRPC widely promotes this to create a culture where employees at all levels think outside the box, are bold enough to try doing something new, and stay interested in learning.



COLLABORATION FOR INNOVATION

To sharpen its competitiveness, IRPC has also established a network of research and development partnerships with leading educational institutions and companies both in Thailand and abroad through open innovation partnerships with institutes such as the Vidyasirimedhi Institute of Science (VISTEC), the National Science and Technology Development Agency (NSTDA), the Japan Advanced Institute of Science and Technology (JAIST), and the Houston Technology Center.

The De Novo Research and Development program is a long-term research program that requires specialized

knowledge and expertise separate from the research and development used in its everyday business operations. Therefore, to encourage ongoing operations and reduce the risks of over-investing in research and development, IRPC utilizes open innovation by collaborating with leading educational institutions and companies. In 2017, IRPC has signed a research and development cooperation agreement to build a collaborative, shared research laboratory for IRPC and the Vidyasirimedhi Institute of Science and Technology (VISTEC), creating an ecosystem for research and technological development and expanding the potential of collaborative research.

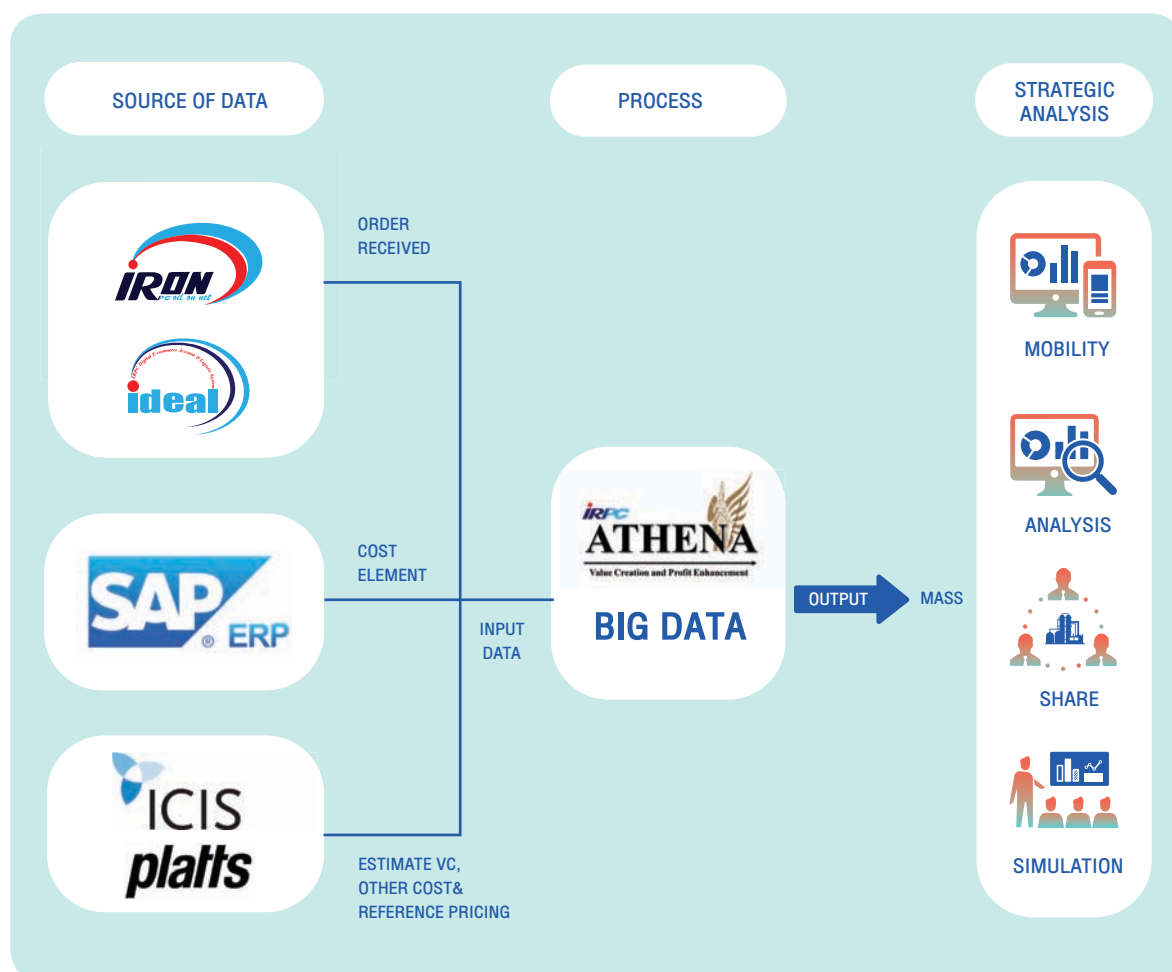
DIGITIZATION

IRPC follows the 'Thailand 4.0' policy by planning to invest in the IRPC 4.0 Project to bring digital technology and cutting-edge innovation to IRPC. This is to increase the organization's productivity holistically and create improvements in every part of the business, whether it be more efficient production, better marketing or more effective procurement.

FINANCIAL MANAGEMENT DIGITAL TECHNOLOGY

In 2017, IRPC developed a cash and liquidity management system with Siam Commercial Bank (SCB), the service provider, to make working processes more effective. This elevated IRPC Group's financial management standards to international standards. Modern financial technology has transformed the cash flow management process, which now runs a fully automated system. It supports payment transactions and interbank transfers, streamlines work flow, saves time, controls risks better, and reduces operational errors as well as financial costs. Operating costs are also reduced in the long run. IRPC manages its finances efficiently as a result.

In addition, IRPC, together with Bank of Ayudhya PCL, successfully implemented Krungsri Blockchain's Interledger for the first real-time international money transfer for the buying and selling of oil between IRPC and its overseas partners. Rapid international money transfers help create a competitive advantage in the business arena and supports business growth. The system also links to the transportation management system quickly and systematically. Some of the customers benefiting from the project are the major oil traders from Laos, who are able to manage exchange rate fluctuations and its risks better. There are evident cost management and business advantage benefits to IRPC.



INTERNAL BUSINESS MANAGEMENT DIGITAL TECHNOLOGY

IRPC has developed a marketing decisions support system called Athena, which is a Big Data system that holds marketing data, cost structure information, and gross margin analyses from all sales transactions. IRPC can thus analyze data from different angles effectively for every customer, product/product grade, region/country, and distribution channel in a way that is systematic and formulaic. Quantitative analysis techniques and mathematical and statistical tools are used to create models that find the best solutions or ways to improve the sales method for each product group, allowing for sales planning that is highly effective and profitable.

Additionally, in 2018, IRPC plans to invest in the Noble Integrated Key Business Process Evolution Project (NIKE Project), which consists of two main programs. The Sales Process Development program simplifies and streamlines the sales workflow so that work time is reduced, and human resources can be managed better. The goal is to reduce the working time to 30 minutes per transaction. It involves digital technology to develop a system that will facilitate, speed up work and improve work accuracy; furthermore, it involves the development of analytical tools to support performance monitoring and decision making, and the development of forecasts and simulations to generate future profit opportunities. Good customer relations will also be enabled through an integrated customer database and sales system that records important customer feedback. The other program undergoing development is the Logistic Process Development program, which aims to improve the shipping process by reducing double work and creating a paperless system. This will reduce working time and operating costs, and increase the document system's accuracy. This program is expected to be completed in 2019.

CUSTOMER RELATIONSHIP MANAGEMENT DIGITAL TECHNOLOGY

IRPC's Customer Relationship Management digital technology is a tool that enhances the company's ability to build good customer relationships. It integrates customer related information from various databases and displays reports in a way that is simple and easy to use. The information is also accurate and fast. This will better enable IRPC to respond to its customer needs and develop high levels of customer satisfaction. It is also a Data Mart that can collect customer information,

complaints and problems, and troubleshooting solutions – all of which are useful in building knowledge and creating improvements. This is so IRPC can learn and respond to different customer needs better. It now has the customer relationship management digital technology for its petrochemical business through the iCONS system, for its ports business through iCROWN and for its asset business via iASSET.

SOCIAL DIMENSION

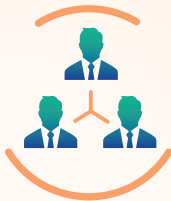
**AS A GOOD CITIZEN, IRPC IS AWARE OF ITS
RESPONSIBILITY TOWARDS ALL STAKEHOLDERS.**



**OCCUPATIONAL
HEALTH AND
SAFETY**



**COMMUNITY
WELL-BEING**



**HUMAN
RESOURCE
MANAGEMENT**



**RESPECT FOR
HUMAN RIGHTS**





HUMAN RESOURCE MANAGEMENT

IRPC ACKNOWLEDGES THE VALUE OF HUMAN RESOURCE MANAGEMENT BY INVESTING IN HUMAN RESOURCE DEVELOPMENT, TALENT ATTRACTION AND RETENTION AS WELL AS KNOWLEDGE MANAGEMENT. IN DOING SO, IRPC ADHERES TO PRACTICAL GUIDELINE OF EQUALITY AND JUSTICE FOR EMPLOYEES AND STRICTLY FOLLOWS REGULATIONS ON LABOR RIGHTS.

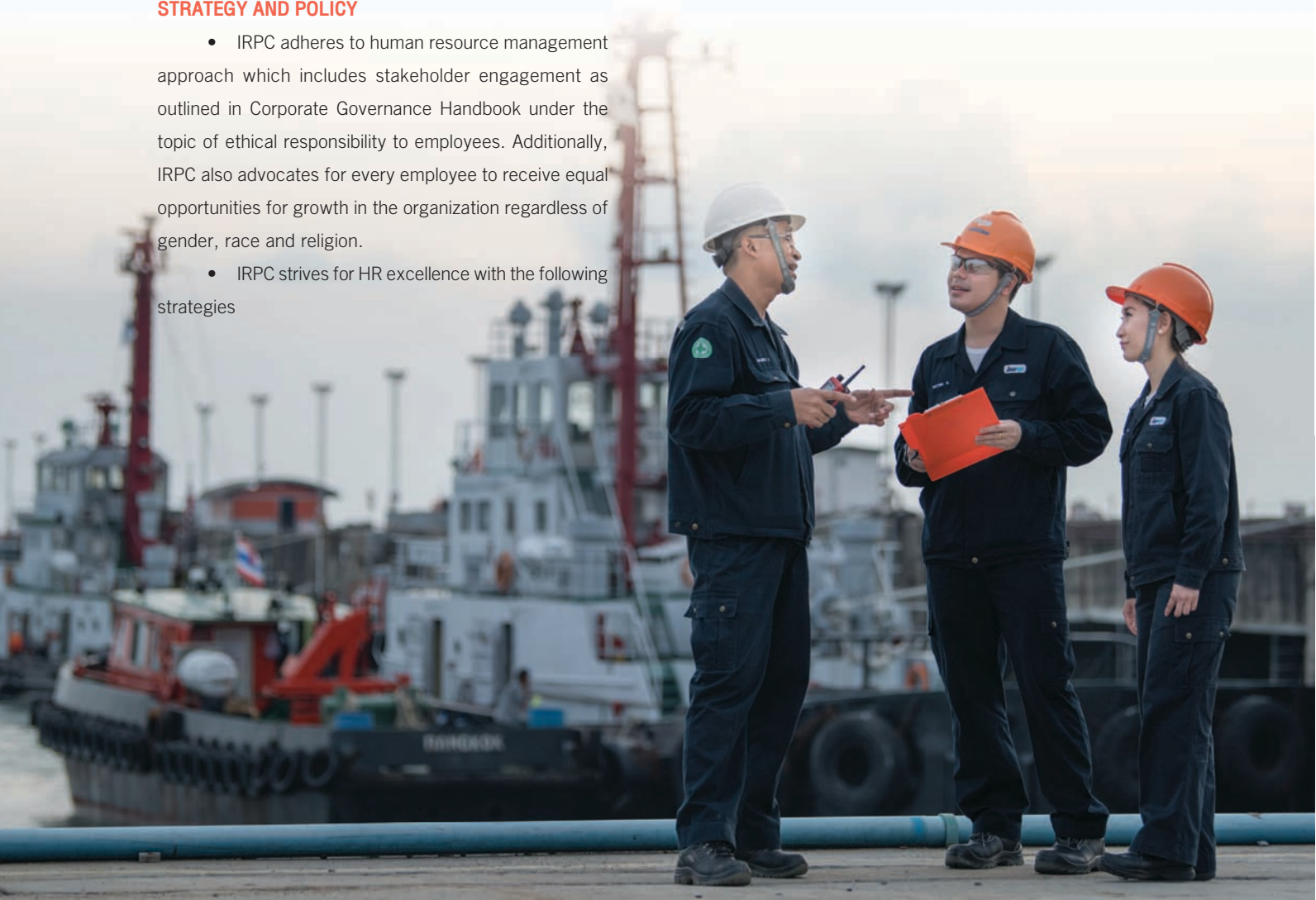
BUSINESS DRIVER

Employees with potential are the critical roots to the stability and sustainability of business. Increasing effectiveness in every aspect of human resource management to motivate employees' self-development including building the right mindset, core values and organizational culture will help drive the organization to its highest potential as well as to be prompt for sustainable growth.

MANAGEMENT APPROACH

STRATEGY AND POLICY

- IRPC adheres to human resource management approach which includes stakeholder engagement as outlined in Corporate Governance Handbook under the topic of ethical responsibility to employees. Additionally, IRPC also advocates for every employee to receive equal opportunities for growth in the organization regardless of gender, race and religion.
- IRPC strives for HR excellence with the following strategies



LEADING INTEGRATED PETROCHEMICAL COMPLEX IN ASIA BY 2020

HR EXCELLENCE “HEALTHY ORGANIZATION WITH CAPABLE AND MOTIVATED STAFFS”



Building an effective and agile organization by setting Strategic Transformation and Result Deliver office and fine-tuning organizational structure



Cultivate inspirational leadership, namely IRPC DNA, by creating a role model for IRPC leader and adjust organizational culture in compliance to IRPC DNA



Talent management & succession planning by supporting talented group of employees and planning for their position successions



Using digital-enabled and advance Analytics for performance evaluation of human resource management, recruitment, compensation and benefits as well as knowledge management

- IRPC has devised strategy and policy for KM Excellence aiming to build a culture of learning within the organization which will help contribute to sustainable business development.

MANUAL/STANDARD PROCEDURE

- IRPC's human resource management covers all the way from recruitment procedures to human capital development, employee retention, supervision and evaluation of compensation and benefits up until retirement.
- Constitution of policy and practical guide handbook of human resource management will help guide managers on human resource management procedure for their department. The purpose is to clearly, effectively and impartially communicate policy, principles and regulations as well as any of the employee's benefit to the managers and employees in order to create mutual understanding and sustain great relationships within the company.

HUMAN RESOURCES MANAGEMENT PROCESS



HIRE



DEVELOP



RETAIN



MANAGE



RETIRE

INFORMATION SYSTEM

- IRPC employed Human Resource Information System (HRIS) as the center of information analysis and planning for human resource administration and development.



- IRPC also employed KM Treasury to gather all significant knowledge on human resource management and to act as a knowledge sharing center based on New Taxonomy as in accordance with organization's strategy. The system is accessible by all employees via IRPC intranet.

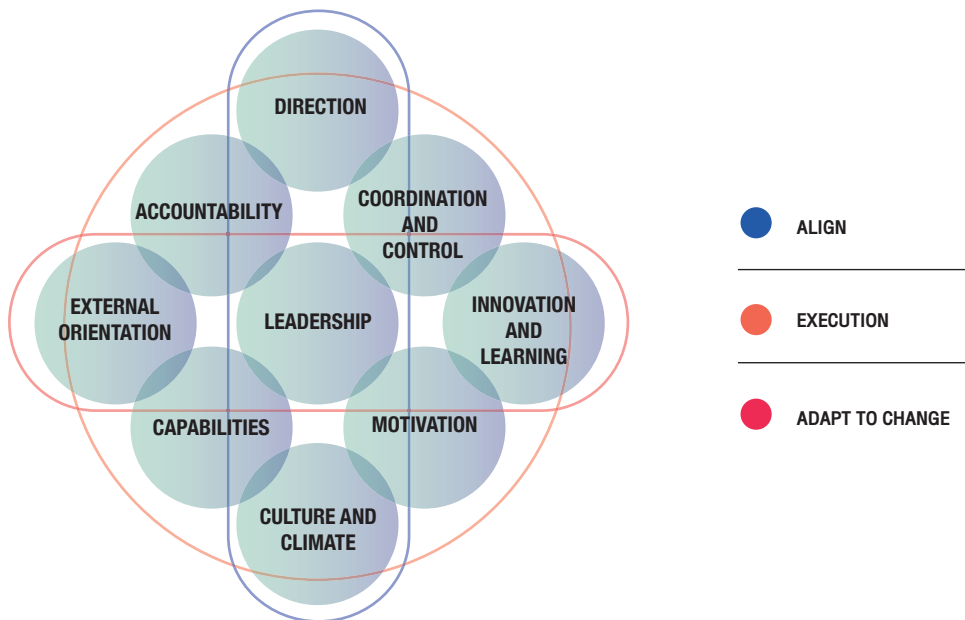


For further information regarding Human Resource management,
Please visit <http://www.irpc.co.th/en/sustainable.php>

PERFORMANCE

IRPC is aware of the importance of adapting human resource management to embrace the ever changing business conditions. Therefore, the organization has set its objective to attain no lower than 74 on Organization Health Index: OHI as equivalent to world-leading organization by 2020.













In doing so, IRPC has defined 3 aspects and 9 factors on organizational health measurement to reflect the effectiveness of organization in establishing directions, objective achievement and adaptation to business competition.



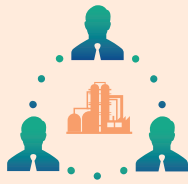
The level of Organization Health Index: OHI has been assigned as one of key performance indicators for top level managerial employees (i.e. Executive Vice President, Senior Executive Vice President and President).

Additionally, IRPC also respects for diversity amongst gender, race, nationality, religion as well as provides opportunities for people with disabilities by maintaining the level of diversity and gender equality within the organization.

Correspondingly, twenty percent of managerial level employees are females. IRPC embraces diversity from the very early process of quality determination in recruitment to providing equal opportunities for human resource development for career growth as well as managing the environment to favor the working and living conditions of every employees.

KEY PERFORMANCE INDICATORS		2017 TARGET	2017 PERFORMANCE	2018 TARGET
	AVERAGE TRAINING HOURS FOR EACH EMPLOYEE (HOUR PER YEAR)	35 	38 	40 
	EMPLOYEE ENGAGEMENT (PERCENTAGE)	78 	79 	80 
	ORGANIZATIONAL HEALTH INDEX (OHI)	70 	78 	>74* 

Remark: *2020 Target

**EMPLOYEE ENGAGEMENT SURVEY**

revealed an outstanding result of

79%

putting the company in the Top Quartile Employee

Engagement comparing to the other companies in Southeast Asia Oil and Petrochemicals sector

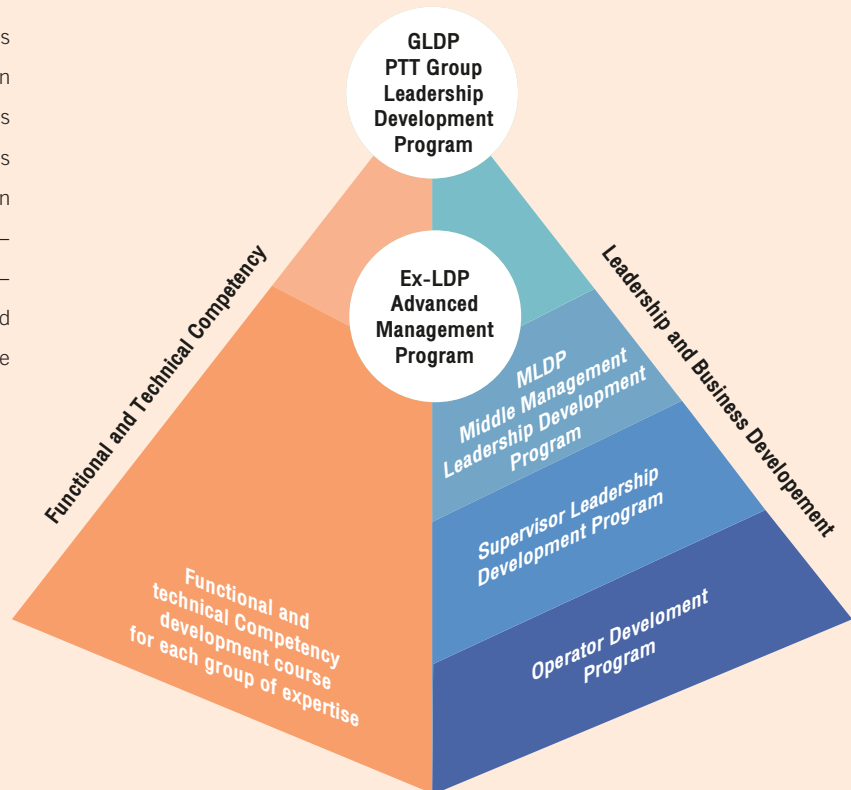
**EMPLOYEE TURNOVER RATE**

IRPC has compared turnover rate of employees amongst Oil and Petrochemical companies in Thailand and found IRPC's turnover

rate to be **1.13%** which is lower than the average of other leading companies by 2.5%.

HUMAN CAPITAL DEVELOPMENT

IRPC aims to enrich potential in employees of all levels and departments in preparation for challenges that tags along with business growth opportunities. In doing so, IRPC has adopted human resource development plan which helps in defining programs and training courses including leadership development program, basic knowledge course and courses on specialized knowledge for the department.

IRPC DEVELOPMENT FRAMEWORK**STANDARD COURSE**

- Quality, safety, occupational health and environment training (QSHE)
- English
- Corporate culture enhancement and corporate governance

BASIC HUMAN CAPITAL DEVELOPMENT**SPECIALIZED COURSE**

- Various management system such as SAP and ERP
- Practical hands on learning

**SELF-DEVELOPMENT**

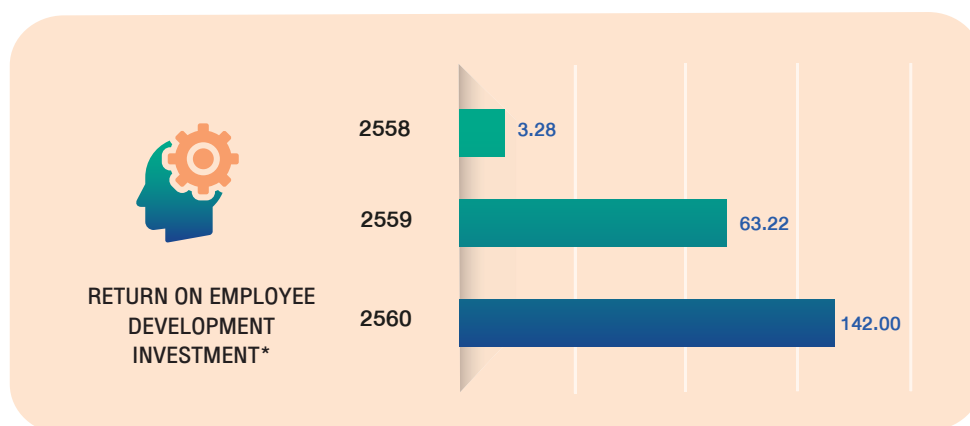
Learning via IRPC system such as E-learning, intranet and KM Treasury

RETURN ON EMPLOYEE DEVELOPMENT INVESTMENT

In 2017, IRPC had measured return on investment from 4 particular programs including i-ChePs, Middle Management Leadership Program-MLDP, QCC and Model Plant. Subsequently, IRPC has decided to extend the measurement of return on investment to six

programs in 2020 to evaluate effectiveness of program operations qualitatively. Moreover, IRPC has also been comparing performance results against other leading company within the industry to consistently drive improvement in this matter.

IRPC measured objective performance on knowledge application from human resource development program using Return on Employee Development Investment. The trends on performance results from the past 3 years have shown that the return on human capital investment has been continuously increasing.



Remark: *Return on employee development investment is calculated using benefit to cost ratio

EMPLOYEE THAT PARTICIPATED MODEL PLANT PROJECT



KHUN PAIROJ SUBONGKOC

DIVISION MANAGER,
REFINERY PRODUCTION DIVISION, REFINERY DEPARTMENT



“I am very proud for having participated in Model Plant which really benefits the organization while also help adjust employee’s behavior to be consistent to IRPC DNA. The program allows me to understand that every employee is an essential driving force behind organization’s success. After Model Plant, my team was able to generate more revenue for the company, precisely THB 152 million in 2017.”



LEADERSHIP DEVELOPMENT PROGRAM

IRPC values the significance of developing leadership skills in employee of all levels. Accordingly, we've designed a development plan with various programs to cultivate potential and prep employees for appropriate career advancement.



