



# Thai Energy Thai Pride



## Contact Information

PTT Group Sustainability Management Project



PTT Public Company Limited  
555 Vibhavadi Rangsit Road  
Chatuchak, Bangkok 10900



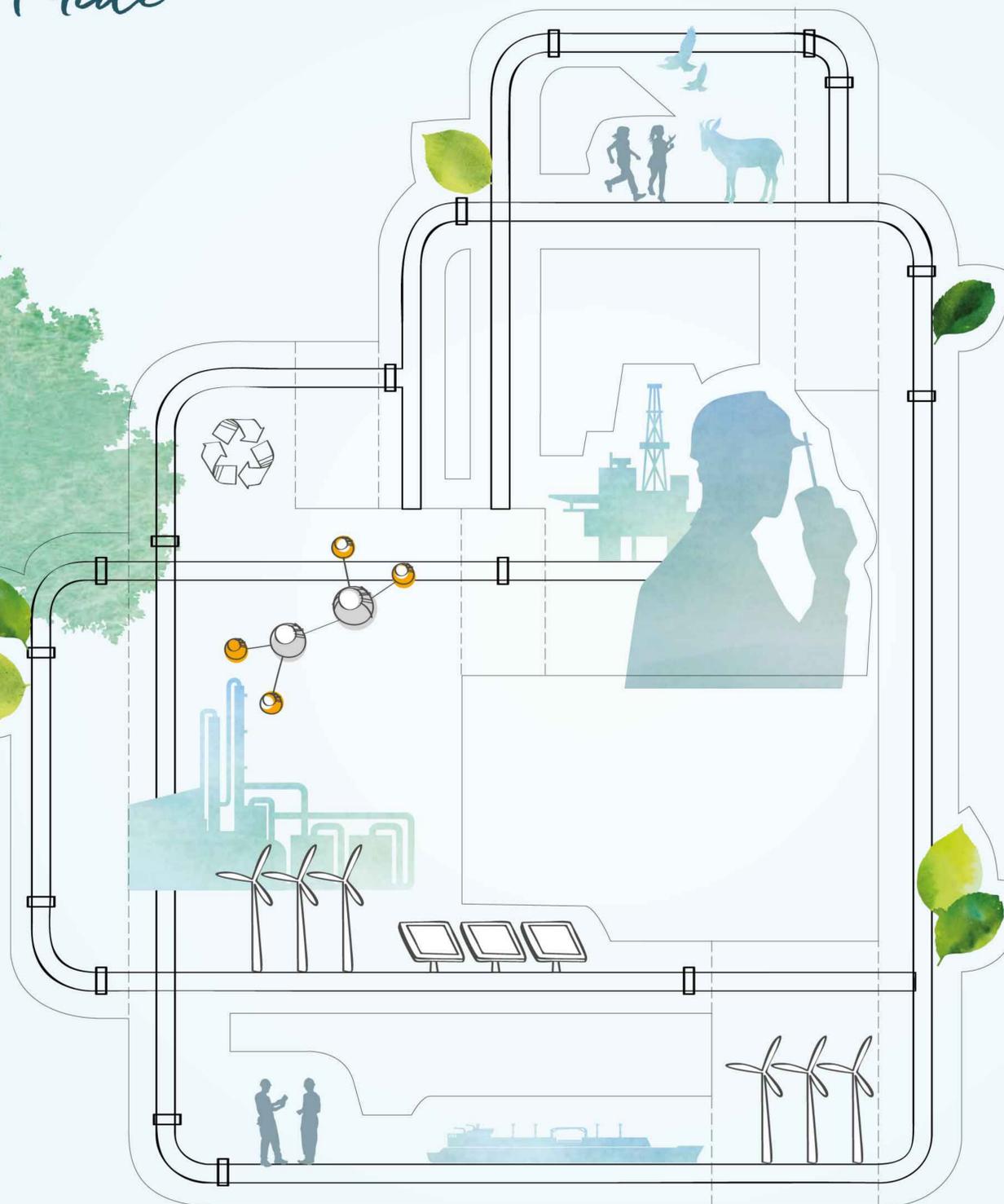
66 (0) 2537-1636



sustainability@pttplc.com

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*Accountable  
and transparent*  
in business