LEAD PROGRAM

Practical training for management skills

- Problem-solving skills
- Team management skills
- Organization's communication structure



MIDDLE MANAGEMENT LEADERSHIP PROGRAM (MLDP)

- Leading Self & Team
- Leading Performance
- Leading Business



7 HABITS FOR SECTION MANAGER

Established the foundation and inform principles, paradigm and practice of the 7 habits



7 HABITS FOR REFRESHMENT

- Review knowledge and understanding of the 7 habits
- Foster understanding of peer sharing role amongst subordinates
- Follow up on subordinates' achievements



LDP

- Strategy & Execution
- Business Acumen with Global Mindset
- Innovation
- Leadership



BUILDING COACHING SKILL PROGRAM

- To promote and support managers to expand knowledge, talent, skill, and the characteristics of good trainer
- To enable managers to truly apply their knowledge and gain results as well as to be able to pass on the acquired knowledge to the next generation of managers as compounding to company's strategy



STRENGTHS FINDER

- Understand the principle of aptitude
- Discover and recognize own talent
- Understand individual differences for talents within the team
- Know ways to apply talent or aptitude when training own team

2017 PERFORMANCE



373
PARTICIPANTS



30 EMPLOYEES
THAT
HAVE BEEN PROMOTED
IN 2017



THB
8.68

MILLIONS SAVING FROM
THB 9.10 MILLIONS RECRUITMENT

LEADERSHIP DEVELOPMENT PROGRAM

**KHUN SOMCHAI OATTAMAMONGKOLCHAI**

SENIOR RESEARCHER, STRENIC R&D DIVISION,
POLYMER R&D OPERATION DEPARTMENT, MLDP PARTICIPANT



“After participating MLDP, I come to understand that the program was not only designed to increase employees potential to function better in the organization but also aimed to help participants apply the acquired knowledge to care for their family and people around them in order to be happy and live together with understanding. In addition, the program has offered me opportunities to work in many other roles other than my main role through cooperation with colleagues from different fields. Moreover, the program completely changed my view on effort. Effort is the key that enables us to succeed on any jobs. There’s nothing we cannot do if we put in the efforts. I would like to thank the company and associated staffs for organizing this wonderful training for us, IRPC employees.”

**KNOWLEDGE DEVELOPMENT ON INTEGRATED CHEMICAL ENGINEERING (I-CHEPS)**

For the 6th consecutive generation, IRPC conducted i-ChePs to enhance knowledge on integrated chemical engineering both in theory and applied knowledge for production employees. Particularly in 2017, the program had 21 participants under the investment of THB 8.2 millions. The initiative was to raise production efficiency and reduced energy consumption; nevertheless, it resulted in the increased revenue through reduction of expenses for up to THB 381 millions.

I-CHEPS PROGRAM**KHUN KITTITHUCH UTHAICHARANUNT**

SHIFT SUPERVISOR, POLYOLEFIN PACKING SECTION, POLYETHYLENE
PRODUCTION DIVISION, POLYOLEFIN DEPARTMENT,
I-CHEPS PARTICIPANT.



“I’d like to thank i-Cheps for providing me with the opportunity to acquire further knowledge on integrated chemical engineering and safety. The program allowed me to improve myself and my working techniques such as production procedure analysis for efficiency maximization, chemical engineering design and simulation for constructing, repairing, altering or adding operating system for better efficiency as well as safety control, environmental protection and analysis of hazardous chemicals and waste that may disrupt communities and employees.”

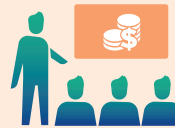


KM TREASURY

In 2017, IRPC developed a new KM Portal which complied Best Practice, Lesson Learnt, Basic Knowledge and General Knowledge categorized by New Taxonomy as according to organization's strategy as well as to reform system for faster performance. The update has been announced to all the employees through employee training, KM E-News and organized activities with various departments to foster knowledge and understanding in KM Portal.



1,371
NUMBER OF KNOWLEDGE
SHARED IN KM TREASURY

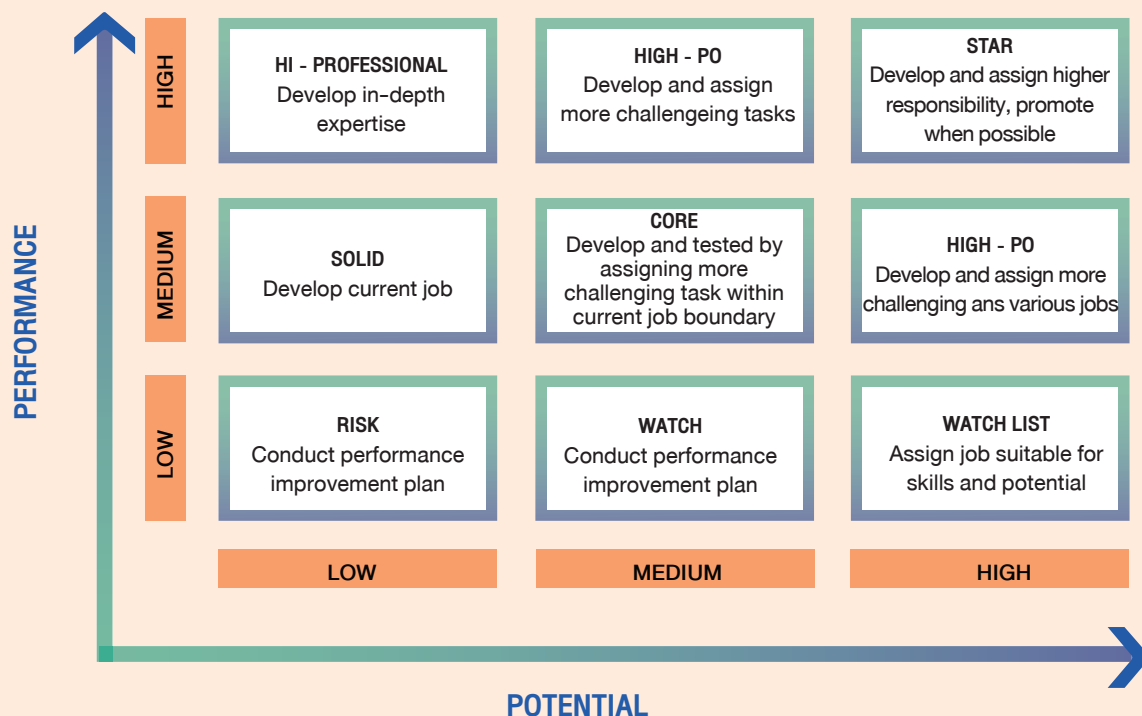


18 KNOWLEDGE SHARED IN
THE KM TREASURY GENERATED
BENEFITS OF
906.7 MILLION
THB TO THE COMPANY

CAREER ADVANCEMENT

IRPC advocates for equal opportunities in career advancement for all employees. Regardless of gender, race and religion, all employees are evaluated for career advancement using 9 Boxes tool which assigns appropriate development program considering the talent and potential of the employees. In addition, IRPC also has definitive principles as well as a transparent and impartial procedures for position changes.

CAREER ADVANCEMENT USING 9 BOXES



TALENT ATTRACTION AND RETENTION

For business to operate smoothly, talent attraction and retention is considerably an extremely significant factor. Therefore, IRPC strives for employee growth and happiness in the organization through various endeavors.

BUILDING A WORKING ENVIRONMENT THAT ACCOMMODATES CREATIVITY

At IRPC, we believe that working environment affects performance and creativity as well as the atmosphere and relationship between employees. Therefore, IRPC is meticulous with work space arrangement, specifically doing so under the concept “Happy Workplace”. Under this concept, we aim to modernize work space with technologies to provide convenience as well as to allow engaging and enjoyable interactions with the organization. This project is going to launch with the renovation of the 10th Year building at Rayong province which will commence mid-year 2018 and finish by the end of 2019. In particular, the project will be managed under the following principles:

- Arrange working and meeting space with relaxing atmosphere
- Having several small meeting rooms for discussion
- Having large tables for group discussions and exchange of ideas
- Having a complete set of communication equipment and tools
- To accommodate disabled with wheelchairs

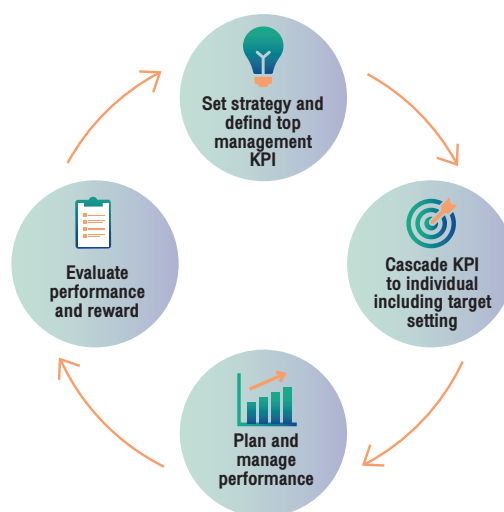
BENEFITS OF THE PROJECT

- Encourage creativity and provide opportunities to freely speak
- Increase efficiency in space usage
- Long-term reduction of maintenance costs

PERFORMANCE ASSESSMENT

IRPC conducts performance assessment on employees of all levels bi-annually for constant preparation for career advancement. In 2017, IRPC has adopted Value Tree and KPI Cascading Tool for Leading and Lagging Indicators. The tools can project a total diagram and connections between each indicator for employees of all levels.

4 STEPS OF EMPLOYEES PERFORMANCE ASSESSMENT



PERFORMANCE ASSESSMENT VIA TALENT Q

IRPC developed Talent Q for Dimensions and Drives assessment for employees of all levels in order to plan for career growth within the organization. This particular tool is used to assess above and beyond experiences, qualifications, and competency that are already being assessed in leadership and performance assessments.

TOPICS TO BE ASSESSED VIA TALENT Q



PEOPLE AND RELATIONSHIPS



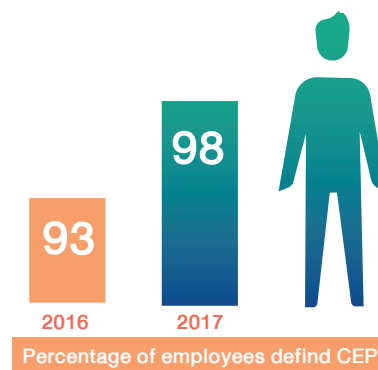
TASKS AND PROJECTS



DRIVES AND EMOTIONS

CAREER ESTIMATED POTENTIAL: CEP

CEP is a potential development program corresponding to employee's future career objectives as anticipated by their accumulated performance. The program involves employee and their superior getting together once a year to define career path that reciprocates both employee's ambition and organization's human capital development arrangement. The purpose is to let employees learn of self-development goals to support their long-term growth in the organization. Appropriately, in 2017, 98% of employees have defined their own career advancement.



INTERVIEW



KHUN NARONG SUPHANKAN

ACTING VICE PRESIDENT, INSPECTION AND
RELIABILITY DEPARTMENT



"Career Estimated Potential or CEP let me know of the objectives for potential development in my career through constant coaching and feedback from my superior. This helps increase the chances of career success for employees as well as to effectively develop personnel as in accordance to the goal of the organization. Personally, I have been given many opportunities to receive training for further development and preparation for leadership such as Leadership Development Program, LEAD Program and The 7 Habits of Highly Effective People."



ONBOARDING PROGRAM

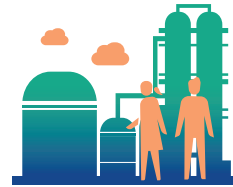
Besides compensation, which is considerably competitive comparing to other companies in the industry in Thailand, IRPC also prioritizes workplace and culture adjustments for new employees, thus the Coaching system. The following outlines the four main objectives for this system.



To be able to adjust oneself to the organization, the culture and their colleagues



To be able to perform as expected by the organization



Encourage organizational engagement with new employees

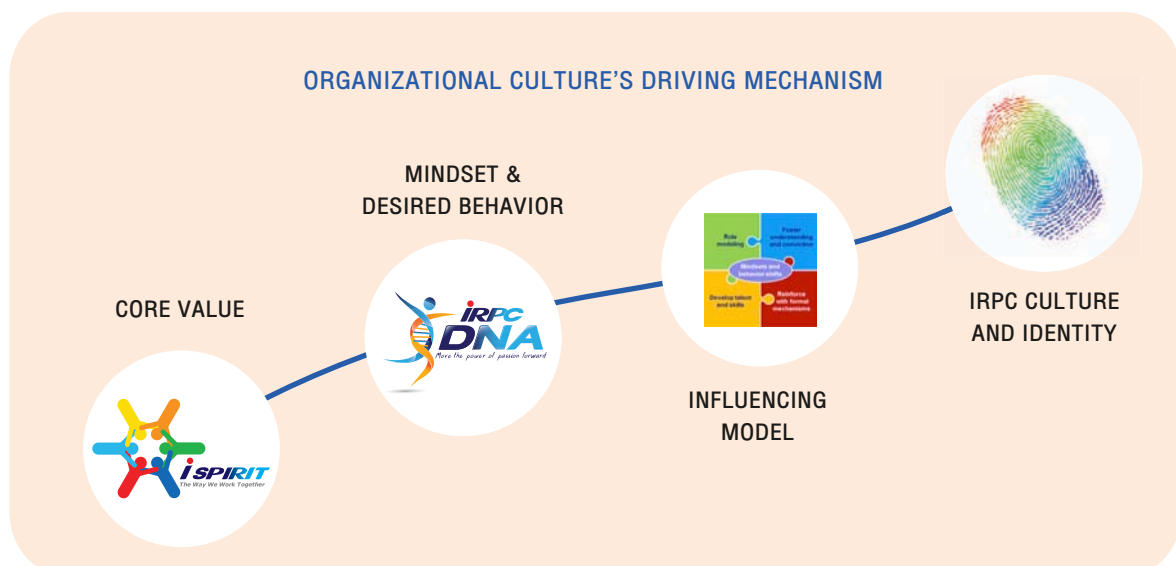


Retention of good employees

With the Coaching system, there is a clear arrangement and person in charge in order to facilitate documentation process and liaison between associated parties as well as training allocation. Moreover, we also provide opportunities for new employees to meet with the managers to form good relationship, get inspired and develop a sense of belonging to the organization.

ORGANIZATIONAL CULTURE

IRPC sees the importance of shaping desired behavior in all employees in order to increase performance and accomplish challenging objectives. By building psychological contract, employees would be assured and feel like a part of the organization as well as develop employee engagement to their work and given responsibilities. Consequently, employees would be motivated to perform to the very best of their potential as depicted by desired behavior. As a result, organizational culture is created which in turns would help employees grow in their career along with sustainable growth of IRPC.



IRPC NEW DNA

IRPC DNA are the behaviors that the organization expects all employees to adhere and practice continuously and deliberately in order to establish organizational culture & identity. The underlying procedure is called “Influencing Model” with four major steps which involves fostering knowledge and understanding for employees. This is to enable them to discover ways to improve and modify behaviors by putting into practice in order for objective results and to help one another change for long-term success of the organization.



**INDIVIDUAL
OWNERSHIP**



**RESULT-
ORIENTED**



**PROMISE
AND DELIVER**



**CONTINUOUS
IMPROVEMENT**



**DO THINGS
TOGETHER**



NO BIAS



**ACTIVELY SOLVE
THE PROBLEM**

INFLUENCING MODEL

1



FOSTER UNDERSTANDING AND CONVICTION

Communicate and create clear understanding of new conducts to the entire of IRPC employees

2



REINFORCE WITH FORMAL MECHANISM

Creating a human resource management system that encourages conviction to new conducts including assessments on performance (results), competency and talent and behaviors that reflect company's core value (new DNA) which leads to the delivery of performance reflective compensation (reinforce with formal mechanism).

3



DEVELOPING TALENT AND SKILLS

Development of skills and talent including knowledge management (KM) to drive continuous learning within the organization

4



ROLE MODELING

Managers as the role model and the initiator of new conduct reinforcement



OCCUPATIONAL HEALTH AND SAFETY

IRPC EMPHASIZE ON THE IMPORTANCE OF SAFETY MANAGEMENT FOR BOTH PERSONNEL AND PROCESS AS WELL AS EQUIPMENT RELIABILITY TO REACH THE GOAL OF BECOMING A SAFE WORKPLACE, FREE OF WORK RELATED ACCIDENTS WHERE EMPLOYEES AND CONTRACTORS EMBRACE A SAFETY CULTURE THROUGHOUT THE ORGANIZATION.

BUSINESS DRIVER

In order to protect potential losses from incidents, emergencies and work related accidents that may affect the continuity of business operation, IRPC highly prioritizes safety management for every employee and operator as well as improving for the better stabilized equipment system to achieve operational excellence target.

MANAGEMENT APPROACH

STRATEGY AND POLICY

- IRPC's occupational health and safety is conducted under the strategic plan of Operational Excellence by 2020 to which IRPC has defined operational approach as and Strengthen Safety and Health approach and Reliability and Asset Integrity

MANUAL/STANDARD PROCEDURE

- Standard Operating Procedure
- Operational Excellence Management System: OEMS
- Safety Report Guideline
- OHSAS-18001
- Safty and Occupational Health Regulation for Contractor

INFORMATION SYSTEM:

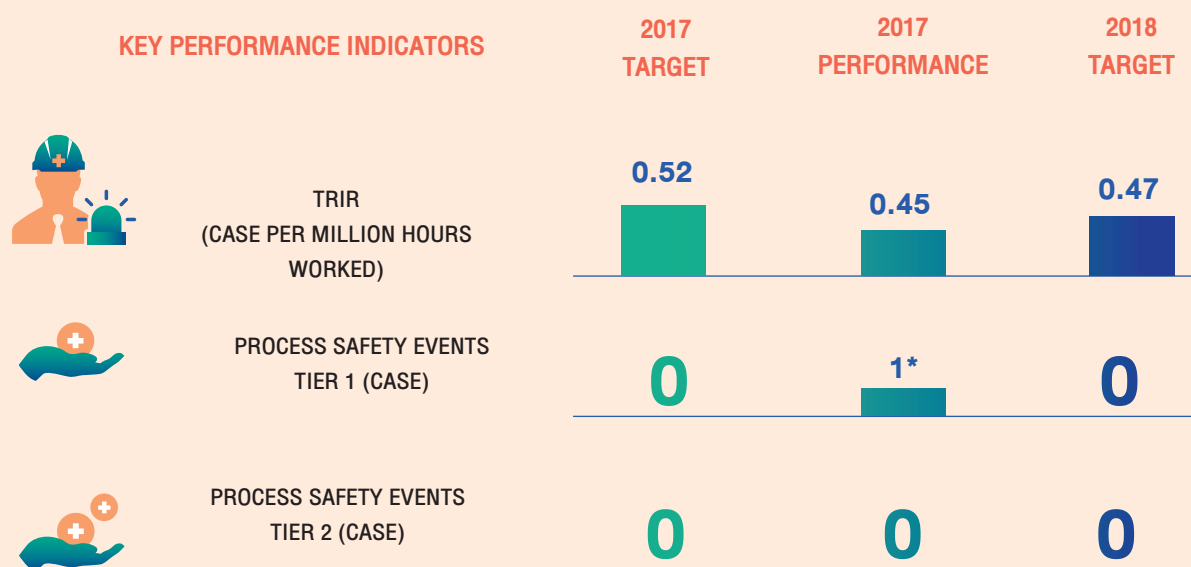
- Incident Management System (IdMS) is the database for information regarding accidents where the data can be taken to analyze for causation and used as case studies in order to prepare for preventive measure and correct the problem in the future.
- Total Productive Maintanace & Management System
- Knowledge Management (KM)



For further information regrading occupational health and safty,
Please visit www.irpc.co.th/en/subtainable.php

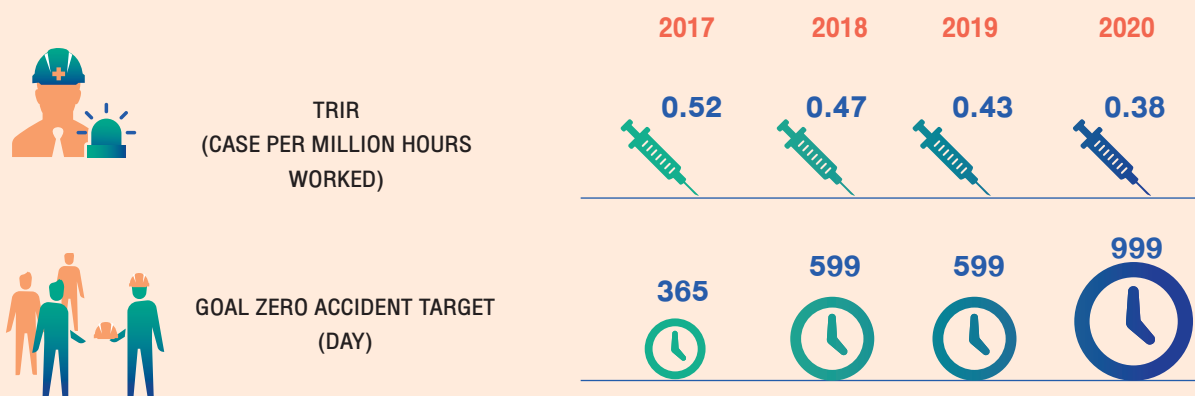
PERFORMANCE

IRPC Promotes safety culture for employees and contractors through several safety programmes in order to build personal awareness and create safe operations for everyone, every where (Zero harm for Everyone Everywhere). In 2017, IRPC set target for Total Recordable Injury Rate (TRIR) not to exceed 0.52 per million working hours and zero incident in process safety. However, In 2017 there was 1 process safety incident at the production unit in UHV plant, in which IRPC had managed to put the situation immediately under control, and no one was hurt. IRPC has now set 2020 target as being excellent in safe operation by setting TRIR not exceed 0.38 per 1 million working hours and 999 days of goal zero accident as one of the corporate key performance indicators.



Remark: *Derived from the fire incident at UHV Plant in which IRPC was able to timely respond the incident without anyone being injured. The incident was effectively communicated, clarified and comprehended to each group of stakeholders resulting in the understanding of the circumstance without distress. After the incident, IRPC has arranged for preventive measures to avoid recurrence.

SAFETY & OCCUPATIONAL HEALTH ROADMAP



INITIATIVES

OCCUPATIONAL HEALTH AND SAFETY

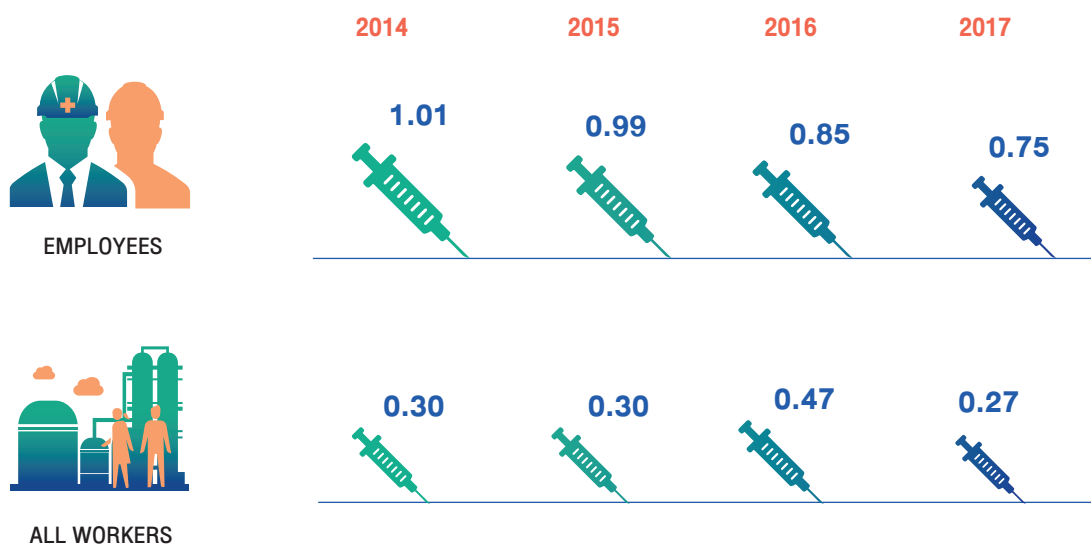
SAFETY PROGRAMS

From past performance, IRPC has found the major cause of operational accidents to be violation of safety regulations. Hence, IRPC has imposed preventive measures to raise safety awareness and build safety culture through various programs such as Safety Excellence, Safety Culture, i-CAREs, Safety Network Sharing and Goal Zero.

Some of our relentless efforts on safety programs included arranging for activities to daily communicate safety to contractors during turnaround in 2017 where more than 10,000 contractors attended; campaigning for accident reduction in and out of workplace; Job Safety Analysis (JSA) to review risks and hazards that may occur prior to work; Safety Network Sharing and safety awards to those who always practice safety in workplace. Moreover, we've also arranged safety training for employees throughout the organization to enhance safety knowledge and skills. As a result, total recordable injury rate for employee and all workers under IRPC's supervision in 2017 has decreased from 2016 where the target rate of 0.52 incidents per one million working hours was achieved.

Furthermore, to emphasize on persistent safety practice, IRPC has arranged a Goal Zero seminar for IRPC's employees, supervised workers and contractors in 2017. The seminar addressed all relevant subject matter such as obeying rules, regulations and other requirements; wearing personal safety equipment; transportation; accessing plant area and safety risk assessment, etc. The seminar was attended by 260 of, altogether, supervised workers and contractors from 123 companies.

TRIR STATISTICS OF ALL EMPLOYEES AND ALL WORKERS (CASE PER MILLION HOURS WORKED)





IRPC has benchmarked safety performance amongst companies in oil and petrochemical industry to find IRPC's injury rate for employees and all workers to be 0.45 case per one million working hours which is lower than the average of 1.03 case per one million working hours. Our performance also fell in the Top Quartile of oil and petrochemical industry. Correspondingly, this performance result will be used in the planning of safety operation.

GOOD HEALTH STARTS HERE

IRPC values health promotion amongst our employees by initiating "Good Health Starts Here" program that issued health related campaigns such as promotional activities for healthy food distribution, free healthy food service for employees and encouraging healthy snacks like fruits or

herbal tea during meeting breaks. Additionally, there's also "Move Move Let's Move" campaign that encourages exercising for relaxation and raises awareness for health. This particular activity was especially popular with large number of participants attending.

KEY PERFORMANCE INDICATORS



TROIR
(CASE PER MILLION
HOURS WORKED)

**2017
TARGET**

0

**2017
PERFORMANCE**

0

**2018
TARGET**

0

SAFETY & OCCUPATIONAL HEALTH ROADMAP



TROIR
(CASE PER MILLION
HOURS WORKED)

2017

0

2018

0

2019

0

2020

0

GOOD HEALTH STARTS HERE PARTICIPANT'S INTERVIEW



BEFORE



AFTER

KHUN SUBAN RAKSEE

OPERATION CONTROLLER OF POWER PLANT ANALYSIS AND
DEVELOPMENT SECTION, POWER PLANT DEPARTMENT



I would like to thank IRPC for “Good Health Starts Here” campaign that inspired me to lose weight, exercise and go on a diet that I was able to regain my health and be in shape again. Within the period of 180 days, my BMI score dropped from 35.82 to 22.40.



PROCESS SAFETY

IRPC applied Process Safety Management (PSM) into controlling the performance of operations in alignment with the regulations of Industrial Estate Authority of Thailand (IEAT) and Occupational Safety and Health Administration (OSHA). PSM is a comprehensive management system that tackles all the way from process screening, concept selection through risk identification, impact assessment to risk assessment. Moreover, IRPC also intend to develop employee potential for their expertise on PSM to be able to share safety management knowledge on production process to all employees. In 2017, a training program called ‘Train the Trainers’ was provided for 32 employees enabling them gain better and clearer understanding of PSM.

In 2017, IRPC has implemented safety standard management in production process through content publication, knowledge sharing and practical application per OSHA standards. In addition, there was also an adjustment in relevant working system to promote better safety, for instance Contractor Safety Management and alcohol level measurement prior to entering production zone, in order to warrant that the operator is ready and can truly perform safely on duty.



32 EMPLOYEES
PARTICIPATED
TRAIN THE TRAINERS

ASSET INTEGRITY AND RELIABILITY

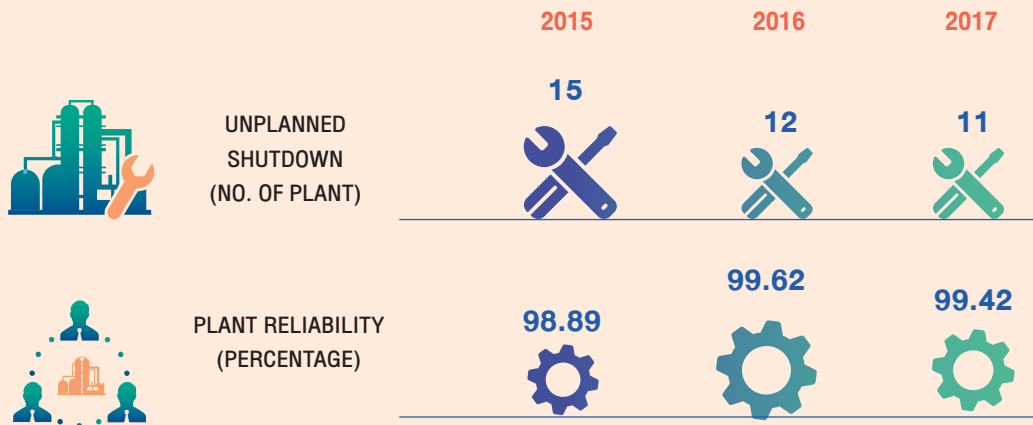
IRPC has also prepared preventive measures and place continuity and stability management system for efficient production process in order for business to operate smoothly. Such system includes Risk Based Inspection, Risk Control Measure, Risk Assessment, Safety Critical Element Management and Time Base Preventive Maintenance. Furthermore, IRPC also has invested in personnel knowledge and skills for engineering and maintenance and implemented a system to analyze past operational failures to cooperate learnings as part of production process design when initiating new projects or for process improvement projects.

For 2017, there were 17 unplanned shutdown from 11 plants (out of 26) As a result, operational costs were reduced by more than THB 700 millions. The following programs were conducted to instill reliability in the production process: intervention of problems prior to its advancement that can cause an unplanned shut down in production process and management of problems that cause unforeseen shut down in production process which requires for an analysis for causation, determination of preventive measures and monitoring via incident analysis system (IdMS) until the measures are completed in order to prevent reoccurrence; Bad Actor Management and

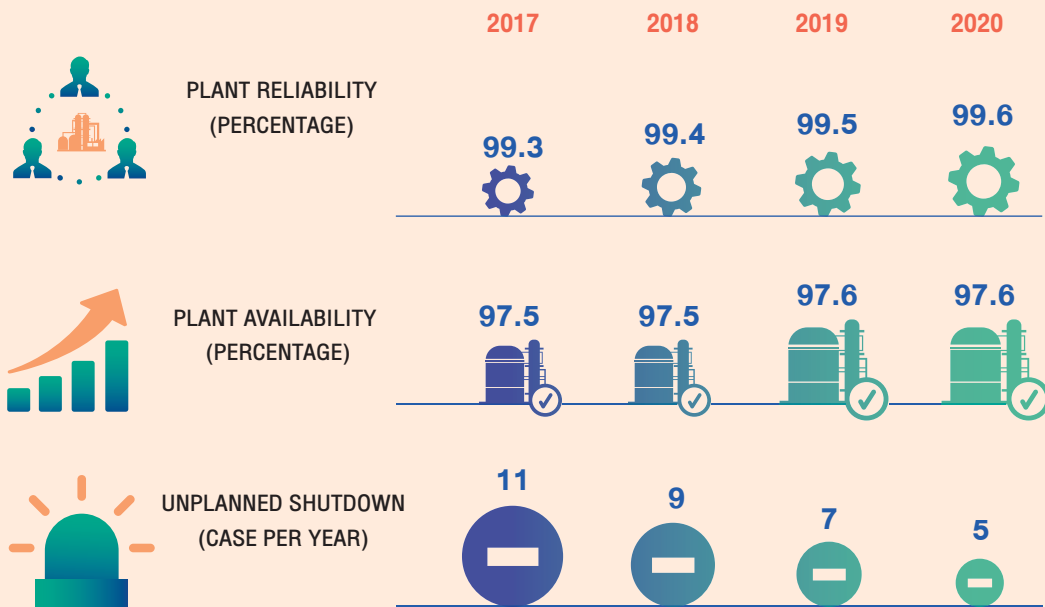
Plant Health Check for better reliability of the process; first machinery inspection plan and inspection roadmap for a completion within 2020; management of alerts in DCS for efficiency and safety at workplace; management of proper and safe operational control values by defining and managing stable and safe value ranges for readiness of machinery and equipment usage (OW Management); management of equipment testing data, a follow up, testing and maintenance of equipment (TAIMS); revision, correction and adding of critical information to SAP system for completion and for consistent standard throughout IRPC and PTT Group.



UNPLANNED SHUTDOWN STATISTICS



ASSET INTEGRITY & RELIABILITY ROADMAP





COMMUNITY WELL-BEING

IRPC RUNS ITS BUSINESS WITH CORPORATE SOCIAL RESPONSIBILITY FOCUSING ON THE DEVELOPMENT OF COMMUNITY LIVELIHOODS, SECURE GOOD RELATIONSHIPS WITH LOCAL COMMUNITIES, AND OPERATE ON THE BASIS OF COMMUNITY TRUST IN OUR BUSINESS.

BUSINESS DRIVERS

In order to achieve community trust, maintain organizational reputation, local communities, and employees, and support the accomplishment of the Sustainable Development Goals (SDGs), IRPC has directed business operations and growth based on security and sustainability. This includes a balanced approach to creating shared value with stakeholders, and the development and implementation of CSR projects that demonstrate social and environmental responsibility.

MANAGEMENT APPROACH

STRATEGY AND POLICY

IRPC has in place management approach and operational guideline to achieve its aspiration of being trusted company by society and community by create shared value through:

- CSR in process projects
- Environmental governance
- Social inclusion/CSR integration projects in Rayong and Bangkok
- Corporate philanthropy to drive social transformation
- Developing social enterprises

MANUAL/STANDARD PROCEDURE

- Principles as published in the Community Development and Community Relation Manual (CDCR)
- Completing Social Impact Assessments (SIAs) and Social Return on Investment (SROI) calculations
- Developing procedures for working onsite
- Impact valuation to develop a Portfolio of Social Initiatives (POSI) – IRPC has developed procedures to evaluate the benefits that our social initiatives bring to our business. This valuation upon the time to impact and proximity to care business

INFORMATION SYSTEMS:

- IRPC uses SAP to collect social initiatives related data. Collected data is then analyzed to determine necessary project developments and appropriate project path for the future.
- Community Health data collection under GIS program together with Rayong Hospital. Data is collected from 5 communities being affected by IRPC operation. Collected data will be used as database to analyze health problems.



For more information regarding community well-being,
Please visit <http://www.irpc.co.th/en/sustainable.php>

PERFORMANCE

IRPC is determined to creating shared value with our local communities. Our highest goal is to achieve community trust and the social license to operate.

OUTPUT/ OUTCOME



6,018 PEOPLE
RECEIVED SERVICES
FROM PUN NAM JAI CLINIC
AND MOBILE CLINIC TO
IMPROVE LIVELIHOOD



INCREASED GREEN
AREAS THROUGH
PLANTING
5,242 TREES



DISTRIBUTED
310 FINANCIAL
SCHOLARSHIPS, WORTH
THB **2,118,000**
FOR LOW-INCOME STUDENTS WITH
OUTSTANDING ACADEMIC PERFORMANCE



44,973 PEOPLE
BENEFITED FROM ACTIVITIES
ARRANGED IN IRPC COMMUNITY
CENTER, RAYONG



82 COMMUNITIES
RECEIVED INFORMATION
RELATED TO IRPC'S
OPERATION



21 PROGRAMS
TO IMPROVE COMMUNITY
HEALTH THROUGH
HEALTH FUNDS



MORE
THAN **30** PUBLIC
AREAS
HAVE BEEN DEVELOPED
FOR PUBLIC BENEFITS

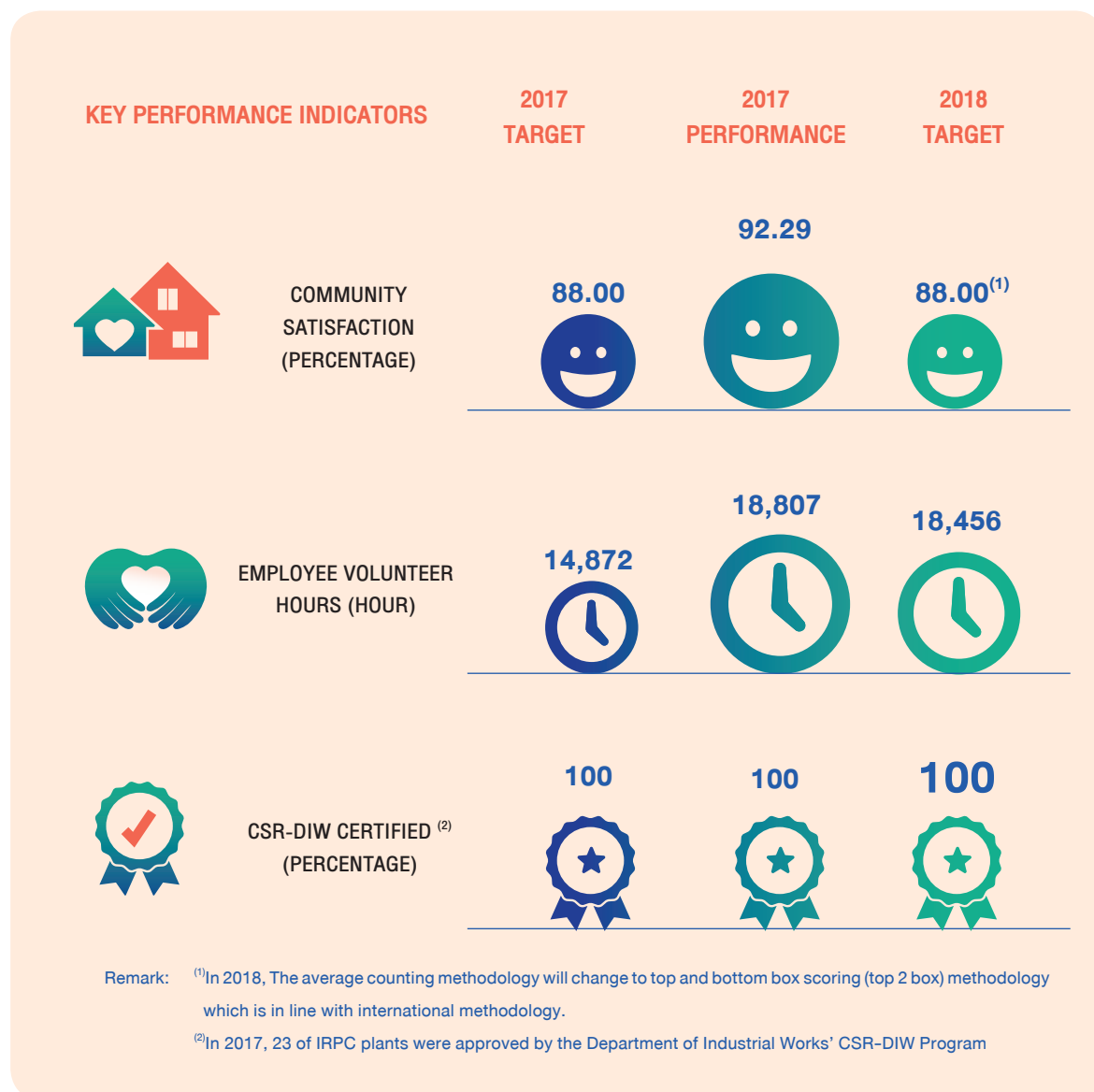
IMPACT



3,600 TONS CO₂
EQUIVALENT PER YEAR
ABSORPTION IN RAYONG AS
A RESULT OF OUR PLANTED TREES



1,859 EMPLOYEES
VOLUNTEERED IN CSR ACTIVITIES



INITIATIVES

COMMUNITY ENGAGEMENT

IRPC has led CSR projects and strengthen community relations in 2017 through prioritizing educational developments, livelihood enhancement, environmental conservation, and product development for the health and safety of our customers. Description of our projects and alignment with SDGs and business goals are as follows:



EDUCATIONAL DEVELOPMENTS



IRPC values the importance of a good education, and has supported educational development projects to create quality individuals for the country.



1 FOR 9 PROJECT

In 2017, IRPC has supported the Educational Ministry's "decrease instructional time, increase learning" policy. This policy consists of policies geared to teach Thai children life skills and critical thinking skills, and overall make education more enjoyable experience. IRPC has also supported the "Robot-making for Geniuses" program geared towards students from grades 4–6. Through this program, students are able to practice skills in using related equipment, being imaginative, thinking critically, and expressing their thoughts. As for the first school semester in the 2017 academic year, there were 30 students who participated in this project.



IRPC CUBIC ACADEMY

The IRPC Cubic Academy was created to support learning for IRPC employees. Some of the topics covered by the Academy include good management practices, anti-corruption practices, corporate responsibility, and sustainable business development. Since 2015, the Academy has trained five sets of employees. There were a total of 510 participants, who passed training, 425 of which being IRPC employees and 85 outsiders.



ACADEMIC SCHOLARSHIPS

IRPC supports educational attainment for students from distant communities to ensure that quality education is attainable even for children living in rural areas. It is our hope that these children will apply what they learn to lead development in their communities as well. IRPC awards academic scholarships for primary school students, secondary school students, and university students. IRPC has allocated 3 scholarships per village. 2017 marks the 9th year that IRPC has been distributing academic scholarships. This year, IRPC has given out a total of 310 scholarships.



CONTRACT TEACHERS FOR WAT PLUAK KET SCHOOL

IRPC has employed contract teachers and other education professionals to support the needs of Wat Pluak Ket School. IRPC has allocated a total of THB 378,000 for Wat Pluak Ket School in Rayong Province to hire 2 contract teachers. This has resulted in an increase of 5 extra hours of teaching per week for 154 students.



LIVELIHOOD ENHANCEMENT



IRPC collaborates with various agencies to organize projects to enhance community livelihoods. IRPC upholds the principles of the Philosophy of Sufficiency Economy (PSE) in all our projects.

LAM SAI YONG MODEL

IRPC is determined to drive sustainable management of water resources to support the economic activities of the local community. In 2017, IRPC has set up a piping system that covers 1.2 kilometers at the Don Jone Forest Reservoir at Ban Nong Yang Community, Lam Sai Yong Sub-District, Nang Rong District, Buriram Province. This piping system is made from HDPE plastics and a solar-powered pump, and will significantly improve water storage capacities. During flooding season, floodwater will be piped to the Don Jone Forest Reservoir for storage. This project has succeeded in securing the water supply for community use – including both household use and agricultural use – with an increase from 3 impacted communities to 10 impacted communities. Additionally, IRPC has planned to use this project as a model to be replicated for the development of water management in other agricultural areas, especially in the Northeast where communities often face water scarcity and issues in water storage.

COMMUNITY HEALTH FUNDS FOR AREAS SURROUNDING THE OPERATION

IRPC supported the health and growth of communities in Rayong Province through initiating a variety of health projects and funds in different communities. In 2017, IRPC allocated THB 6 millions in budget for these following programs:

- Health funds that supported 21 activities to promote community health living within 5 kilometers of IRPC's industrial zone. This covered 8 districts in Rayong Province. IRPC has continuously provided financial support every year, and conducts a meeting to report performance every 2 months.
- IRPC established a mobile clinic in collaboration with Queen Sirikit Hospital and the Royal Thai Navy Hospital to provide health services to patients who cannot travel to the hospital or the Pun Nam Jai Clinic. The mobile clinic provides all services free of charge. In 2017, the mobile clinic led a total of 12 trips and served 1,735 patients in the areas surrounding the industrial zone, including Baan Laeng Sub-District, Tapong Sub-District, Nata Kwan Sub-District, Chong-Nern Sub-District Municipality, and Muang Rayong District.



AN INTERVIEW WITH A PARTICIPANT FROM THE LAM SAI YONG MODEL PROJECT

KHUN NAMTHIP CHADEE

FROM VILLAGE 4, LAM SAI YONG SUB-DISTRICT, NANG RONG DISTRICT, BURIRAM PROVINCE

This project has been so helpful in solving the problem of water scarcity during the drought season – a major problem for farmers. Both community members and villagers got to participate in the planning and implementation processes, and we were able to take ownership of the project. This helps everyone to feel committed to the Reservoir, and most importantly, we have water to use throughout the year even during the dry season. Our health has improved because we can now eat vegetables and fruits that we have planted ourselves without the use of chemicals. Our incomes have increased from our vegetable farms. I would like to thank IRPC for organizing this great project, and I hope that other communities suffering from drought seasons and water scarcity will also get the chance to benefit from this project.



- Since 2010, Pun Nam Jai Clinic has been providing public services and basic health check-ups for all communities living around operational areas at the Rayong Community Network Learning Center. All services are free of charge. In 2017, Pun Nam Jai Clinic served 4,283 patients. Most of these patients (2,317) were from

Cherng-Nern Sub-District Municipality, while 819 were from Rayong City. IRPC Card members also increased by 638 last year totaling to 8,848 members. IRPC Card members will receive benefits in requesting free treatment and accessing a discounted price of 0.50 THB per Liter at IRPC gas stations.



GIVE NEVER STOP

IRPC has collaborated with FM91 Traffic Radio to provide support for the disadvantaged and the poor to have better lives. As there is a huge lacking of medical and emergency supplies, Between July 1st to December 31st, 2017, IRPC has helped 310 disadvantaged and poor people.



SCHOOL FOR THE ELDERLY AT RAYONG

IRPC supports education for the elderly to enhance their livelihoods. Currently, our School for the Elderly is attended by 128 students. In 2017, IRPC led 13 educational events and activities, including a training session on self-care with traditional Thai health practices, a study session focused on ecological agricultural practices at Saleung at Klaeng District, a session discussing the Philosophy of Sufficiency Economy (PSE), and many others.





SUSTAINABLE ENVIRONMENTAL DEVELOPMENT



IRPC collaborates with government agencies to achieve sustainable environmental development.

IRPC ECO-INDUSTRIAL ZONE

IRPC is determined to move towards being an eco-industrial zone. As of the present, 24 of IRPC's plants have been certified as eco-factories by the Institute of Environmental Industry of the Federation of Thai Industries. For the future, IRPC has planned to enhance its operations to become an IRPC EIZ (Eco-Industrial Zone) that lives harmoniously with the community and contribute to the health, well-being, and economy of community members. IRPC is aspired to achieve sustainable growth alongside our communities, and eventually become an Eco Industrial Town alongside the government.

RESTORATION, CONSERVATION, AND PROTECTION OF MANGROVE FORESTS AS LEARNING SITES FOR RAYONG RESIDENTS

Our Polystyrene Plant (PS) has organized the project "Restoration, Conservation, and Protection of Mangrove Forests as learning sites for Rayong residents" through using plastic remains from eco-friendly products to create a sand platform for a viewing area. Visitors will be able to observe fish nurseries and other aspects of the mangrove forests. This project covers 63 rais and IRPC has planted trees to create a 2-km buffer zone. Additionally, IRPC has supported the growth of biodiversity in the area through constructing "crab condos" in 11 areas. These crab condos have led to the regeneration of mud crabs, shellfish, and sesarma. In each crab condo, these species can reproduce to approximately 100,000 individuals.





PRODUCT DEVELOPMENT FOR THE HEALTH AND SAFETY OF CUSTOMERS



IRPC is determined to develop its products and services to be environmentally friendly and to increase health and safety for the betterment of customers' livelihoods.

FROM BENCH TO COMMUNITY



IRPC has organized a project to create prosthetic legs under the Royal project, and has donated plastic to the Prostheses Foundation of H.R.H the Princess Mother in order to support the livelihoods of the disabled. In 2017, IRPC donated 20–25 tons of PP Block Copolymer plastic. IRPC has also collaborated with the Foundation to set up equipment, facilities, and production of prosthetic legs for patients in the 2nd Thailand Design Expo of 2017. IRP were able to assist 46 patients and produce 51 prosthetic legs.

INNOVATIVE PRODUCTS FOR BETTER LIVES AND ENVIRONMENTS

IRPC has researched and developed products that respond to customer demand regarding environment and safety. Some of our products that address these concerns include Green ABS and Green PS. In 2017, IRPC used para rubber as the primary raw material to create 27 tons of plastic.



SOCIAL IMPACT FOR COMMUNITIES

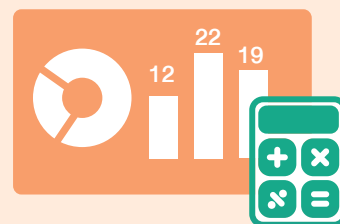
IRPC respects community's rights to access information regarding project developments. IRPC is committed to building community trust in our operations, ensure that business decisions take into account both positive and negative impacts towards communities, society, and the environment. This is integral to maintain business continuity and achieve our vision.

IRPC has in place a stakeholder engagement process to take in feedbacks and concerns from our stakeholders. This is one of the steps in completing the Environmental Impact Assessment (EIA). Project developments – whether they are new projects or expansion of existing projects – must be communicated throughout processes through public hearings. Public hearings are carried out throughout the project development phases, including both before and after project development, in order to take feedback and concerns from community members and make sure that they understand the measures IRPC has taken to prevent and mitigate our adverse impacts. Community concerns are considered in designing further measures to prevent and mitigate environmental impacts, including effective monitoring processes to provide certainty to our stakeholders with regards to IRPC's commitment towards the safety, health, and environmental well-being.

With regards to stakeholder engagements through public hearing events, IRPC has prioritized aspects that support education and information access for communities. IRPC adopts a variety of accessible channels to communicate with our communities, such as invitation letters, community journals, local newspapers, local radios, vinyl signs in front of the industrial zone, internet, flyers posted at the community hall and the public health center, and cars with megaphones installed. IRPC has committed to at least 3 communication channels for at least 30 days of advance announcement. IRPC is committed to making sure that 100% of our surrounding communities are informed of any project development. In 2017, IRPC did not have any new project development that required public participation. However, for 2018, IRPC has planned to conduct this process to gather inputs on Paraxylene production plant development. IRPC will continue to exceed our designated management approach to strengthen community trust in our ability to live and sustainably develop together.

SOCIAL RETURN ON INVESTMENT (SROI) CALCULATIONS

IRPC has calculated the social return on investment (SROI) to demonstrate the outcome or value that is generated from its CSR activities. Through obtaining the SROI of each CSR project, IRPC is able to review past or completed projects and strategize our CSR plan to achieve the utmost efficiency. IRPC chooses projects with high investments, high social impact, and high outcomes for the business to be subject to SROI calculations. In 2017, IRPC has calculated the SROI of four projects, including From Bench to community project, Lam Sai Yong Project, Pun Nam Jai Clinic Project, and the Historical Learning Project at Wat Krua Ta Petch.



In 2017

4

**PROJECTS
CALCULATED ON SROI**

**FROM BENCH TO COMMUNITY PROJECT
LAM SAI YONG MODEL PROJECT
PUN NAM JAI CLINIC PROJECT AND
THE HISTORICAL LEARNING PROJECT
AT WAT KRUA TA PETCH**



RESPECT FOR HUMAN RIGHTS

IRPC RESPECTS THE HUMAN RIGHTS OF ALL INTERNAL AND EXTERNAL STAKEHOLDERS THROUGHOUT THE VALUE CHAIN, INCLUDING EMPLOYEES, COMMUNITIES, SOCIAL, BUSINESS PARTNER, IRPC BUSINESS SUPPLY CHAIN, AND CUSTOMERS.

BUSINESS DRIVERS

Respect for human rights is a crucial issue in running a sustainable business. Responsible human rights performance is the key to mitigate legal risks, preventing operational disruptions, and maintaining long-term relationships with society.

As a signatory to the voluntary UN Global Compact since 2011, IRPC is determined to uphold our role to respect human rights standards as stated in the United Nations Universal Declaration of Human Rights (UDHR) and the International Labor Organization (ILO) Conventions, and align our operations with the UN Guiding Principles on Business and Human Rights.