*Excellent  
in operations*  
with determination  
and professionalism

*Fostering  
the country*  
with knowledge  
and technology

# About This Report



PTT Public Company Limited (PTT) has published its 8<sup>th</sup> annual corporate sustainability report as part of its commitment to stakeholders in disclosing the organization's important economic, social, and environmental performance over the past year. This report covers information during the period from January 1<sup>st</sup>, 2015 to December 31<sup>st</sup>, 2015.



## Reporting Approach

The 2015 Corporate Sustainability Report has been prepared in accordance with the Global Reporting Initiative (G4-Core) Guidelines, at the "In accordance" level, and the Oil and Gas Sector Disclosure (OGSD). The report further details PTT's progress in implementing the Ten Principles of the United Nations Global Compact (UNGC), and has been externally verified by an independent assurer for completeness, accuracy, and credibility, for the 5<sup>th</sup> consecutive year.

## Reporting Scope

The scope of this report covers PTT-operated businesses, consisting of the Natural Gas Business Unit, Oil Business Unit, International Trading Business Unit, and Infrastructure

and Sustainability Management Business Unit. It additionally covers operations conducted through investments in PTT Group companies, which comprise PTT Exploration and Production Public Company Limited (PTTEP), PTT Global Chemical Public Company Limited (PTTGC), Thai Oil Public Company Limited (TOP), IRPC Public Company Limited (IRPC), and includes Global Power Synergy Public Company Limited (GPSC), for the first year. Given this expansion, the scope of coverage for safety and environmental performance will differ from last year's disclosure. However, environmental performance on greenhouse gas emissions and energy consumption will specifically disclose data from PTT Group companies in which PTT holds more than 20% of shares in ownership.

In 2015, PTT is committed to improving its reporting methods and processes to more clearly demonstrate the relationship between sustainability performance and business value. This involved an initial study of the Integrated Reporting Framework's <IR> methodology as an approach to disclosing future organizational performance, and a preliminary evaluation of PTT's performance in relation to the United Nations' Sustainable Development Goals, the results of which are both detailed in this report. These improvements will serve to deliver future benefits in determining PTT's material issues, which can subsequently be integrated into future business strategy formulation.

In addition to the annual corporate sustainability report, stakeholders may visit PTT's website, [www.pttplc.com](http://www.pttplc.com), for more information on organizational performance.

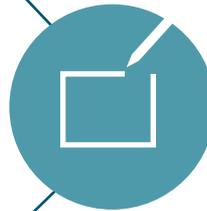
## Materiality Assessment

### 1 Identification



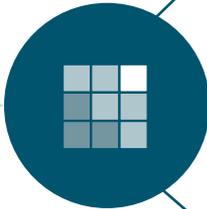
Identification of material sustainability issues by relevant functions in the organization, assessed according to corporate risks, strategic direction and sustainability management, stakeholder expectations, and global trends affecting the oil and gas industry.

### 2 Reporting Boundary



Determination of the scope of material issues based on internal and external impacts to PTT's business (e.g., PTT Group companies, Joint Ventures), and stakeholders (e.g., suppliers, contractors).

### 3 Prioritization



Prioritization of identified material issues based on evaluation in two dimensions: opportunity and impact to business, and stakeholder interests and impacts. Content in this corporate sustainability report will cover material issues classified at the medium and high levels.