MANAGEMENT APPROACH

STRATEGY AND POLICY

- IRPC respect and place highly emphasis on human rights, IRPC Group's policy on human rights was endorsed by Board of Director chairman, signed by CEO, and disclosed through company's website, in compliance with national labor regulations and human rights principles in 2017. IRPC committed to respect labor rights, women's rights, children's rights, and human dignity including freedom and equality in order to Protect, Respect, and Remedy throughout our value chain.

MANUAL/STANDARD PROCEDURES

- IRPC has collaborated with PTT Group to develop a Human Rights Management System (HRMS) that is based on fundamental human rights principles covers all issues related with the Group's activities. In 2017, IRPC has applied the HRMS to our own business to ultimately assess human rights risks in our activities, develop measures to mitigate the risks, monitor and track findings, and designate roles and responsibilities for each function regarding human rights. IRPC has also supported the development of the PTT Group's Human Rights Initial Review, which covers all potential human rights issues associated with the Group's activities.



For further information regarding Respect for Human Rights,
Please visit <http://www.irpc.co.th/en/sustainable.php>

IRPC'S HUMAN RIGHTS MANAGEMENT APPROACH



Policy Development and Implementation in Both Thai and English



Public Disclosure on IRPC Website



Raise Awareness and Provide Human Rights Training for All Employees



Evaluate Result of the Management Approach

PERFORMANCE

IRPC has completed a human rights risk assessment to determine potential human rights impacts that may occur within our activities through the use of the Human Rights Risks and Impact Assessment Methodology. This Methodology guides human rights risk assessment based on likelihood and severity of impacts. Results of the risk assessment will help us identify vulnerable groups whose rights may be violated in our operations.

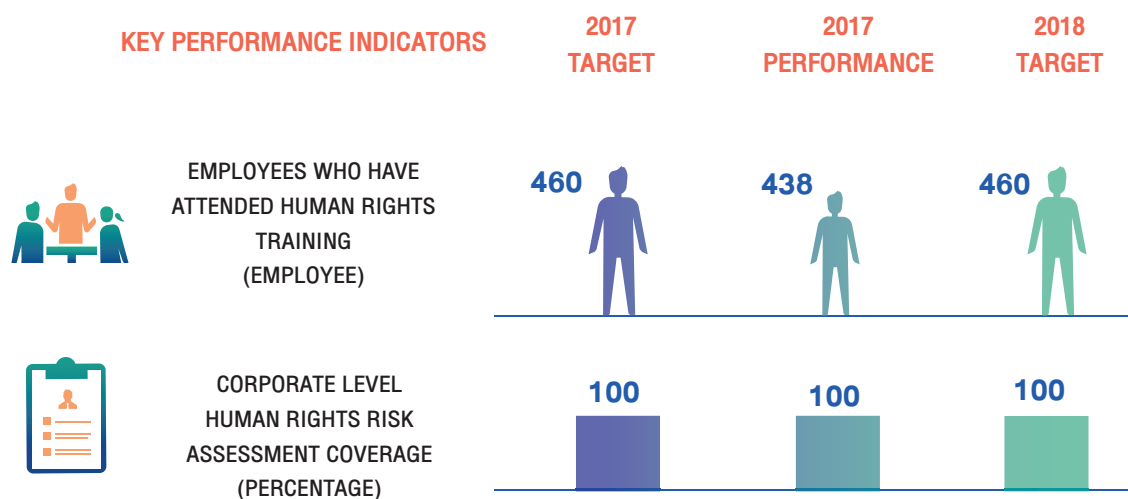
In 2017, IRPC reviewed and developed the Human Rights Risk and Impact Assessment Methodology in line with PTT Group's human rights management approach. IRPC has evaluated human rights impacts and assessed human rights risks in accordance with international standards. The assessment criteria covers occupational health and safety, environmental, social responsibility, employees' rights, customer confidentiality and even supplier evaluation processes to comply with national and international regulations.

IRPC has assessed the corporate level human rights risks of all activities throughout the value chain, including

its affiliate, joint ventures, where IRPC has and has no management control, and Critical Tier 1 Suppliers, covering all operation areas in IRPC industrial zone and Rayong depot, in order to prevent and mitigate human rights impacts. This assessment process is comprehensive of the human rights of employees, vulnerable group, suppliers and contractors, customers and local communities.

Based on the human rights risk assessment, IRPC found that we currently do not have any high-risk human rights issues. However, there were some issues of interest such as safety at the workplace, forced labor, community health and safety, hazardous waste management, supplier engagement, customer health and safety, and security management. IRPC has designed mitigation measures to decrease the risks of these identified issues, such as managing security, occupational health and safety of employees and mitigating environmental impacts.

In case of human rights risk assesment, in the operational area level, IRPC is planing to expand the boundary of human rights risk assesment to cover 4 oil depots include Chompon depot, Ayutthaya depot, Phara Pradeng depot, and Meaklong depot within year 2018. In terms of in–depth value chain level, IRPC is focusing to expand the coverage of the human rights risk assesment to suppliers other than 1st tier suppliers.



Remark: *Cover IRPC and its affiliate, joint ventures where IRPC has and has on management control, and critical Tier 1 Supplier

IRPC has demonstrated its commitment to human rights responsibility by participating in the “National Agenda: Human Rights as a Driving Force of Thailand 4.0 towards Sustainable Development” hosted by Prime Minister General Prayut Chan–o–cha. The Prime Minister spoke in the event of the need to support and collaborate to drive the development of national policies on human rights.



INITIATIVES

COMMUNITY RIGHTS REGARDING THE FREEDOM OF OPINION EXPRESSION AND THE INFORMATION ACCESSIBILITY

This case stemmed from IRPC’s activities located in Tapong Sub–District, Chong Nern Sub–District Municipality, and Baan Laeng Sub–District in Rayong Province. IRPC had purchased land slots within these areas since 1977. However, to combine these individual land plots into a single large plot, IRPC would have to overlap some paths and streams that have been allocated as public property. Seeing as local residents have ceased to use these paths and streams, IRPC submitted

a proposal for the relinquishment of the public status of the property in accordance with Section 8 of the Land Code Act regarding the purchase of vacant land in exchange for privatized public land. As the procedures to gain approval for Section 9 of the Land Code Act would normally take a very long time, IRPC had requested to use the identified public area temporarily with the distribution of compensation for community members in accordance with Section 9 of the Land Laws. IRPC followed all



steps and procedures as outlined by regulations. Currently, our request to temporarily use the public land has been approved. We have leased out the land to generate income and benefits to local communities. As flood risk was expressed as a major concern for community members, we have also dredged canals and develop waterways to strengthen water drainage capacity and mitigate flood impacts.

IRPC have continuously seek to resolve problems within legal boundaries taking into account the interest of community members. We value the importance of keeping community members informed to ensure that they understand our activities and to build community trust. To achieve a good relationship with the community, IRPC has initiated activities to listen to their concerns and update them on our activities such as the Open House activity. Through the Open House, community members are able to visit our operational areas.

In 2017, IRPC organized 15 of these activities and welcomed 618 visitors to our operations. Other activities have also included awareness raising activities to build understanding of operations, capacity building activities for local government agencies and other stakeholders, and community relationship activities (volunteer activities and charitable foundations). IRPC has also taken a proactive approach to communicate information on environmental impacts of the factory and news updates to community members with the utmost determination and transparency.

AN INTERVIEW FROM OPT NEWS



SERGEANT MAJOR THANAPONG SIANGPRASERT

DEPUTY CHIEF, BAAN LAENG SAO

“Since I became deputy chief of Baan Laeng SAO, I have heard the concerns of community members. IRPC has sent staff to communicate with the community members and make sure that they understand what is going on. This has satisfied the community members. As for the land use change, IRPC operated according to all legal requirements and did not create any impacts on the communities.”



PROTECTION STRIP

IRPC has been respecting community right toward the environmental impact by planting trees around the industrial zone to create a protection strip since 2011. As of 2017, we have planted 5,242 more trees, or 18 more rais of forests. This, in combination all we have done since the project's beginning, means we have planted 383,362 trees, or 707 rais of forests. This is equivalent to 3,600 tons of carbon dioxide absorbed per year. Additionally, beyond creating a natural protection strip to prevent dust, odor, and noise pollution from our operational areas, this project has also supported community relationship—building for IRPC.



GOOD LABOR PRACTICES

In addition to employee retention and capability building within the organization, IRPC is committed to taking care of all employees' basic human rights. We prioritize and listen to all employee complaints. IRPC has in place guidelines for specific grievance investigation procedures to address any grievance submitted. We also support all of our 8 labor unions in various ways, such as allowing them to use company space and meeting rooms, lending company vehicles to organize activities, being present to communicate and discuss issues raised by employees, and overall showing employees that they have our full support. We have also collaborated with the labor unions in organizing training sessions to about social security regulations. In 2017, there were a total of 438 attendees. Furthermore, we arranged a training session especially for elected employee representatives in order to ensure that they understand their roles and responsibilities in accordance with the 1975 Labor Relations Act. Over the

past year (2017), IRPC addressed 7 complaints raised by the labor unions. These complaints were relating to safety of employees and employees' property, policies of the provident fund, praying room for Muslim employees, the healthy employee award, and the organization of activities to mark completion of rehabilitation plans.



86%
OF IRPC EMPLOYEES
JOINED LABOR UNION

ENVIRONMENTAL DIMENSION

IRPC IS FULLY AWARE OF THE IMPORTANCE OF
OPERATIONAL RESPONSIBILITY TO PREVENT
AND REDUCE ANY ADVERSE IMPACTS TO
THE ENVIRONMENT AND SOCIETY



OPERATIONAL
ECO-EFFICIENCY



CLIMATE CHANGE





OPERATIONAL ECO-EFFICIENCY

IRPC IS FULLY AWARE THAT THE ENVIRONMENT IS CRUCIAL FOR ALL BEINGS, WE ARE, THEREFORE COMMITTED TO OPERATING OUR BUSINESS WITH RESPONSIBILITY BY MAXIMIZING THE USAGE OF RESOURCES AND MINIMIZING IMPACTS TO ENVIRONMENT FROM AIR EMISSION, WASTE, AND OIL OR CHEMICAL SPILL.

BUSINESS DRIVER

IRPC aims to be a leader in business while maintaining environmental and societal responsibility. It is committed to improving the eco-efficiency of its production process so as to balance the needs of the economy, society and the environment. This is to engender trust and acceptance from the community and society, which will drive the organization towards sustainable business growth in the future.

MANAGEMENT APPROACH

STRATEGY AND POLICY

IRPC's operational eco-efficiency operates under the Quality, Security, Safety, Occupational Health, Environment and Energy Management (QSSHE) policy, and Operational Excellence by 2020 as follows:



- The Operational Efficiency & Management System, including the Energy Efficiency Roadmap for 2017–2022, to achieve the long-term goals of improving energy efficiency and reducing operating costs.



BENCHMARKING PROGRAM

to compare the performance of IRPC with companies in the same industry



ENERGY EFFICIENCY

includes the energy management system (iso 50001), the energy efficiency reduction program under EVEREST project, the energy CAPEX project to reduce energy consumption.



CASH COST REDUCTION PLAN

covers raw material costs, machinery maintenance costs, transportation costs and utilities costs.



DIGITAL PROGRAMS PLAN

adopting new technologies for environmental management process, in-depth analysis and automation.



ONE SYSTEM PLAN

integration of Operational Excellent Management System (OEMS) and Management Standards such as Quality Management System (ISO 9001: 2015) and Total Productive Maintenance and Management (TPM).

- Plans for Eco Industrial & Eco Efficiency is outlined as followed



AIR QUALITY MANAGEMENT PLAN

to reduce Volatile Organic Compound (VOCs) emissions.



WASTE MANAGEMENT PLAN

to reduce waste generated from operation and add value to waste by researching the possibilities of converting waste into energy; reduction of hazardous waste to landfill, and wastewater management according to 3Rs (reduce, reuse, and recycle) principles.



ZERO COMMUNITY COMPLAINT PLAN

to improve the efficiency of the production process to minimize negative impacts on the community and the environment; communicating with the community through various public relations channels including meeting with local communities to explain or clarify the operations and projects the company is working on.

MANUAL/STANDARD PROCEDURE

- Operational Excellence Management System (OEMS) – efficient environmental management operation.
- Environmental Management System
- Air Dome Management
- Oil and Chemical Spill Response Plans on Land & Sea – evacuation plan, disaster prevention and mitigation plan in collaboration with the community, local and national government agencies; the response plan drills have been conducted with relevant stakeholders in Rayong province every year.

INFORMATION SYSTEM

- Total Productive Maintenance and Management System – used to collect information regarding machine improvement and maintenance from employees worked in operation

- e-Learning System – such as TPM Introduction and Concept course, OEMS L1 Training Content course, Environmental Quality Promotion course, and Basic Environmental Pollution Management (3Rs) course, etc.

- The TIAMS Data Management System – for managing data relevant to monitoring, testing, and equipment maintenance.

- The i-Smart Work Maintenance System – a technology that has been adopted for maintenance work to gather information into a central database where data is stored in real time. Data can be used for preventive maintenance planning and problem analysis to optimize the reliability of the machines under a suitable budget. This helps reduce the steps of maintenance work and efficiently resources consumption.

- Ophis EnviMan Program – technology used to predict the boundary of airborne pollutants dispersion. The results will be used to improve the production process.

- AERMOD Program – used for Air Quality Impact Assessment following the expansion of IRPC's production capacity.

- The SAP system is used to collect basic information on production; includes water and utilities usage for analysis of efficiency of production.

- Waste & Scrap System – used to inform and track waste transportation.

- ISO Integration system (e-SMART ISO) is used to store ISO controlled documents.

- Mathematical modeling program – used for predicting and forecasting climate change situations for PTT Group's water management committee (PTTWT)

- e-MoC—a system of Management of Change in line with IRPC OEMS



For further information regarding Operational Eco-efficiency,
Please visit <http://www.irpc.co.th/en/sustainable.php>

PERFORMANCE

IRPC sets long-term performance indicators for operational eco-efficiency in energy consumption, air pollution and the amount of hazardous waste to landfill as follows:

LONG-TERM GOALS OF OPERATIONAL ECO-EFFICIENCY



ENERGY INTENSITY
INDEX: EII



NOT EXCEED 85%
IN 2020 COMPARED
TO 2012



VOCs EMISSION



0.186 TONS PER
THOUSAND TONS
PRODUCTION IN 2020



HAZARDOUS WASTE
TO LANDFILL



0 WITHIN 2020



OIL OR
CHEMICAL SPILLS



NO OIL OR CHEMICALS
SPILLS FROM
PRODUCTION
PROCESSES.



In 2017, IRPC received

Thailand Energy Awards 2017 for its
outstanding contribution to energy
management by the Department of
Alternative Energy Development And Efficiency



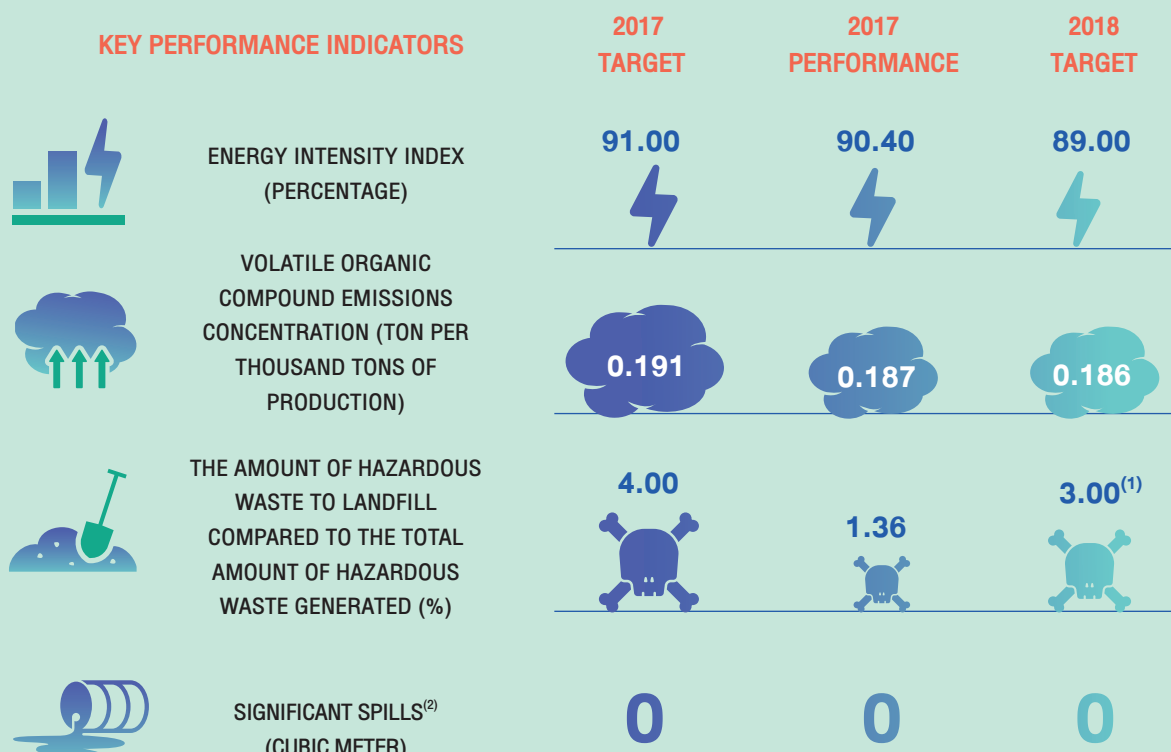
Since year 2015,

24 IRPC plants have been certified
as Eco Factories by the Industrial
Environmental Institute,
the Federation of Thai Industries.

Energy Intensity Index (EII) has been set as one of the company's Corporate Key Performance Indicators (KPIs) and is used in its Petrochemicals and Refinery business and all of its production plants. The indicators for hazardous waste to landfills and volatile organic compound emissions has been set as an indicator for performance appraisal of Safety, Occupational Health and Environment Department,

which is responsible for overseeing all plants as well as those plants with significant sources of impacts such as refinery, Ethylene Plant, Power Plant and UHV Plant, etc.

IRPC also compares its environmental performance with other companies in the Oil & Petrochemical Industry in Thailand. IRPC use these results to plan for our future operation improvements.



Remark: ⁽¹⁾2018 Target mark higher than its performance in 2017 due to business growth

⁽²⁾> 100 Barrels or 15.9 Cubic meters

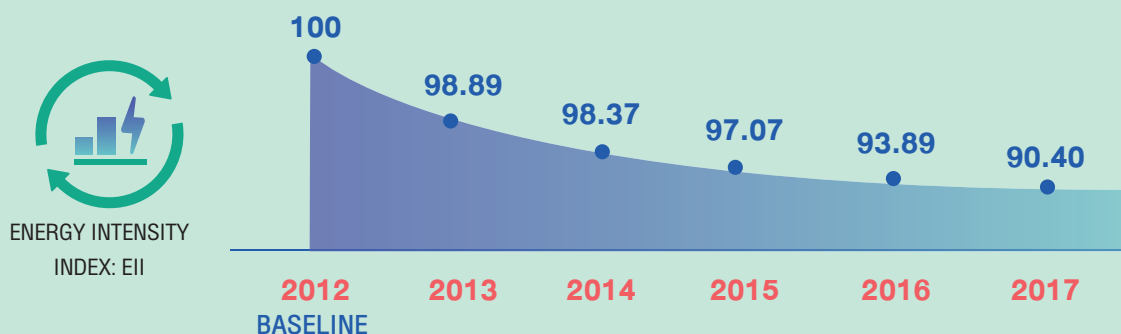
INITIATIVES

OPERATIONAL EFFICIENCY

ENERGY EFFICIENCY IMPROVEMENT PROJECT

In 2017, IRPC launched several programs to improve energy efficiency in operation under the EVEREST project, which includes increasing efficiency of the Preheat Exchanger by using 'Pinch Analysis' to analyze the heat exchange process for improvements, improving the furnace heater's efficiency by lowering the stack temperature, and coating inside furnace walls help control the radiation and heat transfer to the outside, all these resulting in reduction of fuel used in the furnace. Transferring the heat from Xylene distillery to the stripper

column reduces the need for steam in the re-boiler. All these mentioned above increases production efficiency, reduces energy and resource consumption, increases efficiency and effectiveness of machinery maintenance, and minimizes operating days lost. As a result of the programs implementation in 2017, total energy consumption was reduced by 1,914,021 KJ, equal to THB 742.5 millions cost saving.



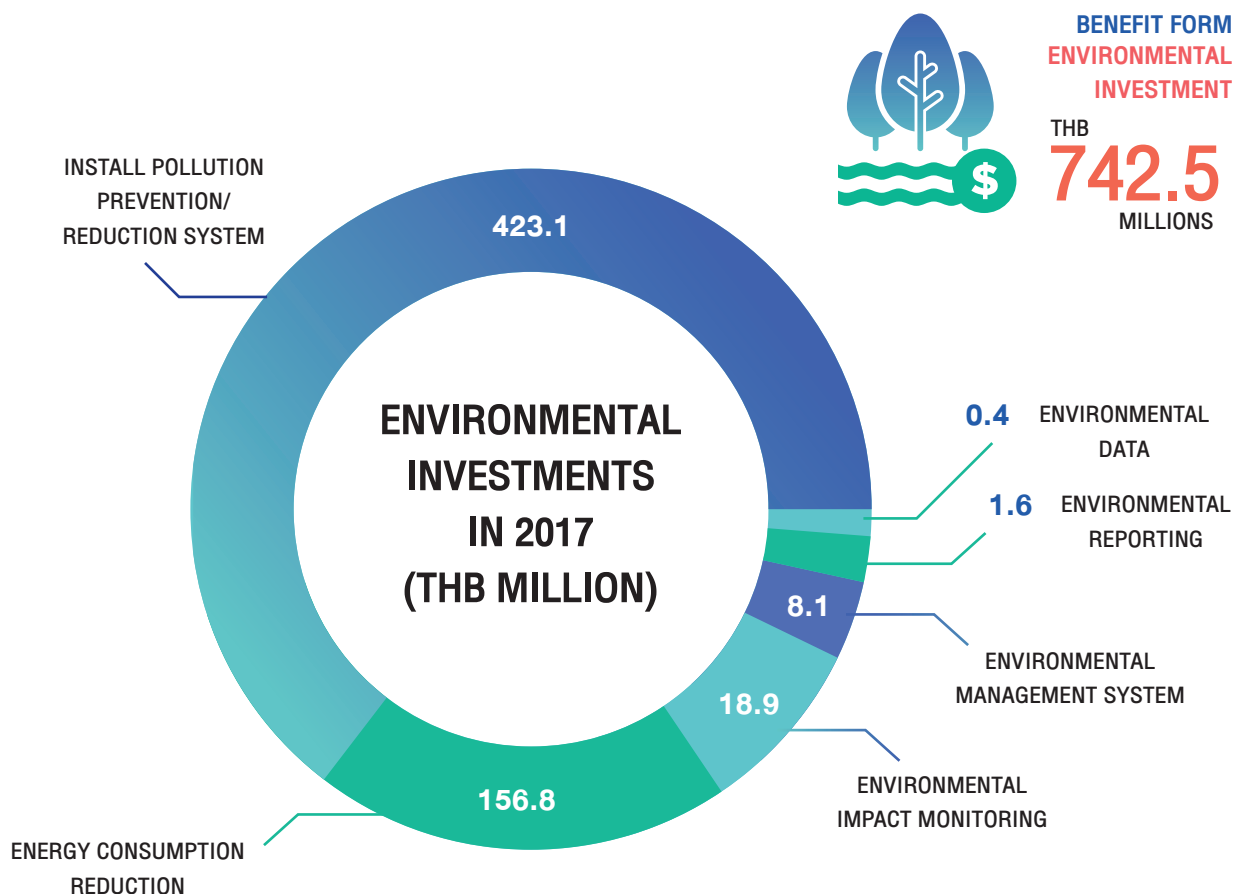
The energy intensity index has been steadily declining since 2012. In 2017, IRPC performed at 90.40, achieving 91.00% of its energy intensity index target. In the future IRPC aims to continuously improve operational efficiency under the Energy Efficiency Plan to drive organizational excellence in energy management.

ENVIRONMENTAL MANAGEMENT SYSTEM

IRPC manages environmental performance under the policy of Quality, Security, Safety, Health, Environment and Energy Management (QSSHE), which focuses on organization-wide integrated management. The PTT Group's Operational Excellent Management System (OEMS) is adopted as the core management system, together with best practice frameworks such as the Environmental Management System (ISO 14001), Energy Management System (ISO 50001), and the Excellence Framework/best practices to create One System, to ensure continuous development and improvement and empower the organization to strive for excellence recognizable by stakeholders, and further achieve business sustainability.

IRPC operates in compliance with laws and regulations, we closely monitor changes in law, corporate requirements, and industry-wide operational standards. As a result, IRPC has never violated any environmental laws or regulations through its operations.

In 2017, IRPC allocated a budget of THB 609 millions to implement environmental protection and mitigation measures according to the Eco-Efficiency principle. This includes managing of air emission, waste, wastewater, as well as energy conservation projects to maintain biodiversity, the ecosystem and creating a low-carbon society.



In the future, IRPC plans to improve its environmental accounting management by developing a system for data collection on investment benefits from environmental improvement projects as well as methodology to calculate the return on environmental investment for better accuracy. This will be used to monitoring, improving operational efficiency and reducing environmental impact from production processes.

ENVIRONMENTAL PERFORMANCE

AIR EMISSIONS

VOLATILE ORGANIC COMPOUNDS (VOCs) EMISSIONS REDUCTION

IRPC is continually improving its production processes to control and reduce dispersion of the fugitive volatile organic compounds (VOCs) by installing ambient air quality monitoring stations. Plans for emission control and mitigation at sources have also been drawn up. VOCs cameras and online monitoring system have been installed to detect and analyze volatile organic compounds in the atmosphere. In 2017, IRPC was able to reduce its emission of volatile organic compounds by 60 tons through implementing the following projects:

- Installing breather valves to control and reduce volatile organic compound emissions.
- Change Free Vents to Valve controlled vent at chemical storage tanks to control pressure at Gas Vent System.
- Installation of Vapor Recovery Unit at the chemicals, benzene, toluene, xylene and ethanol production plants.

By doing so, in 2017, the volatile organic compounds emissions in normal operation was at 0.187 tons per thousand tons production, which is better than the target of 0.191 tons per thousand tons production. The number of odor related complaints was also reduced by 11% as compared to 2016.

In 2018, IRPC plans to further reduce emissions of volatile organic compounds from the internal tank shell by installing a dome roof and replacing the roof seal, as well as implementing a Leak Detection and Repair Program: LDAR Program.

NO_x REDUCTION

From 2014 – 2016, IRPC installed Dry Low NO_x burners at the CHP I Plant to reduce nitrogen oxide emissions. It was found that the installation of Dry Low NO_x burners reduced nitrogen oxide emissions by 1,283 tons or 48% compared to the pre-installation rate. In 2017, the nitrogen oxide intensity in normal operation was 0.132 tons per thousand tons production, which is better than the target of 0.186 tons per thousand tons production.

SO_x REDUCTION

Fuel oil, which has a high sulfur content, is the main fuel that causes sulfur dioxide emissions from operations. IRPC strictly controls the use of fuel oil. If fuel oil is used, the company is required to use fuel oil that has a sulfur content not exceeding 1%, which is lower than the legal limit of 2%. As a result, Sulfur dioxide emissions in 2017 decreased by 44% as compared to 2016 showing SO_x intensity in normal operation of 0.113 tons per thousand tons production, which is better than the target of 0.170 tons per thousand tons production.

METHANE AND OTHER HYDROCARBON EMISSION REDUCTION

IRPC strives to streamline production processes in ways that minimize the impact on society and the environment. By reducing methane and other hydrocarbon emissions from flares, IRPC has improved the plant's reliability and decreased number of unplanned shutdown. In addition, excess gas from UHV units will be sent to Lube Base Oil, Diesel/Kerosene Desulfurization and EBSM units as alternative fuels for fuel oil and LPG. As a result, the methane and other hydrocarbon emissions in normal operation in 2017 are 77.49 tons and 59.73 million cubic meters, respectively, which 4% decreased from 2016.

WASTEWATER MANAGEMENT

IRPC uses an Activated Sludge and an Ultra-Filtration for wastewater treatment to control discharged water quality to meet regulatory standard. Wastewater quality is checked before being discharged from plants every week at the water discharge outlet. COD online monitoring system has been installed to analyze water quality at final sump before discharging offsite, results are displayed in real time online. Operational statistics for 2017 showed that wastewater discharged after treatment met quality standards and there were no complaints from the community about wastewater odor.

In 2018, IRPC plans to carry out the Odor Treatment project at WWT 1 by permanently covering the wastewater pond, and to divert VOCs vapor to be used as fuel at the ethylene furnace. This should reduce odor problems and prevent risks to the health of its employees and the neighboring community. It will help to reduce the emission of volatile organic compounds as well.

WASTE MANAGEMENT

In 2017, IRPC improved the efficiency of waste management to reduce environmental impact, resulted in only 307 tons of hazardous waste to landfill, which is better than 1,055 tons target. Furthermore, IRPC had changed process of waste management during turnaround by re-insulation and using canvas to cover the area during removal of insulation in order to reduce the amount of waste sent out for disposal. IRPC participated in "Waste to Energy" project with PTT Group to study and identify opportunities for waste to energy. We also planned for hazardous waste disposal under the new contract during the period of 2018 – 2020 in order to support the target of 'Zero Hazardous Waste to Landfill' within 2020.

SPILLS MANAGEMENT

Apart from oil and chemical spill onshore and offshore response plan, evacuation plans, and disaster prevention and mitigation plan formulated and drilled with the community, government agencies at the local, provincial and national levels yearly; IRPC continues to develop its operations to avoid oil and chemical spills by reviewing and analyzing data and records from previous incidents to prevent repeated incident. A maintenance plan has also been further improved to prevent oil and chemical spills from malfunctioning equipment.



GREEN TURNAROUND

In 2017, IRPC completed major turnaround activities at 26 plants, operating under the concept of “Green Turnaround”, which encourages employees to increase awareness of safety, efficiency and how their actions can impact the environment and community. IRPC set up five measures to govern turnaround as follows;



**OCCUPATIONAL HEALTH
AND SAFETY**



ENVIRONMENTAL MONITORING
E.G. ODOR, NOISE,
DUST, WASTEWATER



TRAFFIC CONTROL
OUTSIDE COMPANY'S
BOUNDARY



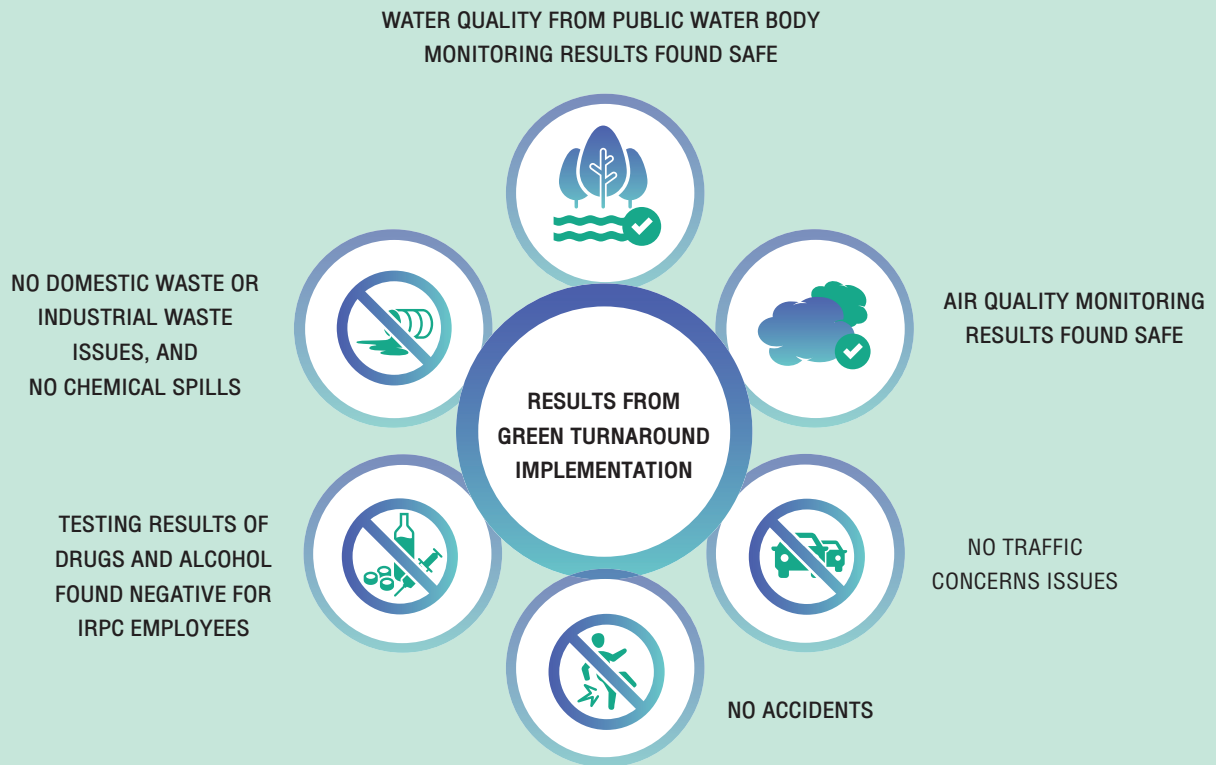
**LABOR AND DRUG TESTING PRIOR TO
ACCESS PRODUCTION AREA**



**PUBLIC RELATIONS AND INFORMATION
COMMUNICATION**

During the plant major turnaround, IRPC operated with strict surveillance and opened a 24-hour complaint center at the Rayong Community Learning Center, where meetings with relevant stakeholders in the government and the local organizations in community were held before, during major turnaround, and re-start up. This is to provide the community with information on operations before and after the work takes place regarding air pollution control and industrial wastes segregation and disposal.

Industrial waste generated from turnaround activities were disposed offsite by DIW licensed waste disposers with close monitoring and tracking of waste transportation. By implementing such measures. IRPC was able to complete the major turnaround while environmental impact were in controlled. There were no issues with industrial waste or garbage, and zero chemical leakage. Thus, IRPC effectively safeguarded stakeholders and workers, and reduced negative impacts on the community and environment.



KHUN PRATUANG LAMAI

VILLAGER FROM MOO 1 SALA THONG MAK, CHERNG NERN
SUB-DISTRICT MUNICIPALITY

IRPC staff supervised operations in the morning and evening. There was a surveillance team on duty at the Sala Thong Mak from 18:00 to 05:00 daily, and an announcement van to inform the community of project updates. IRPC also established a complaint center so that a Community Relations and Environment Officer was on-hand to take action immediately if any issues.



KHUN SURAPOL SUKKHUM

VILLAGER FROM MOO 6, BAN TA KAD, TAPONG SUB-DISTRICT

There was no issue around noise disturbance at my home. There was an odor once so I reported this and the Community Relations and Environment Officer took action right away.



KHUN SAMARN KOCHADECH

VILLAGER FROM MOO 2, BAN KON NHONG, BAN LANG SUB-DISTRICT

IRPC always dispatched staff to inquire about the impact and can call in in case of emergency. Community Relation and Environment staff are always in the field. There used to be occasional issues on noise and odor in the past, but there is rarely any issue nowadays.



CLIMATE CHANGE

BECAUSE OF CLIMATE CHANGE, WHICH IS ASSOCIATED WITH MORE VIOLENT AND FREQUENT CATASTROPHIC AND NATURAL DISASTERS, AS WELL AS INCREASED DROUGHT AND FLOODS. THIS IS ACCOMPANIED BY CHANGES IN BOTH INTERNATIONAL AND DOMESTIC REGULATIONS THAT CONTROL GREENHOUSE GAS EMISSIONS, WHICH CAUSE GLOBAL WARMING. IRPC RECOGNIZES THE IMPORTANCE OF APPROPRIATE CLIMATE CHANGE MANAGEMENT IN MITIGATING THE RISKS POSED BY THESE IMPACTS THAT MAY DIRECTLY AFFECT THE COMPANY'S ONGOING OPERATIONS.

BUSINESS DRIVER

Climate change is an issue that the United Nations and the global community focus on tackling. There is a clear framework to control the global average temperature increase to be below 2 degrees celsius and an aim to reduce green house gas emission at the global peak level as quickly as possible. At the 21st United Nations Framework Convention on Climate Change (COP-21), Thailand expressed its intention to reduce greenhouse gas emissions by 20–25 percent by 2030, with measures to reduce fossil energy consumption and increase environmentally friendly renewable energy usage. IRPC is a pioneer in the Integrated Petrochemical & Oil Refinery industry and recognizes the role that organizations have to play in managing and mitigating the impacts of climate change. IRPC is focused on reducing greenhouse gas emissions within the organization and on engaging with all sectors to support national policies. This includes water conservation and optimizing water usage to reduce the risk of water shortage, which is also an impact of climate change.

MANAGEMENT APPROACH

STRATEGY AND POLICY

IRPC has a strategic plan for managing climate change in the short-term up until 2020, and in the long term up until 2030, with the goal of reducing both direct and indirect greenhouse gas emissions, and optimizing annual water use. This is in line with its Quality, Security, Safety, Health, Environment and Energy Management Policy (QSSHE Policy) that focuses on sustaining a low carbon society and maximizing water usage efficiency.



IRPC HAS OPERATIONS AND MEASURES TO ACHIEVE THE ABOVE MENTIONED GOALS AS FOLLOWS:

- Implementing the production process's energy efficiency plan plays an important part in reducing overall greenhouse gas emissions. Since the combustion of fuels is the source of most greenhouse gas emissions, developing a plan to reduce greenhouse gas emissions is a necessity. In addition, IRPC has launched a Carbon Footprint Assessment Program for its products' entire life cycle.

- In order to promote the reduction of production greenhouse gas emissions, IRPC participated with external organizations on projects such as the Greenhouse Gas Database project with the Thailand Greenhouse Gas Management Organization (TGO) (Public Organization) and the National Metal and Materials Technology Center (MTEC). These projects study ways to reduce greenhouse gas emissions in Thailand.

- Additional planning for measures to reduce greenhouse gas emissions also start with the information verification process. Cost–benefit analysis for each measure that aims to reduce greenhouse gas emissions (MAC Curve Development) are being developed. This involves studying and identifying carbon pricing within the organisation (Internal Carbon Pricing) to define investment strategies. These guidelines will help to reduce the impact of future risks. IRPC is planning to implement internal carbon pricing into a future environmental investment project evaluation, for example, reforestation project, selecting air emission control and treatment system, etc.

- Reducing the physical effects and risks of climate change, which may affect rain distribution and cause drought, IRPC has a comprehensive water management strategy and plan that covers the organization's entire supply chain and takes into account relevant stakeholders' interests. Proactive water management is one of the ways IRPC has adapted to the risks of climate change. This has also strengthened its business.

CLIMATE CHANGE MANAGEMENT TARGET



**DIRECT AND INDIRECT
GREENHOUSE GAS
EMISSIONS AMOUNT
AND INTENSITY***



**REDUCED BY 12.34 %
IN 2020, COMPARED TO 2012**

Remark: * Converted from Energy Efficiency goals, or the Energy Consumption Index (EII)



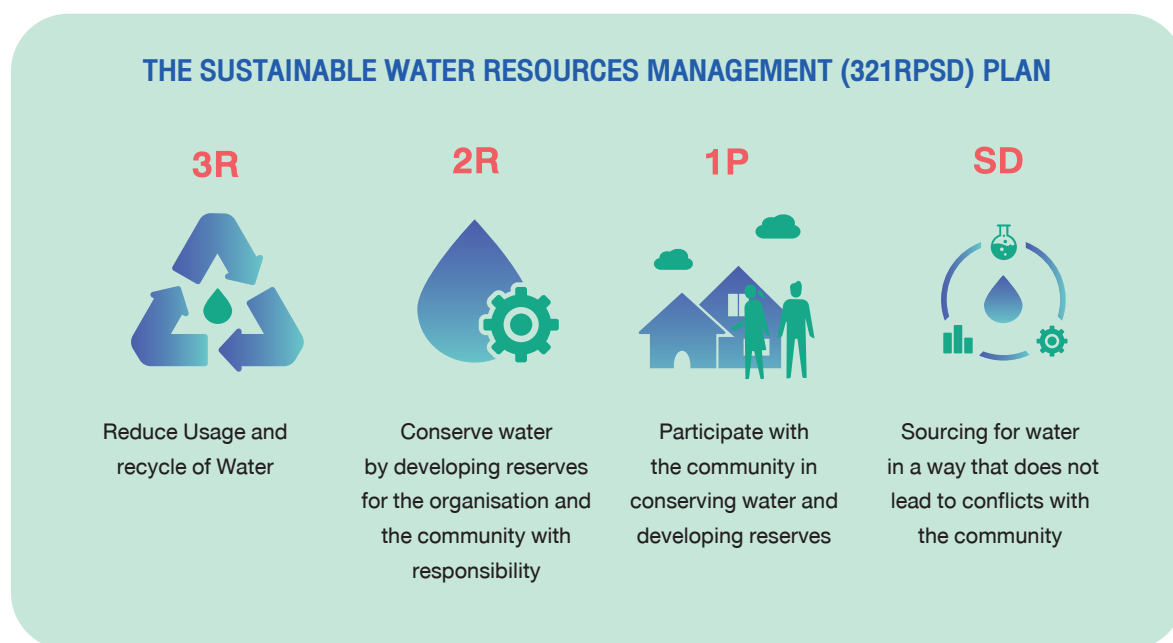
**THE AMOUNT OF WATER
WITHDRAWAL FROM
NATURAL WATER
SOURCES**



**AN ACCUMULATED
REDUCTION OF 27%
BY 2020, COMPARED TO 2014**

- IRPC's integrated water management system consists of upstream management, which also supports water conservation in the community. Raw water supply and alternative water supply sourcing, Proactive Water Management Efficient Organisational Water Usage Management Sustainable Water Supply Management for

the community, both in terms of water resource conservation and flood prevention measures, and lastly IRPC has a Sustainable Water Resources Management (321RPSD) plan, which is based on three approaches to water management



In addition to climate change management mentioned above, IRPC also wants to create a corporate culture that cultivates a sense of responsibility in creating a low carbon society in employees. Climate change performance is thus used as a key performance indicator for the management team includes the President, Senior Executive Vice President of the Petrochemicals & Refining Business, Executive Vice President, and the Production Division and Production Support Division Managers. It is also used as a key performance indicator for all employees in the production division and in the production support division.

MANUAL/STANDARD PROCEDURE

- Operational Excellence Management System (OEMS) – used for management and operational efficiently. It is also used in management control of the effective usage of energy and water.
- Operating with an Energy Management system that is ISO 50001 certified makes IRPC energy management efficient and highly standardized.
- Environmental management system that is ISO 14001 certified.

- PTT GHG Accounting and Reporting Standard Manual – used as a guideline for storing greenhouse gas emissions data within the organization
- Carbon Footprint for Organizations Manual of the Phra Pradaeng Depot and Lube Blending Facilities – to ensure organizational consistency in its activities and to show the objectives of assessing the organization's

carbon footprint according to the organization's guidelines, which are set by the Thailand Greenhouse Gas Management Organization; with the completed, accurate, reliable, transparent and traceable information.

- Assessment of water management risks using IRPC's risk management tool as well as international standard tools includes Aqueduct and WBCSD Global Water Tool to analyze and prepare map water risk map within the PTT Group.

INFORMATION SYSTEM

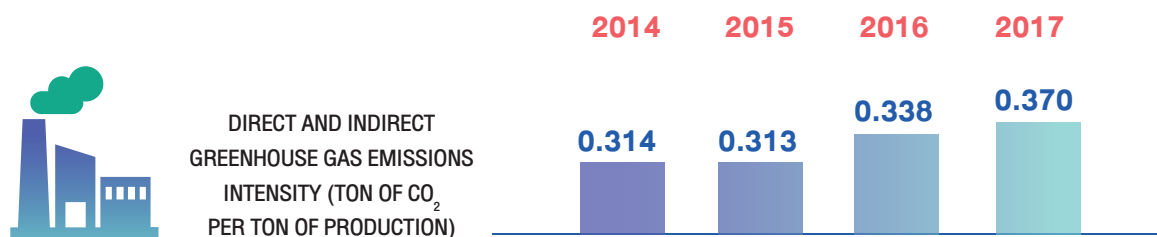
- SAP system – used to efficiently store data and analyze energy and water consumption within the organization
- Data on Intranet system from IRPC's energy conservation center, used to monitoring energy usage as well as being a space to exchange knowledge on energy, energy conservation measures, best practices, and related regulations to support energy efficiency.
- Mathematical modeling program – used for predicting and forecasting climate change situations for PTT Group's water management committee (PTTWT).



For further information regarding Climate Change,
Please visit our website <http://www.irpc.co.th/en/sustainable.php>

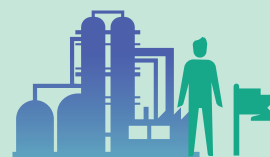
PERFORMANCE

IRPC has conducted Climate Change Strategy and Roadmap in order to prepare readiness to tackle climate change through eco-efficiency improvement in the production process and environmentally friendly operations. These measures aim to support Greenhouse Gas emission reduction in a more efficient way to achieve the target.



Remark: Direct and indirect greenhouse gas emissions intensity increased in 2016 and 2017 as a result of increase in production capacity from the COD of UHV and PPE/PPC

Direct and indirect greenhouse gas emissions intensity in 2017 achieved the set targets. IRPC also participated in public sector activities that supported climate change.



**IRPC PRESENTS ITS STANCE ON
TACKLING CLIMATE CHANGE BY SIGNING
A MEMORANDUM OF UNDERSTANDING (MOU)
FOR MANAGING CARBON FOOTPRINT
IN THE INDUSTRIAL SECTOR, PHASE 6 (IN 2017)
WITH THE INDUSTRIAL ENVIRONMENTAL INSTITUTE,
FEDERATION OF THAI INDUSTRIES**

CARBON FOOTPRINT ORGANIZATION

YEAR 2013



Complex 1 voluntarily joined the pilot program with the Department of Industrial Works, which assesses an organization's carbon footprint based on the "Carbon Footprint for Organizations" guidelines in cooperation with the Thailand Greenhouse Gas Management Organization (Public Organization).



High Density Polypropylene pellets: K1 Process and K2 Process, POLIMAXX branded pellets go through a climate-friendly production process, thus contributing to its continuous reduction of greenhouse gas emissions. Received a carbon reduction label from the Thai Environmental Institute.



HOMO POLYMER, RANDOM COPOLYMER and BLOCK COPOLYMER POLIMAXX-branded polypropylene pellets go through climate-friendly production process, thus contributing to its continuous reduction of greenhouse gas emissions. Received a Carbon reduction label from the Thai Environment Institute.

YEAR 2015



the carbon footprint of the IRPC port was assessed according to the Carbon Footprint for Organization's guidelines. It is the first port of Thailand to be Carbon Footprint certified by the Thailand Greenhouse Gas Management Organization (Public Organization)

YEAR 2016

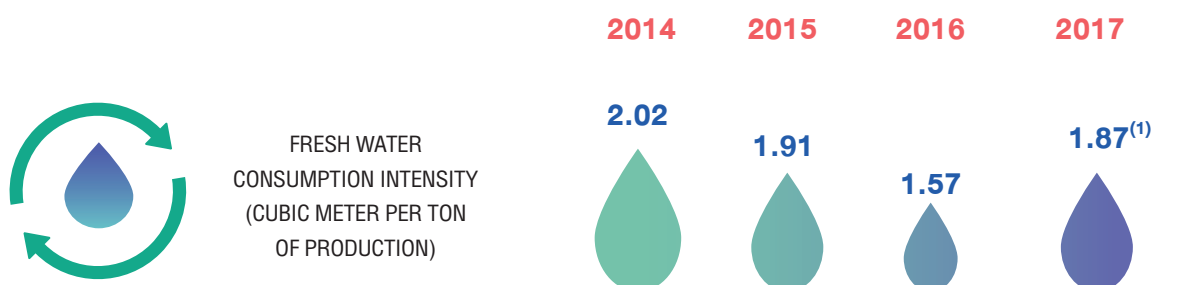


Ayutthaya Depot has its carbon footprint assessed and certified by the Thailand Greenhouse Gas Management Organization (Public Organization). The assessment included the identification of emission sources, emission volume, and improvement areas, which lead to define the measures to effectively reduce greenhouse gas emissions.

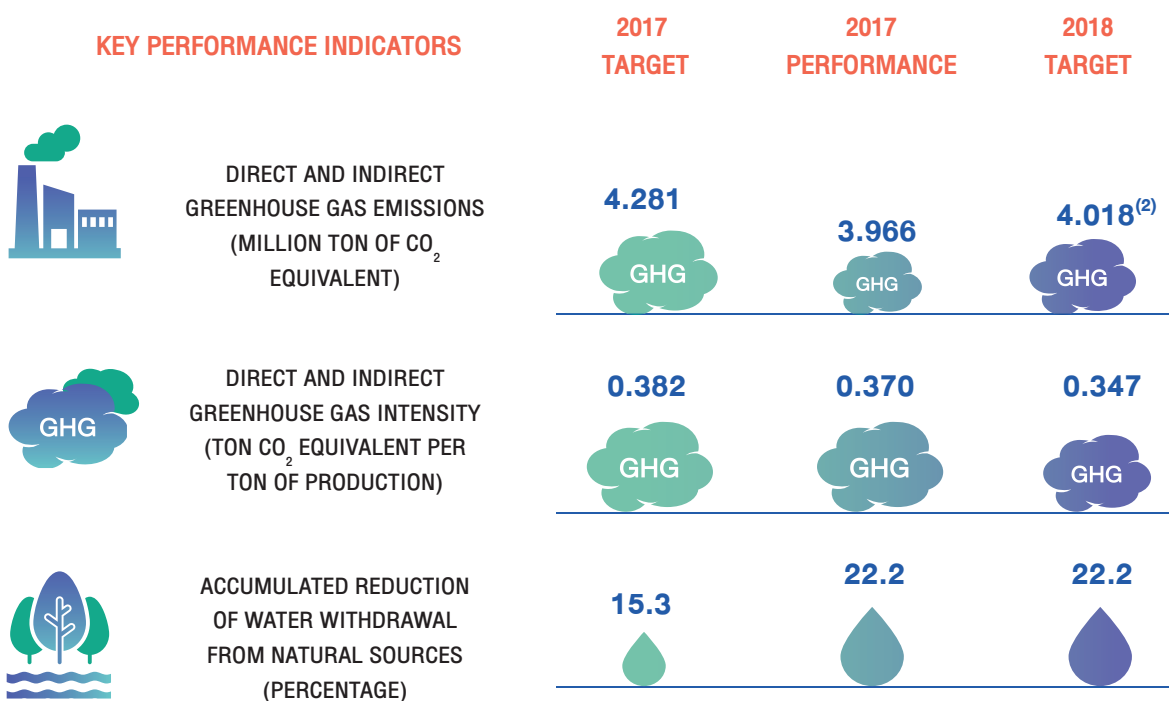
YEAR 2017



the carbon footprint of the organization's Phra Pradaeng Depot and Lube Blending Unit were assessed and certified by the Thailand Greenhouse Gas Management Organization (Public Organization). The assessment included the identification of emission sources, emission volume, and improvement areas, which lead to define the measures to effectively reduce greenhouse gas emissions.