### 4 Verification



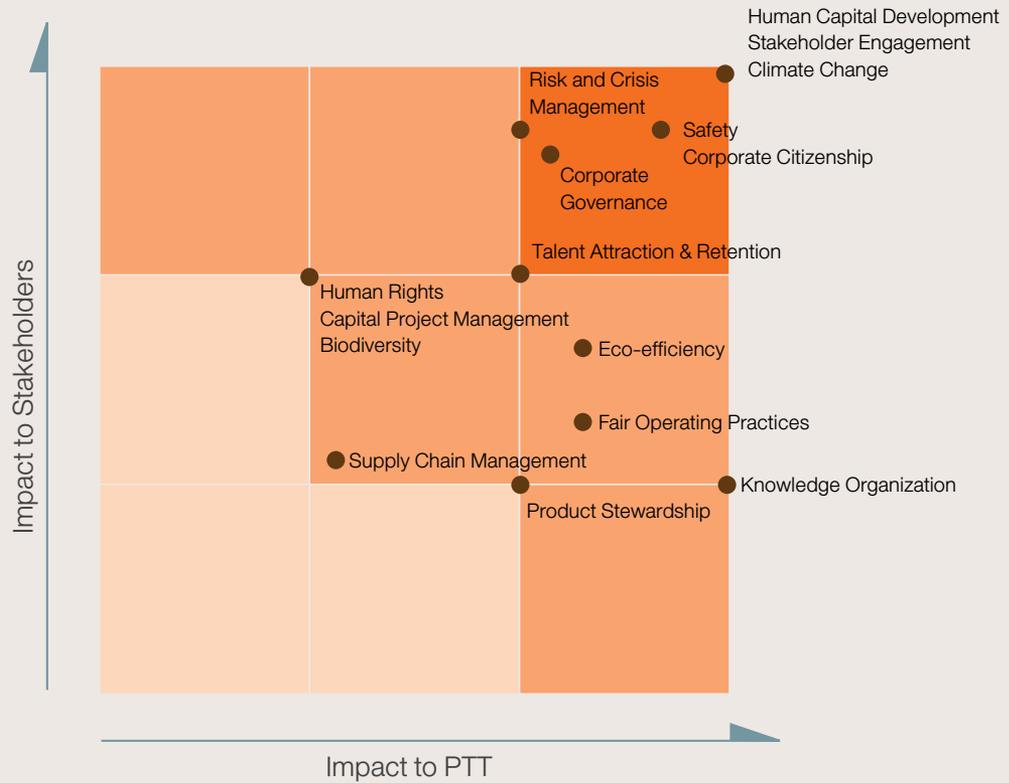
Monitoring and verification of the report development process by the PTT Group Sustainability Alignment Committee (SAC), who is responsible for ensuring the report's completeness and accurate coverage of material issues relevant to the organization and its stakeholders, as well as providing approval for information disclosure. Independent assurers are also involved in verifying the materiality assessment process, data processing, and accuracy in reporting against performance indicators.

### 5 Continuous Improvement



Continuous improvement of the corporate sustainability report on an annual basis by integrating reader feedback from various channels, such as external report assurance, reader surveys through online forms and PTT's website, and participation in the annual corporate sustainability report assessment of the Securities and Exchange Commission Thailand and the Thaipat Institute.

## Materiality Assessment Matrix



## Reporting Scope From Materiality Assessment

Chapter	Material Aspect	Impact Boundary						
		Internal Impact		External Impact				
				Country	Shareholders	Customers	Society	Partners
Stakeholder Engagement	Stakeholder Engagement	●	●	●	●	●	●	●
Organizational Governance	Corporate Governance	●	●	●	●	●	●	●
	Fair Operating Practices	●	●	●	●	●	●	●
	Risk and Crisis Management	●	●	●	●	●	●	●
	Human Rights	●	●	●	●	●	●	●
Value Chain	Supply Chain Management	●	●			●	●	●
	Product Stewardship	●	●			●	●	
Operational Excellence	Climate Change	●	●	●		●	●	●
	Eco-efficiency	●	●	●		●	●	●
	Safety	●	●			●	●	●
	Capital Project Management	●	●	●			●	
	Biodiversity	●	●					●
People	Human Capital Development	●	●					
	Talent Attraction & Retention	●						
	Knowledge Organization	●	●					
Corporate Citizenship	Corporate Citizenship	●		●				●