KEY PERFORMANCE INDICATORS



Remark: ⁽¹⁾Fresh water consumption intensity in 2017 was increased due to COD of UHV and PPE/PPC

⁽²⁾2018 Target mark higher than its performance in 2017 due to business growth

INITIATIVES

GREENHOUSE GAS EMISSIONS REDUCTION

ENERGY EFFICIENCY IMPROVEMENT PROGRAMS IN PRODUCTIONS

Energy used in the production process is the main contributing factor to greenhouse gas emissions, therefore IRPC has been continuously maximizing energy efficiency in the production process in order to utilize natural

resources in the most cost-effective manner and reduces its impact on the environment. By setting the target of reducing the Energy Consumption Index (EII) by 2% every year, the greenhouse gas emissions will be reduced in a consistently. This measure can reduce energy consumption by 1,914,021 GJ, reduce the emission of greenhouse gas by 132,855 tons of carbon dioxide equivalent equaling to THB 742.5 millions in cost saving

ALTERNATIVE ENERGY PROJECTS

IRPC is one of the companies involved in piloting the use of electric fuel in public buses as part of the Energy Drive plan to support alternative energy use and reduce air pollution. The PTT Group's EV bus was used instead of traditional buses to pick up and drop off PTT Group

employees, the Ministry of Energy's staff and other company visitors. The bus route was from the Energy Complex to the BTS / MRT station Mochit / Chatuchak. The project started in June 2017.

CONSERVATION OF WATER WITH THE COMMUNITY

In addition to managing water for business operations to prevent business interruption, IRPC also recognizes that the need for balance between its production plants and their neighboring communities. Water management, flood prevention and water conservation plans are being implemented as part of its promises to the Rayong community to create growth.

COMMUNITY WATER MANAGEMENT PROJECT

IRPC places emphasis on sharing of water resources with the community and water management. During the rainy season, there are frequent floods that sometimes cause flooding in the community. IRPC cares and is committed to resolving this issue. Therefore, measures to prevent and fix potential problems have been implemented. IRPC has been dredging weeds out of public drainage since 2016

and it continued to do so in 2017 in operating districts/ areas as well as the surrounding districts. There are 13 communities in total which have benefit from this project: 5 in Tapong Sub-District, 3 in Baan Laeng Sub-District, 3 in Cherng Nern Sub-District Municipality, and 2 in Nata Kwan Sub-District.

FLOOD PREVENTION



Dredging and Cleaning up of public drains



weeding and cleaning of drainage routes



Support the community in construction heavy equipment procurement to prepare a good drainage during the rainy season



ADDITIONAL MEASURES



Preparation measures to lower water reserve levels to a volume of 1 million cubic meters to accommodate rain water during heavy rainfall.



Measures to continuously monitor rainfall and water reserves in Rayong.



Coordinate with the Royal Irrigation Department in Rayong to open and close the floodgates where water routes to the sea in order to ensure the amount of water volume balancing.

COMMUNITY INTERVIEW



KHUN PLENG RATANAKET

MOO 2 BAN KON-NONG, BAAN LEANG ADMINISTRATIVE OFFICE



Normally water would come to the house as well. After ponds were cleaned and canal dredging was done, there was better water flow and fewer issues. The people here are grateful to IRPC.



THE CHECK DAM PROJECT... FOLLOWING THE FOOTSTEPS OF HIS MAJESTY THE LATE KING BHUMIBOL ADULYADEJ

Volunteers from IRPC Off-road Club have followed the footsteps of His Majesty The Late King Bhumibol Adulyadej and continued his legacy of conserving forests upstream and water resources by building check dams on previously fertile brooks. This helps keep moisture in the forests upstream so that large trees have water in the drought season, and slows down water currents that flood the community areas during the rainy season.



KHAO TABAEK, BAAN BUT SUB-DISTRICT
BANKHAI DISTRICT, RAYONG PROVINCE



KHAO WANGMAN WATERFALL, NATA KWAN SUB-DISTRICT,
MUANG RAYONG DISTRICT, RAYONG PROVINCE



KHAO SAMNAKCHAMOD, EASTERN RESEARCH AND INDUSTRIAL ENVIRONMENTAL DEVELOPMENT CENTER
NONG KANGKHOK SUB-DISTRICT, MUANG DISTRICT, CHONBURI PROVINCE





PERFORMANCE SUMMARY



ECONOMIC

FINANCIAL PERFORMANCE

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
201-1	G4-EC4	Sale Revenues ⁽¹⁾	THB Million	281,589	214,172	185,041	214,101
		Operating Costs	THB Million	287,930	197,913	164,900	192,946
		Operating Profit (Loss)	THB Million	(5,979)	14,434	11,303	15,220
		Employee Wages and Benefits	THB Million	6,764	8,243	8,460	9,074
		Payments to Providers of Capital	THB Million	4,445	4,106	7,065	4,694
		Payment to Governments ⁽²⁾	THB Million	9,639	14,990	17,467	15,520
201-4	G4-EC4	Tax Privileges from the Board of Investment, Thailand	THB Million	1,169	659	2,004	1,873
		Tax Compensation from Export	THB Million	186	172	147	130

Remarks: ⁽¹⁾Sales includes Petroleum Sales (including excise tax), Petrochemical Sales, Power and Utilities Sales, Sales of storage tank and port service, etc.

⁽²⁾ Taxes paid to government agencies and local officials such as corporate income taxes, local taxes, building taxes, and specific business taxes are paid directly to Thai government agencies and local officials as all IRPC operations are located only in Thailand.



PRODUCTION

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
N/A	N/A	Annual Production	Ton	9,965,199	10,518,179	11,098,684	10,748,499



SUPPLY CHAIN MANAGEMENT

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
308-1	G4-EN32	Percentage of new suppliers that were screened using environmental criteria	%	100	100	100	100
414-1	G4-LA14	Percentage of new suppliers that were screened using Labour practices criteria	%	100	100	100	100
	G4-HR10	Percentage of new suppliers that were screened using human rights criteria	%	100	100	100	100
	G4-SO9	Percentage of new suppliers that were screened using impacts on society criteria	%	100	100	100	100
204-1	G4-EC9	Spending on purchasing of products and services from suppliers and contractors in Rayong	THB Million	2,096	2,312	2,900	2,894
		Percentage of spending in Rayong comparing to the total budget	%	15.84	20.29	28.30	20.87



CUSTOMER RELATIONSHIP MANAGEMENT

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
102-43 102-44	G4-PR5	Annual customer satisfaction survey results ⁽¹⁾	%	89	91	91	91
		Number of substantiated complaints received concerning breaches of customer privacy	Case	0	0	0	0
418-1	G4-PR8	Total number of identified leaks, thefts, or losses of customer data	Case	0	0	0	0

Remark: ⁽¹⁾ Annual customer satisfaction rate has been calculated from Petroleum and Petrochemical Business only.



PEOPLE

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
102-8	G4-10	Employee ^{(1), (3), (4)}	Person	5,495	5,499	5,418	5,498
		Total Employees by area					
		Bangkok	Person	N/A	N/A	701	706
		Male	Person	N/A	N/A	296	297
		Female	Person	N/A	N/A	405	409

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
102-8	G4-10	Rayong	Person	N/A	N/A	4,414	4,493
		Male	Person	N/A	N/A	3,907	3,981
		Female	Person	N/A	N/A	507	512
		Other	Person	N/A	N/A	303	299
		Male	Person	N/A	N/A	279	276
		Female	Person	N/A	N/A	24	23
		Employees by Level					
		Executive (Level 13-18)	Person	72	72	79	78
		Male	Person	59	60	62	60
		Female	Person	13	12	17	18
		Middle Management (Level 9-12)	Person	705	708	757	772
		Male	Person	563	563	590	599
		Female	Person	142	145	167	173
		Supervisory (Level 6-8)	Person	2,281	2,407	2,576	2,801
		Male	Person	1,837	1,948	2,103	2,292
		Female	Person	444	459	473	509
		Operation (Level 1-5)	Person	2,209	2,075	2,006	1,847
		Male	Person	1,961	1,846	1,726	1,606
		Female	Person	248	229	280	241
		Employees by Age					
		Over 50 years old	Person	390	458	535	631
		Male	Person	319	375	432	506
		Female	Person	71	83	103	125
		30-50 years old	Person	4,396	4,324	4,243	4,199
		Male	Person	3,672	3,604	3,515	3,478
		Female	Person	724	720	728	721
		Below 30 years old	Person	481	480	640	668
		Male	Person	429	438	534	589
		Female	Person	52	42	106	79
401-1	G4-LA1	New Employees					
		Total new employees	Person	95	69	125	32
			% of total employees	1.80	1.31	2.31	0.59
		Male	Person	92	56	104	9
			% of total employees	1.75	1.06	1.92	0.17
		Female	Person	3	13	21	23
			% of total employees	0.06	0.25	0.39	0.42

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
401-1	G4-LA1	New Employees by Area					
		Bangkok	Person	0	1	4	6
			% of total employees	0.00	0.02	0.07	0.11
		Male	Person	0	0	0	1
			% of total employees	0.00	0.00	0.00	0.02
		Female	Person	0	1	4	5
			% of total employees	0.00	0.02	0.07	0.09
		Rayong	Person	95	68	121	24
			% of total employees	1.80	1.29	2.23	0.44
		Male	Person	92	56	104	7
			% of total employees	1.75	0.86	1.92	0.13
		Female	Person	3	12	17	17
			% of total employees	0.06	0.23	0.31	0.31
		Others	Person	0	0	0	2
			% of total employees	0.00	0.00	0.00	0.04
		Male	Person	0	0	0	1
			% of total employees	0.00	0.00	0.00	0.02
		Female	Person	0	0	0	1
			% of total employees	0.00	0.00	0.00	0.02
		New Employees by Age					
		Over 50 years old	Person	0	1	1	2
			% of total employees	0.00	0.02	0.02	0.04
		Male	Person	0	0	1	2
			% of total employees	0.00	0.00	0.02	0.04
		Female	Person	0	1	0	0
			% of total employees	0.00	0.02	0.00	0.00
		30-50 years old	Person	1	1	8	17
			% of total employees	0.02	0.02	0.15	0.31
		Male	Person	0	0	3	14
			% of total employees	0.00	0.00	0.06	0.26

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
401-1	G4-LA1	Female	Person	1	1	5	3
			% of total employees	0.02	0.02	0.09	0.06
		Below 30 years old	Person	94	67	116	147
			% of total employees	1.78	1.27	2.14	2.71
		Male	Person	92	56	100	130
			% of total employees	1.75	1.06	1.85	2.40
		Female	Person	2	11	16	17
			% of total employees	0.04	0.21	0.30	0.31
		Employee Turnover					
		Total Employee turnover	Person	83	69	144	61
			% of total employees	1.58	1.31	2.66	1.13
		Male	Person	66	55	118	48
			% of total employees	1.25	1.05	2.18	0.89
		Female	Person	17	14	26	13
			% of total employees	0.32	0.27	0.48	0.24
		Employee Turnover by Area					
		Bangkok	Person	21	14	29	6
			% of total employees	0.40	0.27	0.54	0.11
		Male	Person	11	7	16	2
			% of total employees	0.21	0.13	0.30	0.04
		Female	Person	10	7	13	4
			% of total employees	0.19	0.13	0.24	0.07
		Rayong	Person	59	54	106	46
			% of total employees	1.12	1.03	1.96	0.85
		Male	Person	53	47	93	41
			% of total employees	1.01	0.89	1.72	0.76
		Female	Person	6	7	13	5
			% of total employees	0.11	0.13	0.24	0.09
		Others	Person	3	1	9	2
			% of total employees	0.06	0.02	0.17	0.04

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
401-1	G4-LA1	Male	Person	2	1	9	1
			% of total employees	0.04	0.02	0.17	0.02
		Female	Person	1	0	0	1
			% of total employees	0.02	0.00	0.00	0.02
		Employee Turnover by Age					
		Over 50 years old	Person	13	12	37	5
			% of total employees	0.25	0.23	0.68	0.09
		Male	Person	11	10	33	5
			% of total employees	0.21	0.19	0.61	0.09
		Female	Person	2	2	4	0
			% of total employees	0.04	0.04	0.07	0.00
		30-50 years old	Person	48	39	97	21
			% of total employees	0.91	0.74	1.79	0.39
		Male	Person	36	30	48	15
			% of total employees	0.68	0.57	0.89	0.28
		Female	Person	12	9	49	6
			% of total employees	0.23	0.17	0.90	0.11
		Below 30 years old	Person	22	18	18	28
			% of total employees	0.42	0.34	0.33	0.52
		Male	Person	19	16	12	24
			% of total employees	0.36	0.30	0.22	0.44
		Female	Person	3	2	6	4
			% of total employees	0.06	0.04	0.11	0.07
401-3	G4-LA3	Parental Leave					
		Employees Entitled for Parental Leave	Person	5,267	5,262	5,418	5,498
		Male	Person	4,420	4,417	4,482	4,554
		Female	Person	847	845	936	944
		Number of Employees Taking Parental Leave	Person	167	136	129	114
		Male	Person	152	126	112	100
		Female	Person	15	10	17	14

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
		Number of Employees Return to Work After Parental Leave	Person	167	136	127	114
		Male	Person	152	126	112	100
			% of employees taking parental leave	100	100	100	89
		Female	Person	15	10	15	14
			% of employees taking parental leave	100	100	88	82
		Employees Entitled for Parental Leave Who are Still Employed for the Next 12 Months	Person	87	166	134	126
			% of employees returning to work after parental leave	99	99	99	99
		Male	Person	73	151	124	112
			% of employees returning to work after parental leave	99	99	98	100
		Female	Person	14	15	10	14
			% of employees returning to work after parental leave	100	100	100	93
304-1	G4-11	Total Employees Covered by Collective Bargaining	%	86	87	86	96
404-1	G4-LA9	Training Hours of Male Employees Based in Bangkok	Hour	4,509	7,683	6,892	10,326
		Executive (Level 13-18)	Hour	321	477	815	771
		Middle Management (Level 9-12)	Hour	1,562	3,552	3,154	4,006
		Supervisory (Level 6-8)	Hour	2,157	3,264	2,671	5,030
		Operation (Level 1-5)	Hour	470	390	252	519
		Training Hours of Female Employees Based in Bangkok	Hour	7,384	10,273	9,112	15,776
		Executive (Level 13-18)	Hour	144	213	331	418
		Middle Management (Level 9-12)	Hour	2,041	3,791	3,722	5,059
		Supervisory (Level 6-8)	Hour	4,640	6,058	4,626	9,843
		Operation (Level 1-5)	Hour	560	211	433	457

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
		Training Hours of Male Employees Based in Rayong	Hour	125,780	143,162	132,785	150,027
		Executive (Level 13-18)	Hour	183	574	1,065	1,038
		Middle Management (Level 9-12)	Hour	11,445	14,189	21,648	25,374
		Supervisory (Level 6-8)	Hour	65,521	85,671	74,328	84,661
		Operation (Level 1-5)	Hour	48,631	42,728	35,744	38,956
		Training Hours of Female Employees Based in Rayong	Hour	10,474	9,288	9,738	36,192
		Executive (Level 13-18)	Hour	0	0	0	0
		Middle Management (Level 9-12)	Hour	1,100	1,696	1,497	25,374
		Supervisory (Level 6-8)	Hour	5,186	4,668	5,140	7,726
		Operation (Level 1-5)	Hour	4,189	2,924	3,101	3,092
		Training Hours of Male Employees Based in Other Areas	Hour	12,428	10,661	8,589	12,593
		Executive (Level 13-18)	Hour	0	0	0	0
		Middle Management (Level 9-12)	Hour	637	882	736	1,650
		Supervisory (Level 6-8)	Hour	550	4,230	4,091	7,610
		Operation (Level 1-5)	Hour	11,241	5,549	3,762	3,333
		Training Hours of Female Employees Based in Other Areas	Hour	928	803	542	877
		Executive (Level 13-18)	Hour	0	0	0	0
		Middle Management (Level 9-12)	Hour	32	5	2	65
		Supervisory (Level 6-8)	Hour	342	364	226	529
		Operation (Level 1-5)	Hour	555	434	314	284
403-2	G4-LA6	Absentee Rate ⁽²⁾					
		Male	%	0.460	0.632	0.661	0.696
		Female	%	0.132	0.184	0.206	0.217

Remarks: ⁽¹⁾ IRPC does not employ any part-time employees.

⁽²⁾ This represents absentee rates for only full-time employees.

⁽³⁾ IRPC does not have policies regarding part-time employees, and does not employ seasonal employees.

⁽⁴⁾ IRPC does not employ self-employed individuals.



PROCESS SAFETY

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
N/A	G4-OG13	Number of Tier 1 Process Safety Events	Case	3	0	1	1
		Number of Tier 2 Process Safety Events	Case	6	4	0	1

OCCUPATIONAL HEALTH AND SAFETY ^{(1), (2)}

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017	
							Male	Female
403-2	G4-LA6	Total Recordable Injury Rate (TRIR) ⁽³⁾	Case/Million hours worked	0.47	0.46	0.60	0.45	
		Employees	Case/Million hours worked	1.01	0.99	0.85	0.75	0.00
		All Workers	Case/Million hours worked	0.30	0.30	0.47	0.27	0.00
		Lost Time Injuries Frequency Rate (LTIFR)	Case/Million hours worked	0.15	0.14	0.32	0.19	
		Employees	Case/Million hours worked	0.46	0.27	0.57	0.17	0.00
		All Workers	Case/Million hours worked	0.04	0.11	0.19	0.21	0.00
		Total Recordable Occupational Illness Rate (TROIR) ⁽⁴⁾	Case/Million hours worked	0	0	0	0	
		Employees	Case/Million hours worked	0	0	0	0	0
		All Workers	Case/Million hours worked	0	0	0	0	0
		Lost Day Rate (LDR) ⁽⁵⁾	Day/Million hours worked	4.96	0.58	1.52	1.79	
		Employees	Day/Million hours worked	15.69	2.07	2.85	1.67	0.00
		All Workers	Day/Million hours worked	1.09	0.13	0.85	1.86	0.00
		Fatalities	Person	0	1	0	0	
		Employees	Person	0	0	0	0	0
		All Workers	Person	0	1	0	0	0

Remarks: ⁽¹⁾ Health and safety statistics refer to OSHA and are measured per million hours worked.

⁽²⁾ Working Hours include normal working hours, overtimes, but not includes leaves, sick leaves, and any works that are not paid overtimes.

⁽³⁾ TRIR does not include first aid cases.

⁽⁴⁾ TROIR was obtained from the from the results of annual employee health-check ups.

⁽⁵⁾ LDR accounts injuries or being ill result in inability to work on the next day.



MATERIALS CONSUMPTION

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
301-1	G4-EN1	Crude Oil	Ton	8,233,754	8,737,143	8,863,305	8,592,344
		Naphtha	Ton	745,450	787,527	682,215	700,113

ENERGY CONSUMPTION ⁽¹⁾

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
302-1	G4-EN3	Total energy consumption ^{(2), (3), (4)}	GJ	41,438,061	45,015,598	50,610,551	52,080,051
		Total direct energy consumption	GJ	46,802,327	49,427,071	51,564,793	52,512,622
		Fuel Oil	GJ	3,232,745	3,639,238	3,556,753	1,994,818
		Natural Gas	GJ	19,541,406	18,002,986	20,241,297	19,326,121
		LPG	GJ	5,264,745	1,151,317	1,118,996	707,990
		Diesel	GJ	306,776	395,884	365,560	282,617
		Fuel Gas	GJ	11,283,953	18,082,921	16,173,055	17,469,024
		Coke	GJ	2,196,671	2,383,627	4,580,035	6,189,950
		H ₂	GJ	N/A	447,583	336,115	303,062
		H ₂ S	GJ	110	134	245	269
		Purge Gas	GJ	N/A	N/A	N/A	925,442
		Recycle monomer	GJ	24,884	22,440	26,068	28,360
		Coal	GJ	4,951,037	5,300,941	5,166,668	5,284,968
		Total indirect energy consumption	GJ	18,636	889,249	4,371,882	4,013,930
		Electricity purchased from PEA ⁽⁵⁾	GJ	18,636	89,268	158,838	472,087
		Electricity purchased from IRPC Clean Power	GJ	0	292,062	1,221,417	833,180
		Steam purchased by IRPC Clean Power	GJ	0	507,919	2,991,627	2,710,845
		Total electricity sold	GJ	2,161,886	2,108,913	2,200,936	1,963,211
		Total steam sold	GJ	3,221,016	3,191,809	3,125,188	2,485,472
302-3	G4-EN5	Energy intensity ⁽⁶⁾	GJ/Ton of production	4.16	4.28	4.56	4.49
302-4	G4-EN6	Energy saved due to conservation and efficiency improvements	GJ	372,357	1,611,884	756,750	1,914,021
N/A	G4-EN30	Total diesel consumed by IRPC owned marine vessels	Liter	726,146	852,094	615,199	620,054

Remarks: ⁽¹⁾ Standards and methodologies used to calculate are based on relevant laws and regulations.

⁽²⁾ Energy use increased between 2014 to 2015 due to increase in production, unplanned shutdown, and production of special grade HDPE and Polyol.

⁽³⁾ Energy use increased between 2015 to 2016 due to added the new UHV plant, which began COD in 2016.

⁽⁴⁾ Energy used increased between 2016 to 2017 due to production in UHV Processes (COD for the entire year) and UHMWPE PPE and PPC plants, which began COD in 2017

⁽⁵⁾ Electricity use of the Bangkok office purchased from the Metropolitan Electricity Authority since 2015

⁽⁶⁾ Energy intensity not including energy used during major turnaround period.

FLARED AND VENTED HYDROCARBON⁽¹⁾

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
N/A	G4-OG6	Volume of flared hydrocarbon	Million M ³	38.67	36.19	62.17	70.01
		Volume of continuously flared hydrocarbon	Million M ³	N/A	N/A	58.89	59.67
		Volume flared hydrocarbon for oil & gas production in relation to volume produced	M ³ /Ton of production	3.88	3.44	5.60	6.51
		Volume of Vented hydrocarbon	Million M ³	N/A	N/A	N/A	3.78
		Production Process ⁽²⁾	Million M ³	N/A	N/A	N/A	1.09
		Tank & Marketing & Terminal ⁽³⁾	Million M ³	N/A	N/A	N/A	2.69
		Volume of continuously Vented hydrocarbon	Million M ³	N/A	N/A	N/A	0.00
		Volume Vented hydrocarbon for oil & gas production in relation to volume produced	M ³ /Ton of production	N/A	N/A	N/A	0.10
N/A	N/A	Methane Emission of flared hydrocarbon	Ton	50.16	31.39	80.65	90.83

Remarks: ⁽¹⁾ The amount of flared hydrocarbon is calculated accordingly to IRPC's hydrocarbon management manual, in reference to HM31: Guide to HC Management in Petroleum Refinery Operation and HM32: Guide to Product HC management at Petroleum Product Marketing and Distribution.

⁽²⁾ Hydrocarbons released from production processes gathered from ACB Data (Calculated HC from the differences of feed to products as stored in SAP) and EPS data (Calculated from Feed going into the reactor in each batch 7.5% and products contain Pentane 6.6% each month)

⁽³⁾ Hydrocarbons released from storage tanks and product and raw material handling, gathered from Ton VOCs of Tank calculations and Marketing & Terminal as Nm³. All reported in the VOCs Inventory.

GREENHOUSE GAS⁽¹⁾

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
305-1 305-2 305-3	G4-EN15 G4-EN16 G4-EN17	Operational Control					
		Direct emissions of greenhouse gas (Scope 1) ^{(2), (3)}	Million tCO ₂ e	3.121	3.223	3.469	3.681
		CO ₂	Million tCO ₂ e	N/A	3.190	3.438	3.674
		CH ₄	Million tCO ₂ e	N/A	0.028	0.026	0.002
		N ₂ O	Million tCO ₂ e	N/A	0.004	0.003	0.003

GRI Standard	GRI-G4	ข้อมูล	หน่วย	2557	2558	2559	2560
305-1 305-2 305-3	G4-EN15 G4-EN16 G4-EN17	HFC	Million tCO ₂ e	N/A	0.001	0.002	0.002
		SF ₆	tCO ₂ e	N/A	N/A	397	38
		Biogenic CO ₂ Emissions	tCO ₂ e	N/A	195	19	184
		Indirect emissions of greenhouse gas (Scope 2) ⁽³⁾	Million tCO ₂ e	0.004	0.070	0.280	0.296
		Location Based ⁽⁴⁾	Million tCO ₂ e	0.002	0.011	0.020	0.049
		Market Based ⁽⁵⁾	Million tCO ₂ e	0.000	0.059	0.287	0.247
		Other indirect emissions of greenhouse gas (Scope 3) ^{(6) (7)}	Million tCO ₂ e	N/A	7.662	7.495	17.903
		Equity Basis ⁽⁸⁾					
		Direct emissions of greenhouse gas (Scope 1)	Million tCO ₂ e	3.124	3.307	3.992	3.905
305-4	G4-EN18	Indirect emissions of greenhouse gas (Scope 2) ⁽³⁾	Million tCO ₂ e	0.004	0.070	0.280	0.297
		GHG Emission Intensity ⁽⁹⁾	tCO ₂ e/Ton of production	0.314	0.313	0.338	0.370

Remarks: ⁽¹⁾ GHG calculations refer to API 2009, IPCC 2006, ISO14064-1, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition), and GWP refers to the IPCC Fourth Assessment Report (AR4-100 year)

⁽²⁾ This does not include GHG emissions released from process vents.

⁽³⁾ Scope 1 and Scope 2 GHG emissions increased between 2016 to 2017 as a result of commercial production processes of the UHV Plant.

⁽⁴⁾ GHG Emission from Electricity bought from EGAT is Calculated in reference to PDP 2015 Conversion factors calculation.

⁽⁵⁾ GHG Emission from Electricity and Steam bought from private Power Plant (Local) is calculated in reference to Allocation of GHG Emission from combined heat and power (CHP) plant Guide to calculation worksheet V.10 (A WRI/WBCSD GHG Protod. Initiative Calculation Tod)

⁽⁶⁾ Scope 3 GHG emissions come from employee transportation and use of B5, E10, and E20.

⁽⁷⁾ Scope 3 GHG emissions increased from 2016 to 2017 as a result of an expansion in scope of reporting – i.e. inclusion of sales and transport data, electricity loss data (PTT Tool).

⁽⁸⁾ GHG emissions from the Group's subsidiaries include those from IRPC PCL, IRPC Oil Co., Ltd., IRPC Polyol Co., Ltd., UBE Chemicals Co., Ltd (Asia), and IRPC Clean Power Co., Ltd/

⁽⁹⁾ GHG emission intensity was calculated from Scope 1 and Scope 2 GHG emissions.

AIR EMISSIONS⁽¹⁾

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
305-7	G4-EN21	Total NOx	Ton	2,700	1,778	1,722	1,418
		NOx Intensity	Ton/Thousand Tons of production	0.271	0.169	0.155	0.132
		Total SOx ^{(2), (3), (5)}	Ton	1,430	1,491	2,164	2,154
		Normal Operation	Ton	1,430	1,491	1,987	1,219
		Commissioning Period and Major Turnaround Period	Ton	0	0	177	935
		SOx Intensity ⁽⁵⁾	Ton/Thousand Tons of production	0.143	0.142	0.195	0.113
		Total Suspended Particulate (TSP)	Ton	325	298	308	238
		TSP Intensity	Ton/Thousand Tons of production	0.033	0.028	0.028	0.022
		Total VOCs	Ton	1,603	1,690	2,420	2,015
		VOCs Intensity ⁽⁴⁾	Ton/Thousand Tons of production	0.161	0.161	0.218	0.187

Remarks: ⁽¹⁾ This comes from direct measurements and relevant standards and regulations.

⁽²⁾ Sulfur oxide quantities in the form of sulfur dioxide.

⁽³⁾ Total SOx increased between 2015 to 2016, as there was an increase in use of fuel oil which has a larger sulfur content. IRPC nonetheless used measures to prevent impacts on communities.

⁽⁴⁾ VOCs increased from 2016 due to commercial productions from UHV plant and other petroleum depots outside of Rayong. Calculation methodologies for gas flaring were adjusted in reference to US.EPA 2015, and there were also changes in calculations for the storage of raw materials and products.

⁽⁵⁾ SOx Intensity was not included in the calculations of oxide in sulfur during major turnaround.

WATER CONSUMPTION AND WATER DISCHARGE

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
303-1	G4-EN8	Water withdrawn by source ⁽¹⁾	M ³	37,635,997	38,938,454	36,497,766	34,958,802
		Surface water	M ³	19,298,917	19,607,178	16,798,846	20,777,215
		Rain water	M ³	817,080	1,111,159	1,563,885	2,461,860
		Municipal water supply	M ³	N/A	21,625	16,208	14,599
		Ground water	M ³	N/A	769	7,715	7,589
		Salt / brackish water	M ³	17,520,000	18,197,723	18,111,112	11,697,539
		Supply water for customer	M ³	4,054,163	5,746,266	7,029,984	6,167,274
		Fresh water withdrawal intensity ^{(2), (4)}	M ³ /Ton of production	2.02	1.91	1.60	1.87
303-3	G4-EN10	Total volume of recycled/reused water	M ³	450,775	1,007,400	979,477	3,110,723
			% of total water withdrawal	1.20	2.59	2.68	8.90

GRI Standard	GRI-G4	ข้อมูล	หน่วย	2557	2558	2559	2560
306-1	G4-EN22	Total volume of water discharge ⁽³⁾	Million M ³	19.73	20.41	21.21	15.60
		Chemical oxygen demand (COD) in treated wastewater discharged ⁽⁴⁾	Ton	179	172	186	215
		Biochemical oxygen demand (BOD) in treated wastewater discharged ⁽⁴⁾	Ton	17	23	12	19
		Total suspended solid (TSS) in treated wastewater discharged ⁽⁴⁾	Ton	47	40	31	57

Remarks: ⁽¹⁾ Water use from various sources of all IRPC Group businesses.

⁽²⁾ Freshwater use intensity does not include water used to test machines for the UHV plant, seawater, water use of customers, and water use during Major Turnaround.

⁽³⁾ All wastewater, including seawater used as sulfur scrubber which is treated before release to the ocean. The amount of total effluent is measured from the amount of wastewater sent into WWT system (except seawater, which uses water in is water out as in process design)

⁽⁴⁾ Data of COD, BOD and TSS is from direct measurement or calculation in reference to standard and related regulations

SOLID WASTE

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
306-2	G4-EN23	Total waste disposal ^{(1), (2), (3), (4)}	Ton	27,411	34,405	41,704	54,691
		Waste from routine operations	Ton	26,959	34,351	40,460	54,222
		Non-hazardous waste	Ton	22,848	28,843	26,476	28,287
		Composition	Ton	153	0	293	1,540
		Export	Ton	0	89	0	0
		Incineration	Ton	41	0	0	276
		Landfill	Ton	4,620	6,302	3,460	2,665
		Waste water treatment	Ton	1,719	0	0	0
		Recovery	Ton	144	48	15	707
		Recycling	Ton	15,812	20,548	22,680	22,406
		Reuse	Ton	0	0	0	0
		On-site storage	Ton	359	1,856	28	693
		Hazardous waste	Ton	4,111	5,507	13,984	25,936
		Composition	Ton	0	0	0	0
		Export	Ton	165	0	23	522

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
		Incineration	Ton	860	813	5,587	17,038
		Landfill	Ton	311	766	419	269
		Waste water treatment	Ton	0	0	162	0
		Recovery	Ton	2,234	3,255	6,858	5,957
		Recycling	Ton	441	452	838	2,023
		Reuse	Ton	42	32	62	36
		On-site storage	Ton	57	189	34	90
		Waste from non-routine operations	Ton	451	54	1,244	469
		Non-hazardous waste	Ton	336	16	1,125	36
		Incineration	Ton	0	0	0	0
		Landfill	Ton	92	16	0	36
		Recovery	Ton	244	0	0	0
		Recycling	Ton	0	0	1,125	0
		Hazardous waste	Ton	115	38	119	433
		Incineration	Ton	0	21	0	0
		Landfill	Ton	1	2	0	2
		Recovery	Ton	114	14	119	428
		Recycling	Ton	0	0	0	3
306-4	G4-EN25	Hazardous waste transportation	Ton	4,169	5,356	14,103	26,275
		Hazardous waste import to IRPC	Ton	0	0	0	0
		Hazardous waste export from IRPC	Ton	4,169	5,356	14,103	26,275
		Hazardous waste treated	Ton	0	0	0	0
		Hazardous waste shipped internationally	Ton	165	89	23	522

Remarks: ⁽¹⁾ Waste quantities increased between 2014 to 2015 as there were changes in coal sources and increase in waste which came from the incinerator at the ETP plant and waste from cleaning 6 crude oil storage tanks

⁽²⁾ Waste management information was gathered from service providers certified from the Department of Industrial Works

⁽³⁾ All discarded waste increased between 2015 to 2016 due to commercial productions at the UHV plant

⁽⁴⁾ All discarded waste increased between 2016 to 2017 due to major turnaround activities.

OIL AND CHEMICAL SPILLS

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
306-3	G4-EN24	Significant Oil & Chemical Spills	Case	0	0	0	0
			M ³	0	0	0	0

ENVIRONMENTAL PROTECTION EXPENDITURES AND INVESTMENT AND FINES

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
201-1	G4-EN1	Environmental protection expenditures and investments (e.g. operation related costs, etc.) ⁽¹⁾	THB Million	626	1,059	803	609
307-1	G4-EN29	Monetary value of significant fines	THB Million	0	0	0	0
		Number of non-monetary sanctions	Case	0	0	0	0
		Case brought through dispute resolution mechanisms	Case	0	0	0	0

Remark: ⁽¹⁾ IRPC has calculated Environmental protection expenditures and investments by including investment in energy saving projects and Everest projects that can reduce GHG emissions.



PHILANTHROPY

GRI Standard	GRI-G4	Data	Unit	2014	2015	2016	2017
201-1	G4-EC1	Cash contribution ⁽¹⁾	THB Million	99	465	360	413

Remark: ⁽¹⁾ In 2015, Cash contribution included allocation of the investment fund funding Kamnoetvidya Science Academy (KVIS), and Vidyasirimedhi Institute of Science and Technology (VISTEC).



ABOUT THIS REPORT



IRPC publishes sustainability report annually to communicate issues that are material to corporate sustainability and are of interest to stakeholders as well as reporting progress status for the compliance with the principle of United Nations Global Compact: UNGC. This report has been prepared in accordance with GRI Sustainability Reporting Standard “Core” Option and Oil and Gas Sector Disclosure. The scope of this report covers economy, society and environmental aspects during the period of 1st January to 31st December, 2017 with the information being reviewed and verified by Lloyd’s Register International (Thailand) Limited. Further details on information review is on page 142-143

SCOPE OF THE REPORT (GRI 102-45, 46, 48, 49)

Information disclosed in this report covers business that operated by IRPC Plc., including its subsidiaries with more than 50% share held by IRPC, which comprises of 1) IRPC Oil Co., Ltd., 2) IRPC Polyol Co., Ltd., and 3) IRPC Technology Co., Ltd. Furthermore, it also included other companies in which IRPC's subsidiaries hold more than 50% share, which comprises of 1) IRPC A&L Co., Ltd., and 2) Rak Pa Sak Co., Ltd. The scope of this report is in accordance to the 2017 annual report in which the reference can be found in the company's annual report and website www.irpc.co.th

MATERIALITY ASSESSMENT

IRPC has adopted GRI Reporting Principles for Defining Report Content for evaluation and reporting of management approach as well as performance that is relevant to materiality issues in this particular sustainability report.



IDENTIFICATION OF MATERIALITY AND SCOPE OF REPORT

- Identified issues material to stakeholders by hearing out their opinions (Further details in Stakeholder engagement on page 38–43)
- Identified issues relevant to IRPC's sustainability
- Identify scope of the related issues to cover every group that has an influence on the material issues



PRIORITIZATION OF MATERIAL ISSUES

- Prioritized material issues based on company's risk assessment criteria and importance to stakeholders



VALIDATION AND APPROVAL OF THE MATERIAL ISSUES

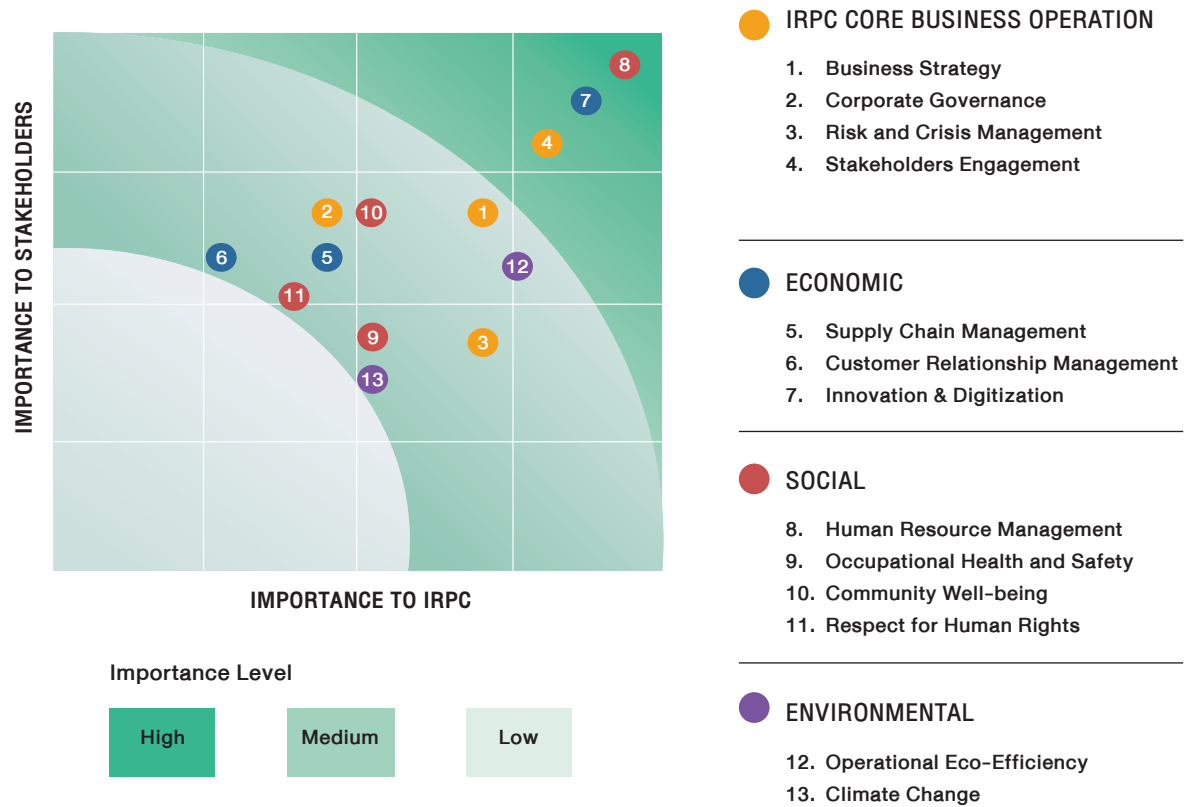
- Presented results of materiality assessment to the management committee for validation and approval




REVIEW OF MATERIAL ISSUES

- Gathered and reviewed issues from both internal and external
- Reviewed key issues in the report and examined the materiality assessment outcome to ensure completeness of the report

OUTCOME OF IRPC'S SUSTAINABILITY MATERIALITY ASSESSMENT 2017 (GRI 102-47)






IRPC'S SUSTAINABILITY MATERIAL ISSUES (GRI 103-1)

	MATERIAL ISSUES	GRI ASPECTS	SCOPE OF IMPACT	TOPIC IN THIS REPORT
1.	 <p>Business Strategy</p>	-	<ul style="list-style-type: none"> • IRPC • Subsidiaries • Shareholders • Customers 	<ul style="list-style-type: none"> • Business Strategy

	MATERIAL ISSUES	GRI ASPECTS	SCOPE OF IMPACT	TOPIC IN THIS REPORT
2.	 <p>Corporate Governance</p>	-	<ul style="list-style-type: none"> • IRPC • Subsidiaries • Shareholders • Customers 	<ul style="list-style-type: none"> • Corporate Governance
3.	 <p>Risk and Crisis Management</p>	-	<ul style="list-style-type: none"> • IRPC • Subsidiaries • Shareholders • Customers • Suppliers • Business Competitors and Creditors • Employees • Community, society, and environment 	<ul style="list-style-type: none"> • Risk and Crisis Management
4.	 <p>Stakeholder Engagement</p>	-	<ul style="list-style-type: none"> • IRPC • Subsidiaries • Shareholders • Customers • Suppliers • Business Competitors and Creditors • Employees • Community, Society, and Environment 	<ul style="list-style-type: none"> • Stakeholder Engagement
5.	 <p>Supply Chain Management</p>	<ul style="list-style-type: none"> • Procurement Practices • Supplier Environmental Assessment • Supplier Social Assessment 	<ul style="list-style-type: none"> • IRPC • Subsidiaries • Suppliers 	<ul style="list-style-type: none"> • Supply Chain Management • Performance Summary

	MATERIAL ISSUES	GRI ASPECTS	SCOPE OF IMPACT	TOPIC IN THIS REPORT
6.	 <p>Customer Relationship Management</p>	<ul style="list-style-type: none"> • Marketing and Labeling • Customer Privacy • Socioeconomic Compliance 	<ul style="list-style-type: none"> • IRPC • Subsidiaries • Customers 	<ul style="list-style-type: none"> • Customer Relationship Management • Performance Summary
7	 <p>Innovation & Digitization</p>	<ul style="list-style-type: none"> • Customer Health and Safety 	<ul style="list-style-type: none"> • IRPC • Subsidiaries • Customers 	<ul style="list-style-type: none"> • Innovation & Digitization
8	 <p>Human Resource Management</p>	<ul style="list-style-type: none"> • Employment • Training and Education 	<ul style="list-style-type: none"> • IRPC • Subsidiaries • Employees 	<ul style="list-style-type: none"> • Human Resource Management • Performance Summary
9	 <p>Health and Safety</p>	<ul style="list-style-type: none"> • Occupational Health and Safety • Asset Integrity and Process Safety • Emergency Preparedness 	<ul style="list-style-type: none"> • IRPC • Subsidiaries • Employees • Community, Society, and Environment 	<ul style="list-style-type: none"> • Health and Safety • Performance Summary
10	 <p>Community Well-Being</p>	<ul style="list-style-type: none"> • Indirect Economic Impacts • Local Communities 	<ul style="list-style-type: none"> • IRPC • Subsidiaries • Community, Society, and Environment 	<ul style="list-style-type: none"> • Community Well-Being • Performance Summary

	MATERIAL ISSUES	GRI ASPECTS	SCOPE OF IMPACT	TOPIC IN THIS REPORT
11	 <p>Human Rights</p>	<ul style="list-style-type: none"> Human Rights Assessment 	<ul style="list-style-type: none"> IRPC Subsidiaries Customers Suppliers Employees Community, Society, and Environment 	<ul style="list-style-type: none"> Respect for Human Rights Performance Summary
12	 <p>Operational Eco-Efficiency</p>	<ul style="list-style-type: none"> Energy Emissions Effluents and Waste 	<ul style="list-style-type: none"> IRPC Subsidiaries Customers Suppliers Employees Community, Society, and Environment 	<ul style="list-style-type: none"> Operational Eco-Efficiency Performance Summary
13	 <p>Climate Change</p>	<ul style="list-style-type: none"> Water Emissions 	<ul style="list-style-type: none"> IRPC Subsidiaries Customers Suppliers Employees Community, Society, and Environment 	<ul style="list-style-type: none"> Climate Change Performance Summary



LRQA Assurance Statement Relating to IRPC Public Company Limited's Sustainability Report for the calendar year 2017

This Assurance Statement has been prepared for IRPC Public Company Limited in accordance with our contract but is intended for the readers of this Report.

Terms of Engagement

Lloyd's Register Quality Assurance Ltd. (LRQA) was commissioned by IRPC Public Company Limited (IRPC) to provide independent assurance on its Sustainability Report 2017 ("the Report") against the assurance criteria below to a limited level of assurance and at the materiality of the professional judgement of the verifier, using LRQA's verification approach. LRQA's verification approach is based on current best practice and uses the principles of AA1000AS (2008) - inclusivity, materiality, responsiveness and reliability of performance data and processes defined in ISAE3000.

Our assurance engagement covered IRPC's domestic operations and activities, its subsidiary companies in Thailand where IRPC holds more than 50% of ownership, companies where its subsidiaries hold more than 50% shares, and specifically the following requirements.

- Confirming that the Report is in accordance with:
 - GRI Sustainability Reporting Standards and core option
 - GRI Oil & Gas Sector Disclosure
- Evaluating the reliability of data and information for the following topic specific standards:
 - Environmental:
 - GRI 302-1 Energy consumption within the organization
 - GRI 303-1 Water withdrawal by source
 - GRI 305-1 Direct (Scope 1) GHG emissions⁽¹⁾
 - GRI 305-2 Energy indirect (Scope 2) GHG emissions
 - GRI 305-7 Nitrogen oxides (NO_x), sulfur oxides (SO_x), and other significant air emissions (VOC)
 - GRI 306-1 Water discharge by quality and destination⁽²⁾
 - GRI 306-2 Waste by type and disposal method
 - GRI 306-3 Significant spill
 - GRI OG6 Volume of flared and vented hydrocarbon⁽³⁾ and methane emission of flared hydrocarbon
 - Social :
 - GRI 403-2 Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities⁽⁴⁾ and
 - GRI OG13 Number of process safety events, by business activity.

Notes: (1) Excludes GHG emission associated with process vents, (2) excludes effluent from retention pond, (3) excludes volume of vented hydrocarbon from process vents and vent from safety control valves, (4) excludes performance data of employees by region and performance data of workers by region and gender.

Our assurance engagement excluded the data and information of IRPC's subsidiaries where it has no operational control and all its operations and activities outside of Thailand.

LRQA's responsibility is only to IRPC. LRQA disclaims any liability or responsibility to others as explained in the end footnote. IRPC's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the Report and for maintaining effective internal controls over the systems from which the Report is derived. Ultimately, the Report has been approved by, and remains the responsibility of IRPC.

LRQA's Opinion

Based on LRQA's approach nothing has come to our attention that would cause us to believe that IRPC has not:

- Met the requirements above
- Disclosed reliable performance data and information as no errors or omissions were detected within the selected topic specific standards
- Covered all the issues that are important to the stakeholders and readers of this Report.

The opinion expressed is formed on the basis of a limited level of assurance and at the materiality of the professional judgement of the verifier.

Note: The extent of evidence-gathering for a limited assurance engagement is less than for a reasonable assurance engagement. Limited assurance engagements focus on aggregated data rather than physically checking source data at sites.

LRQA's Approach

LRQA's assurance engagements are carried out in accordance with our verification procedure. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:



Lloyd's Register
LRQA

- Assessing IRPC's approach to stakeholder engagement to confirm that issues raised by stakeholders were captured correctly. We did this by interviewing IRPC employees who engage directly with stakeholder groups as well as reviewing documents and associated records.
- Reviewing IRPC's process for identifying and determining material issues to confirm that the right issues were included in their Report. We did this by benchmarking reports written by IRPC and its peers to ensure that sector specific issues were included for comparability. We also tested the filters used in determining material issues to evaluate whether IRPC makes informed business decisions that may create opportunities that contribute towards sustainable development.
- Auditing IRPC's data management systems to confirm that there were no significant errors, omissions or misstatements in the Report. We did this by reviewing the effectiveness of data handling procedures and systems. We also spoke with those key people responsible for compiling the data and drafting the Report.
- Sampling of evidences presented at UHV, ETP, water intake and supply, and wastewater treatment plants, Rayong depot, Tank farm 2, and wastewater discharge points within IRPC Complex in Rayong province to confirm the reliability of the selected topic specific standards.

Observations

Further observations and findings, made during the assurance engagement, are:

- Stakeholder inclusivity:
We are not aware of any key stakeholder groups that have been excluded from IRPC's stakeholder engagement process. IRPC has maintained open dialogue with its key stakeholders. The Report contents, as well as IRPC's visions for addressing sustainable development, have then been informed by the views and expectations of their key stakeholders.
- Materiality:
We are not aware of any material issues concerning IRPC's sustainability performance that have been excluded from the Report.
- Responsiveness:
IRPC has processes for responding to concerns from various stakeholder groups. We believe that these communication processes are effective in explaining IRPC's aim in contributing towards sustainable development.
- Reliability:
Data management systems are considered to be defined for the data and information collection and calculation associated with the selected topic specific standards. However, we believe that implementing a systematic and effective internal verification across IRPC's subsidiaries will further improve the reliability of its data and information, such as the net calorific values of some fuels that use site specific data. We also believe that a robust data quality control system for vented hydrocarbon from process vents and safety control valves should be established. This will demonstrate IRPC's full disclosure of GRI OG6 performance, a material specific standard disclosure for oil and gas sector.

LRQA's competence and independence

LRQA ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

This verification assessment is the only work undertaken by LRQA for IRPC and as such does not compromise our independence or impartiality.