# CEO Statement

2015 was an auspicious year for PTT. We received the highest honor of welcoming Her Royal Highness Princess Maha Chakri Sirindhorn to preside over the opening ceremony of the Kamnoetvidya Science Academy (KVIS) and Vidyasirimedhi Institute of Science and Technology (VISTEC) – institutions dedicated to advancements in scientific learning and research. This achievement is not only the culmination of PTT's efforts in building capacity for youth, as the nation's future, but reflective of our ambition to increase our competitiveness on the foundation of knowledge and innovation – instead of a limited resource-base. Her Royal Highness extended our privilege further by officially opening the Wang Chan Forest Project in Rayong Province, and the PTT Green in the City Project on Sukhaphiban 2 Road, Bangkok. These establishments will serve as centers for education on forestry and reforestation, and offer the public a place to learn about tropical forest ecosystems right in the heart of the city. Not only will this raise the awareness on the importance of sustainable forest preservation, but also encourage public involvement on such a vital issue, and fundamentally showcase PTT's mission to foster a true learning society.

Guided by the concept of creating harmony between industry, society, and the environment, the PTT Wanarom Eco Zone Industries (PTT WEcoZi) Project was envisioned and developed in Rayong Province. Surrounded by natural green boundaries, the eco-friendly industrial zone officially opened over the past year. The success of this project is credited to its integration of eco-industrial and environmental management into the design and development processes. As a prototype industrial zone, PTT

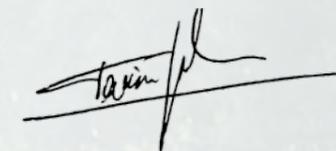
WEcoZi received certification from the Industrial Estate Authority of Thailand for being the first eco-industrial zone at the Eco Champion Level in the country. Furthermore, PTT WEcoZi also participated in the Thailand Voluntary Emission Reduction Program (T-VER) of the Thailand Greenhouse Gas Management Organization of Thailand, recognized for its capacity to reduce more than 20,000 tons of carbon dioxide equivalents throughout its lifetime.

Following the 21<sup>st</sup> Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), where Thailand submitted its Intended Nationally Determined Contribution (INDC), PTT committed to supporting the country's greenhouse gas reduction efforts by setting the target to reduce PTT Group's greenhouse gas intensity by 5%, by 2020, compared to a 2012 baseline.

Nevertheless, the past year proved a challenging one for global oil and gas industries, faced with declining oil prices and volatility in the world economy. In response, PTT focused on developing our areas of strength and maximizing the resources in hand; reducing unnecessary costs, combining and consolidating investments to reduce capital spending, and building on or expanding investments to manage risks and generate added value. We further pursued our objective of securing a sustainable energy supply for the country by investing in Natural Gas Pipeline No. 5 to connect to the existing pipeline network, for a more secure and uninterrupted supply of natural gas. Such measures demonstrate our efforts in reinforcing our organizational strength and competitiveness for the future.

Despite these challenges, PTT remains confident in sustainable business management as a means to enhance our organizational resilience. Our success in creating a more sustainable business model has similarly been recognized. For the fourth year, PTT was listed as a DJSI World Member in the Oil and Gas Industry.

I would like to express my sincerest thanks to all of our stakeholders for their continuous support and encouragement. I am assured that PTT will persist in its dedication to deliver a sufficient, accessible, fair, and sustainable energy supply, while effectively balancing our business conduct on the basis of transparency, accountability, and responsibility to communities, societies, and the environment. As the national energy company, we will continue to strive towards becoming the pride of the Thai people, growing sustainably for the future.