Signed
Paveena Hengsritawat
LRQA Lead Verifier

Dated: 27 February 2018

On behalf of Lloyd's Register Quality Assurance Ltd.
Lloyd's Register International (Thailand) Limited
22nd Floor, Sirinrat Building, 3388/78 Rama IV Road
Klongton, Klongtoey, Bangkok 10110 THAILAND)

LRQA reference: BGK1318810

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GRI Content Index

GENERAL	DISCLOSURES	PAGE NO.(S) and/or URL (S)	OMISSIONS/REMARK	EXTERNAL ASSURANCE	SDGs	UNGC
GENERAL DISCLOSURES						
GRI 102: General Disclosures 2016 (Organi- zational Profile)	102-1 Name of the organization	Cover	-	✓	-	-
	102-2 Activities, brands, products, and services	10-11	Remark: IRPC did not sell any banned or disputed products in 2017	✓	-	-
	102-3 Location of headquarters	Back Cover	-	✓	-	-
	102-4 Location of operations	10-11	-	✓	-	-
	102-5 Ownership and legal form	http://www. irpc.co.th/ en/ir_home_ th.php		✓	-	-
	102-6 Markets served	10-11	-	✓	-	-
	102-7 Scale of the organization	This page	Remark: Refer to IRPC Annual Report 2017, Financial Highlights, page 5	✓	-	-
	102-8 Information on employees and other workers	121-122	Remark: Majority of IRPC's workforce are employees and supervised workers. No significant variation in employment numbers and changes in 2017.	✓		-
	102-9 Supply Chain	14-15	-	✓	-	2
	102-10 Significant changes to the organization and its supply chain	This page	Remark: No significant changes (i.e. location, operation, share capital structure, supply chain, etc.) during the reporting year.	✓	-	2
	102-11 Precautionary principle or approach	29-33	-	✓	-	-
	102-12 External Initiatives	23-28	-	✓	-	-
	102-13 Membership or associations	23-28	-	✓	-	-








GENERAL	DISCLOSURES	PAGE NO.(S) and/or URL (S)	OMISSIONS/REMARK	EXTERNAL ASSURANCE	SDGs	UNGC
GRI 102: General Disclosures 2016 (Strategy)	102-14 Statement from senior decision-maker	4-5	-	✓	-	19
	102-15 Key impacts, risks, and opportunities	29-33	-	-	-	19
GRI 102: General Disclosures 2016 (Ethics and Integrity)	102-16 Values, principles, standards, and norms of behaviour	http://www. irpc.co.th/ en/cg_policy. php	-	✓		12-14
	102-17 Mechanisms for advice and concerns about ethics	25	-			12-14
GRI 102: General Disclosures 2016 (Governance)	102-18 Governance structure	http://www. irpc.co.th/ en/cg_chart. php	-	✓	-	1, 20
	102-19 Delegating authority	34	-	-	-	1, 20
	102-20 Executive- level responsibility for economic, environmental, and social topics	34	-	-	-	1, 20
	102-21 Consulting stakeholders on economic, environmental, and social topics	38-42 and This page	Remark: Channels to Communicate with the Shareholders in Annual Report 2017. Page 71	-		1, 20
	102-22 Composition of the highest governance body and its committees	This page	Remark: Composition of the Board and Committees, refer to Annual Report 2017, Page. 20-34, 80-93	-		1, 20
	102-23 Chair of the highest governance body	This page	Remark: Role of the Chairman, refer to Annual Report 2017, Page 87	-	-	1, 20
	102-24 Nominating and selecting the highest governance body	This page	Remark: Nomination and selection process of the Board refer to Annual Report 2017. Page. 89-92	-		1, 20
	102-25 Conflicts of interest	http://www. irpc.co.th/ en/cg_pol- icy_ethics. php	-	-		1, 2, 20

GENERAL	DISCLOSURES	PAGE NO.(S) and/or URL (S)	OMISSIONS/REMARK	EXTERNAL ASSURANCE	SDGs	UNGC
GRI 102: General Disclosures 2016 (Governance)	102-26 Role of highest governance body in setting purpose, values, and strategy	This page	Remark: Sustainability Management refer to Annual Report 2017. Page 91-92	-	-	1, 20
	102-27 Collective knowledge of highest governance body	This page	Remark: Board Development refer to Annual Report 2017. Page 83-85	-		1, 20
	102-28 Evaluating the highest governance body's performance	This page	Remark: Committee Evaluation refer to Annual Report 2017. Page 72-74	-	-	1, 20
	102-29 Identifying and managing economic, environmental, and social impacts	This page	Remark: Risk Management Committee and Risk Management refer to Annual Report 2017. Page 92-93	-		1, 20
	102-30 Effectiveness of risk management processes	This page	Remark: Risk Management Committee and Risk Management refer to Annual Report 2017. Page 92-93	-	-	1, 20
	102-31 Review of economic, environmental, and social topics	This page	Remark: Risk Management Committee and Risk Management refer to Annual Report 2017. Page 92-93	-	-	1, 20
	102-32 Highest governance body's role in sustainability reporting	137	-	-	-	1, 20
	102-33 Communicating critical concerns	25	-	-	-	1, 20
	102-34 Nature and total number of critical concerns	25	-	-	-	1, 20
	102-35 Remuneration policies	http://www.irpc.co.th/en/pdf/bord/Nomination-Committee-Charter-Remunerationeng-rev.pdf	Remark: Board of Director nomination process refer to Annual Report 2017, Page 90	-	-	1, 20
	102-36 Process for determining remuneration	This page	Remark: No remuneration consultants were involved in the process.	-	-	1, 20


GENERAL	DISCLOSURES	PAGE NO.(S) and/or URL (S)	OMISSIONS/REMARK	EXTERNAL ASSURANCE	SDGs	UNGC
GRI 102: General Disclosures 2016 (Governance)	102-37 Stakeholders' involvement in remuneration	This page	Remark: Remuneration is formally presented to the shareholders for approval.	-		1, 20
	102-38 Annual total compensation ratio	This page	Omission: The information is confidentiality constraints and prohibits to disclose	-	-	1, 20
	102-39 Percentage increase in annual total compensation ratio	This page	Omission: The information is confidentiality constraints and prohibits to disclose	-	-	1, 20
GRI 102: General Disclosures 2016 (Stakeholder Engagement)	102-40 List of stakeholder groups	40	-	✓	-	-
	102-41 Collective bargaining agreements	126	-	✓	-	21
	102-42 Identifying and selecting stakeholders	38-41	-	✓		-
	102-43 Approach to stakeholder engagement	40-43	-	✓	-	21
	102-44 Key topics and concerns raised	42-43, 54	-	✓	-	21
GRI 102: General Disclosures 2016 (Reporting Practice)	102-45 Entities included in the consolidated financial statements	137	-	✓	-	-
	102-46 Defining report content and topic Boundaries	137-141	-	✓	-	-
	102-47 List of material topics	138	-	✓	-	-
	102-48 Restatements of information	This page	Remark: no restatement in 2017	✓	-	-
	102-49 Changes in reporting	This page	Remark: No significant changes in scope and boundary from previous reporting periods.	✓	-	-
	102-50 Reporting period	136	-	✓	-	-
	102-51 Date of most recent report	This page	Remark: Most recent previous report is 2016 IRPC Sustainability Report.	✓	-	-

GENERAL	DISCLOSURES	PAGE NO.(S) and/or URL (S)	OMISSIONS/REMARK	EXTERNAL ASSURANCE	SDGs	UNGC
GRI 102: General Disclosures 2016 (Reporting Practice)	102-52 Reporting cycle	This page	Remark: IRPC publishes Corporate Sustainability Report annually.	✓	-	-
	102-53 Contact point for questions regarding the report	Back Cover	-	✓	-	-
	102-54 Claims of reporting in accordance with the GRI Standards	136	-	✓	-	-
	102-55 GRI content index	144-153	-	✓	-	-
	102-56 External assurance	142-143 and This Page	Remark: IRPC engaged Lloyd's Register Quality Assurance Ltd. to provide limited independent assurance service to IRPC's 2017 Corporate Sustainability Report. IRPC has process to ensure transparent external assurance.	✓	-	-
ECONOMIC PERFORMANCE						
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed	120	-	-	 	-
	201-4 Financial assistance received from government	120	-	-	-	-
MATERIALS TOPICS						
BUSINESS STRATEGY						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	16	-	-	-	-
	103-2 The management approach and its components	16-20 and Website	-	-	-	-
	103-3 Evaluation of the management approach	18-19	-	-	-	-
CORPORATE GOVERNANCE						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	23	-	-	-	-
	103-2 The management approach and its components	23-24 and Website	-	-	-	-





GENERAL	DISCLOSURES	PAGE NO.(S) and/or URL (S)	OMISSIONS/REMARK	EXTERNAL ASSURANCE	SDGs	UNGC
	103-3 Evaluation of the management approach	24-28	-	-	-	-
RISK AND CRISIS MANAGEMENT						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	29	-	-	-	-
	103-2 The management approach and its components	29-30 and Website	-	-	-	-
	103-3 Evaluation of the management approach	31-33	-	-	-	-
STAKEHOLDER ENGAGEMENT						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	38	-	-	-	-
	103-2 The management approach and its components	38-39 and Website	-	-	-	-
	103-3 Evaluation of the management approach	39-43	-	-	-	-
SUPPLY CHAIN MANAGEMENT						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	46	-	-	-	-
	103-2 The management approach and its components	46-47 and Website	-	-	-	-
	103-3 Evaluation of the management approach	48-52	-	-	-	-
GRI 204: Procurement Practices 2016	204-1 Proportion of spending on local suppliers	51, 121	-	-		2
GRI 308: Supplier Environmental Assessment 2016	308-1 New suppliers that were screened using environmental criteria	49, 121	-	-	-	2, 9-11
	308-2 Negative environmental impacts in the supply chain and actions taken	This Page	Omission: Information is unavailable, IRPC will improve the data collection process.	-	-	2, 9-11


GENERAL	DISCLOSURES	PAGE NO.(S) and/or URL (S)	OMISSIONS/REMARK	EXTERNAL ASSURANCE	SDGs	UNGC
GRI 414: Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	49, 121	-	-	 	2, 6-8
	414-2 Negative social impacts in the supply chain and actions taken	This Page	Omission: Information is unavailable. IRPC will improve the data collection process.	-	 	2, 6-8
CUSTOMER RELATIONSHIP MANAGEMENT						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	53	-	-	-	-
	103-2 The management approach and its components	53	-	-	-	-
	103-3 Evaluation of the management approach	54-55	-	-	-	-
GRI 417: Marketing and Labelling 2016	417-3 Incidents of non-compliance concerning marketing communications	54	-	-		-
GRI 418: Customer Privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	54, 121	-	-		-
GRI 419: Socioeconomic Compliance 2016	419-1 Non-compliance with laws and regulations in the social and economic area	54	-	-		-
INNOVATION & DIGITIZATION						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	56	-	-	-	-
	103-2 The management approach and its components	56 and Website	-	-	-	-
	103-3 Evaluation of the management approach	57-63	-	-	-	-

GENERAL	DISCLOSURES	PAGE NO.(S) and/or URL (S)	OMISSIONS/REMARK	EXTERNAL ASSURANCE	SDGs	UNGC
IRPC's own indicator	Proportion of sales of plastic resins and specialty products to total petrochemical products sale revenue	57	-	-	-	-
HUMAN RESOURCE MANAGEMENT						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	66	-	-	-	-
	103-2 The manage- ment approach and its components	66-68 and Website	-	-	-	-
	103-3 Evaluation of the management approach	68-78	-	-	-	-
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	122-125	-	-		6-8
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	75	-	-		6-8
	401-3 Parental leave	125-126	-	-		6-8
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	69, 126-127	-	-	 	6-8
	404-2 Programs for upgrading employee skills and transition assistance programs	72	-	-		6-8
	404-3 Percentage of employees receiving regular performance and career develop- ment reviews	75-76	-	-	 	-






GENERAL	DISCLOSURES	PAGE NO.(S) and/or URL (S)	OMISSIONS/REMARK	EXTERNAL ASSURANCE	SDGs	UNGC
HEALTH AND SAFETY						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	79	-	-	-	-
	103-2 The manage- ment approach and its components	79 and Website	-	-	-	-
	103-3 Evaluation of the management approach	80-85	-	-	-	-
GRI 403: Occupational Health and Safety 2016	403-1 Workers representation in formal joint management- worker health and safety committees	This Page	Omission: Information is unavailable. IRPC will improve the data collection process.	-		6-8
	403-2 Types of injury and rates of injury, occupational diseases, lost days, and absentee- ism, and number of work-related fatalities	127-128 and This Page	Remark: Exclude performance data of employees by region and performance data of worker by gender. IRPC will i mprove the data collection process.	✓	 	2, 6-8
	403-3 Workers with high incidence or high risk of diseases related to their occupation	83	-	-	 	6-8
	403-4 Health and safety topics covered in formal agreements with trade unions	This page	Remark: Local formal agreement includes IRPC's management approach and stand- ards in all aspects such as labor practice, health and safety, etc. which applies to IRPC workforce.	-		6-8
G4-Oil and Gas Sector Disclosure: Asset Integrity and Process Safety 2012	G4-OG13 Number of process safety events, by business activity	128	-	✓	   	-
COMMUNITY WELL-BEING						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	86	-	-	-	-
	103-2 The manage- ment approach and its components	86 and Website	-	-	-	-

GENERAL	DISCLOSURES	PAGE NO.(S) and/or URL (S)	OMISSIONS/REMARK	EXTERNAL ASSURANCE	SDGs	UNGC
GRI 103: Management Approach 2016	103-3 Evaluation of the management approach	87-94	-	-	-	-
	203-1 Infrastructure investments and services supported	87-94	-	-	-	-
GRI 203: Indirect Economic Impacts 2016	203-2 Significant indirect economic impacts	87-94	-	-	  	-
G4-Oil and Gas Sector Disclosure: Indirect Economic Impacts 2012	G4-EC7 Development and impact of infrastructure investments and services supported	This page	Omission: Information is not applicable to IRPC because company does not specifically invest initiatives related to access to energy for local communities.	-	-	-
	413-1 Operations with local community engagement, impact assessments, and development programs	94	-	-	-	-
GRI 413: Local Communities 2016	413-2 Operations with significant actual and potential negative impacts on local communities	94	-	-	-	-
	G4-OG10 Number and description of significant disputes with local communities and indigenous peoples	This page	Omission: Information is not applicable to IRPC's business.	-	-	-
G4-Oil and Gas Sector Disclosure: Local Communities 2012	G4-OG11 Number of sites that have been decommissioned and site that are in the process of being decommissioned	This page	Remark: There is no site that have been decommissioned and in the process of being decommissioned.	-	-	-

GENERAL	DISCLOSURES	PAGE NO.(S) and/or URL (S)	OMISSIONS/REMARK	EXTERNAL ASSURANCE	SDGs	UNGC
HUMAN RIGHTS						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	95	-	-	-	-
	103-2 The manage- ment approach and its components	95-96 and Website	-	-	-	-
	103-3 Evaluation of the management approach	96-99	-	-	-	-
GRI 412: Human Rights Assessment 2016	412-1 Operations that have been subject to human rights reviews or impact assessments	96-97	-	-	-	3-5
	412-2 Employee training on human rights policies or procedures	97	-	-	-	3-5
	412-3 Significant investment agree- ments and contracts that include human rights clauses or that underwent human rights screening	97-99	-	-	-	3-5
OPERATIONAL ECO-EFFICIENCY						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	102	-	-	-	-
	103-2 The manage- ment approach and its components	102-104 and Website	-	-	-	-
	103-3 Evaluation of the management approach	105-111	-	-	-	-
GRI 302: Energy 2016	302-1 Energy consumption within the organization	129	-	✓	 	9-11
	302-2 Energy consumption outside of the organization	This page	Omission: Information is unavailable. IRPC will improve the data collection process.	-	 	2, 9-11

GENERAL	DISCLOSURES	PAGE NO.(S) and/or URL (S)	OMISSIONS/REMARK	EXTERNAL ASSURANCE	SDGs	UNGC
GRI 302: Energy 2016	302-3 Energy intensity	129	-	-	   	9-11
	302-4 Reduction of energy consumption	129	-	-	   	9-11
	302-5 Reductions in energy requirements of products and services	106	-	-	   	9-11
G4-Oil and Gas Sector Disclosure: Energy 2012	G4-OG2 Total amount invested in renewable energy	This page	Omission: Information is not applicable to IRPC because the company's core businesses are petroleum refinery and petrochemical.	-	  	-
	G4-OG3 Total amount of renewable energy generated by source	This page	Omission: Information is not applicable to IRPC because the company's core businesses are petroleum refinery and petrochemical.	-		-
GRI 305: Emissions 2016	305-6 Emissions of ozone-depleting substances (ODS)	This page	Omission: Information is not applicable to IRPC because the company is in the process of phasing out the usage of the ozone-depleting substances (ODS).	-	 	9-11
	305-7 Nitrogen oxides (NOx), sulphur oxides (SOx), and other significant air emissions	132 and This page	Remark: Standards, methodologies, source of emission factors and assumptions used are identified relevant regulations.	✓	 	9-11
GRI 306: Effluents and Waste 2016	306-1 Water discharge by quality and destination	133 and This page	Remark: The effluent from retention ponds is not included in this this report due to the unavailability of data. IRPC will improve the data collection process	✓	  	9-11
	306-2 Waste by type and disposal method	133-134	Remark: For non-hazardous waste, IRPC sorted and disposed waste to local contractors and municipality in accordance to law. For hazardous waste transportation and disposal, IRPC sourced contractors who hold license as required by law.	✓	  	9-11
	306-3 Significant spills	135	-	✓	  	9-11

GENERAL	DISCLOSURES	PAGE NO.(S) and/or URL (S)	OMISSIONS/REMARK	EXTERNAL ASSURANCE	SDGs	UNGC
GRI 306: Effluents and Waste 2016	306-4 Transport of hazardous waste	134	-	-	 	9-11
	306-5 Water bodies affected by water discharges and/or runoff	This page	Remark: IRPC has processes in place to prevent impacts on the environment. IRPC continuously improves the management approach and mitigation measures to control risks on biodiversity associated with our activities e.g. ship-to-ship lightering and loading/unloading at IRPC Ports.	-		9-11
G4-Oil and Gas Sector Disclosure: Effluent and Waste 2012	G4-OG5 Volume and disposal of formation or produced water	This page	Omission: Information is not applicable to IRPC.	-	   	-
	G4-OG6 Volume of flared and vented hydrocarbon	130 and This page	Remark: IRPC only reports on vents from Acetylene Carbon Black (ACB) plant, Expandable Polystyrene (EPS) plant, and VOCs Emission. The information for process vent and safety control vent that are unavailable due to the ongoing data collection process.	✓	     	-
	G4-OG7 Amount of drilling waste (drill mud and cuttings) and strategies for treatment and disposal	This page	Omission: Information is not applicable to IRPC.	-	  	-
IRPC's own indicator	Methane emission of flared hydrocarbon	130	-	-		9-11
CLIMATE CHANGE						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	112	-	-	-	-
	103-2 The management approach and its components	112-115 and Website	-	-	-	-
	103-3 Evaluation of the management approach	115-119	-	-	-	-
GRI 303: Water 2016	303-1 Water withdrawal by source	132	-	✓		9-11
	303-2 Water sources significantly affected by withdrawal of water	117-119	-	-		9-11

GENERAL	DISCLOSURES	PAGE NO.(S) and/or URL (S)	OMISSIONS/REMARK	EXTERNAL ASSURANCE	SDGs	UNGC
GRI 303: Water 2016	303-3 Water recycled and reused	132	-	-	  	9-11
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	130-131	-	✓	  	9-11
	305-2 Energy indirect (Scope 2) GHG emissions	130-131	-	✓	  	9-11
	305-3 Other indirect (Scope 3) GHG emissions	130-131	-	-	  	2, 9-11
	305-4 GHG emissions intensity	117, 131	-	-		9-11
	305-5 Reduction of GHG emissions	117 and This page	Remark: CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ , and NF ₃ are GHGs gas that are not related to IRPC's business. The calculation is based on 2012 base year. Identified GHG reduction is under IRPC's control; as a result, it is considered as GHG emission reduction in Scope 1.	-		9-11



AWARDS

EXCELLENT AND SUSTAINABILITY

MEMBER OF
Dow Jones
Sustainability Indices
In Collaboration with RobecoSAM

Listed member of the Dow Jones
Sustainability Indices (DJSI) 2017 in the Emerging
Market of Oil & Gas Refining and Marketing Industry
for the 4th consecutive year

RobecoSAM and S&P Dow Jones Indices

ROBECOSAM
Sustainability Award
Silver Class 2018

Silver Class Sustainability Awards 2018
in the Oil & Gas Refining and Marketing Industry
announced in Sustainability Yearbook 2018

RobecoSAM and S&P Dow Jones Indices



Best SET Sustainability Awards 2017
and Thailand Sustainability
Investment Awards 2017

Stock Exchange of Thailand



1 of 100 listed companies with exceptional
performance in Environmental, Social,
and Governance (ESG) aspects in the Resources group
for the 3rd consecutive year

Thaipat Institute



Sustainability Report Award 2017
in Excellent Category
•
Stock Exchange of Thailand



1 of 100 leading companies in
Thomson Reuters 2017
Top 100 Global Energy Leader
•
Thomson Reuters



Best Innovative Company Award
for IRPC's innovation in Ultra High Molecular
Weight Polyethylene (UHMWPE)
and Best Investor Relations Awards 2017
from SET Awards 2017
•
Stock Exchange of Thailand



The Best FX Solutions Thailand 2017
for developments in the Cash & Liquidity
Management System, serviced
by Siam Commercial Bank
in the Asset Asian Awards 2017 event
•
The Asset Triple A

ENVIRONMENTAL RESPONSIBILITY



Polypropylene Plant awarded excellence in human resource management for energy management teams,
and excellence in human resource management for energy responsibility teams in 2017
in the Thailand Energy Awards 2017 event

•
**Department of Alternative Energy Development and Efficiency,
Ministry of Energy**



Carbon Footprint for Organization 2017
for the Phra Pra Daeng Depot
and Lube Blending Facilities

•
**Thailand Greenhouse Gas Management Organization
(Public Organization)**



Eco Factory certification for
Expandable Polystyrene Plant, PTK Catalyst Plant,
Water Production Plant, Wastewater Treatment Plant
1&2, Wastewater Treatment Plant 3,
HA1 Plant, Acrylonitrile Benzene Styrene Plant,
CCM Plant, and Ethylbenzene Styrene Monomer Plant

•
**Institute of Environment and Industry
of the Federation of Thai Industries**



Carbon Reduction Level for STD Type (Standard Type)
and SE Type (Self-extinguishing Type) Expandable
Polystyrene Production Process

•
**Thailand Business Council
for Sustainable Development (TBCSD)**



The Prime Minister's Industry Award 2017
for Productivity Improvement at Olefins Plants,
for Quality Management at Polystyrene Plant,
and for Energy Management
at Lube Base Oil Plant

•
Ministry of Industry



Green Industry 4 (GI4) Awards for 15 factories, including:
Baan Kai Water Filtration Facility, Refinery, Condensate Residue Plant, Combined Gas Oil Plant,
Lube Base Oil Plant, Ethylene Plant, Propylene Plant, Acetylene Black Plant,
Combined Heat and Power Plant, Benzene Toluene and Xylene Plant,
Polystyrene Plant, CD1 Plant, Polypropylene Plant,
High Density Polyethylene Plant, and Polyol Plant

•
Ministry of Industry

SOCIAL RESPONSIBILITY



23 Factories continuously working
on CSR-DIW projects in 2016 and
all earning CSR-DIW Continuous Awards

•
Department of Industrial Works



Asia Responsible Entrepreneurship Awards 2017
in the Investment in People
from IRPC Cubic Academy initiative

•
Enterprise Asia Institute



Golden Peacock Global Award 2017
for Corporate Social Responsibility

•
**Institute of Directors (IoD),
India**



National Outstanding Practice Award 2017
in safety, occupational health, and working
environment, at gold level for the lube blending section,
diamond level for Ayutthaya Depot for the 5th
consecutive year. Excellent safety manager
and safety supervisor at the national level

•
Department of Labor Protection and Welfare



Zero Accident Campaign 2017
Silver Class awarded to Ayutthaya Depot,
and Phra Pradaeng Depot

•
Department of Labor Protection and Welfare



Awarded for social responsibility
in supporting the employment
of people with disabilities in 2017

•
Social Innovation Foundation



Certified and Awarded for Drug Prevention
at IRPC Oil Company
and Rak Pa Sak Company

•
**Samut Prakan Provincial Office
of Labour Protection and Welfare**



Certified for "A Leading Example
of Best Safety Practices with 100%
Motorcycle Helmet Use" at Phra Pra Daeng Depot
and Mae Klong Depot

•
**100% Motorcycle
Helmet Use Project**

GOOD GOVERNANCE



CAC Recertification IRPC by the CAC, and remains a CAC member. IRPC Technology Company and IRPC Polyol Company have been certified as CAC members for the first year.

•
**Thailand's Private Sector Collective
Action Coalition Against Corruption (CAC)**



NACC Awards 2017
for the 2nd consecutive year

•
**The Office of the National
Counter Corruption
Commission**



The Best Corporate in Asia 2016
in Asia's Outstanding
Company on Corporate
Governance

•
**Corporate Governance Asia
Magazine**



Asian Excellence Awards 2017 for
Asia's Best CEO (Investor Relations),
Asia's Best CFO (Investor Relations)
and Best Investor Relations Company
for the 4th Consecutive year

•
**Corporate Governance Asia
Magazine**



Golden Peacock
Global Award 2017
for Excellence in Corporate
Governance for the 5th
consecutive year

•
**Institute of Directors (IoD),
India**

SURVEY OF READERS' OPINIONS

Your suggestions will be valuable inputs for us to improve the better IRPC Sustainability Report.

Please mark X into ☐ and fill the blank.



1. Please specify your personal information

Sex ☐ Female ☐ Male
Age ☐ Under 30 years ☐ 30–45 years ☐ Over 45 years

2. Which best describes you as a stakeholder?

☐ Employee ☐ Customer ☐ Shareholder/investor ☐ Public / communities
☐ Supplier ☐ Academic institution ☐ Financial institution/creditor ☐ Media
☐ Government officer ☐ Others (please specify.....)

3. Which channel did you received the Sustainability Report

☐ IRPC website ☐ Seminar/ presentation/exhibition ☐ IRPC's employee
☐ Other website ☐ Annual general meeting ☐ Others (please specify.....)

4. What is your objective in reading the Sustainability Report 2017?

☐ Knowing about IRPC ☐ Investment in IRPC ☐ Research and education
☐ Serving as guideline for your Sustainability/CSR report preparation
☐ Special interest (please specify.....) ☐ Others (please specify.....)

5. Please specify your satisfaction on 2017 Sustainability Development Report

Completeness	<input type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low	<input type="checkbox"/> Dissatisfied
Topics	<input type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low	<input type="checkbox"/> Dissatisfied
Attractiveness	<input type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low	<input type="checkbox"/> Dissatisfied
Ease to understand	<input type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low	<input type="checkbox"/> Dissatisfied
Report design	<input type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low	<input type="checkbox"/> Dissatisfied
Overall satisfaction	<input type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low	<input type="checkbox"/> Dissatisfied

6. What issue in the report have you found most interesting? (Please specify your reason)

.....
.....

7. What issue in the report have you found least interesting (Please specify your reason)

.....
.....

8. Have you found IRPC's strong commitment and intention to perform through the Sustainability Report? How?

.....
.....

9. Have you found the completeness in the report?

☐ Complete ☐ Incomplete

If not, please specify additional issues that should be included in the Sustainability Report?

.....
.....

10. Please provide additional recommendations/ suggestions for the next Sustainability Report improvement. (if any)

.....
.....



Please scan QR Code or fill in the blank and kindly send back to IRPC PLC. We truly appreciate for your kind cooperation.



บริการธุรกิจตอบรับ

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