**Tevin Vongvanich**

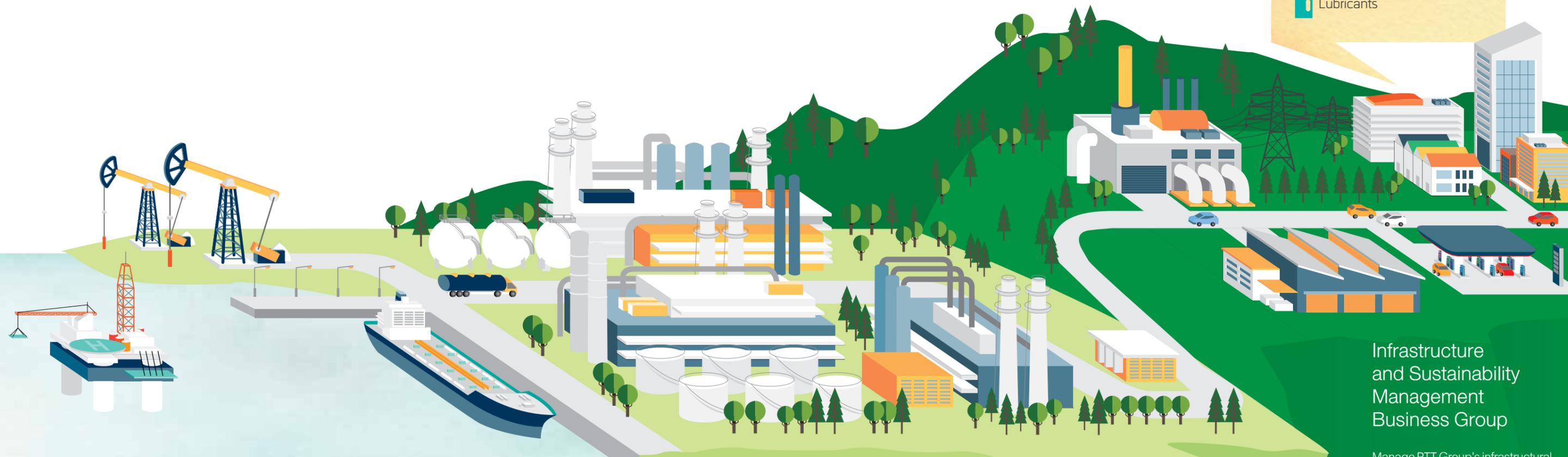
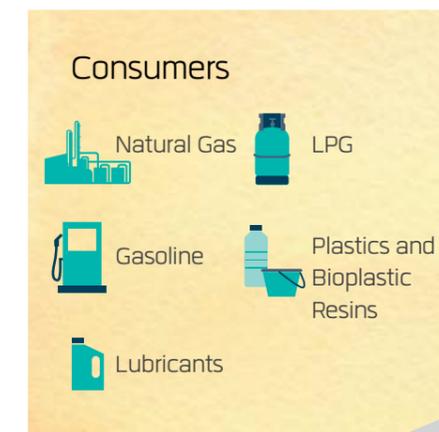
President  
and Chief Executive Officer



# PTT Business

PTT Public Company Limited, or PTT, is the national energy company listed in the Stock Exchange of Thailand (SET). It is a state-owned enterprise under the supervision of the Ministry of Energy with the Ministry of Finance as a major shareholder. Engaging in fully integrated energy and petrochemical businesses with the mission to balance stakeholders' interests, PTT invests in the energy supply chain ranging from upstream to downstream businesses.

At the same time, PTT is determined to create added value for consumers through business expansion in several dimensions. The overall operations of PTT include PTT-operated businesses, comprising Gas Business Unit, Oil Business Unit, International Trading Business Unit and Infrastructure and Sustainability Management Business Unit, and businesses invested through PTT Group companies, consisting of petroleum exploration and production, coal, and petrochemical and refinery businesses.



## Upstream Petroleum and Gas Business Group

**Petroleum Exploration and Production Business:** Invest in petroleum exploration and production including natural gas, condensates, and crude oil from local sources and overseas.

**Natural Gas Business:** Operate a fully integrated natural gas business including natural gas supply from local sources and overseas, distribution of natural gas to the power sector, industrial sector, and as an alternative fuel for vehicles, as well as engaging in natural gas infrastructure network and transportation.

**Coal Business:** Conduct energy business abroad in search of new and renewable energy sources to bolster energy security for the nation, while building on current businesses.

## Downstream Petroleum Business Group

**Oil Business Unit:** Market petroleum products including refined petroleum products and Liquefied Petroleum Gas (LPG), lubricating oil, and retail products both in local and international markets.

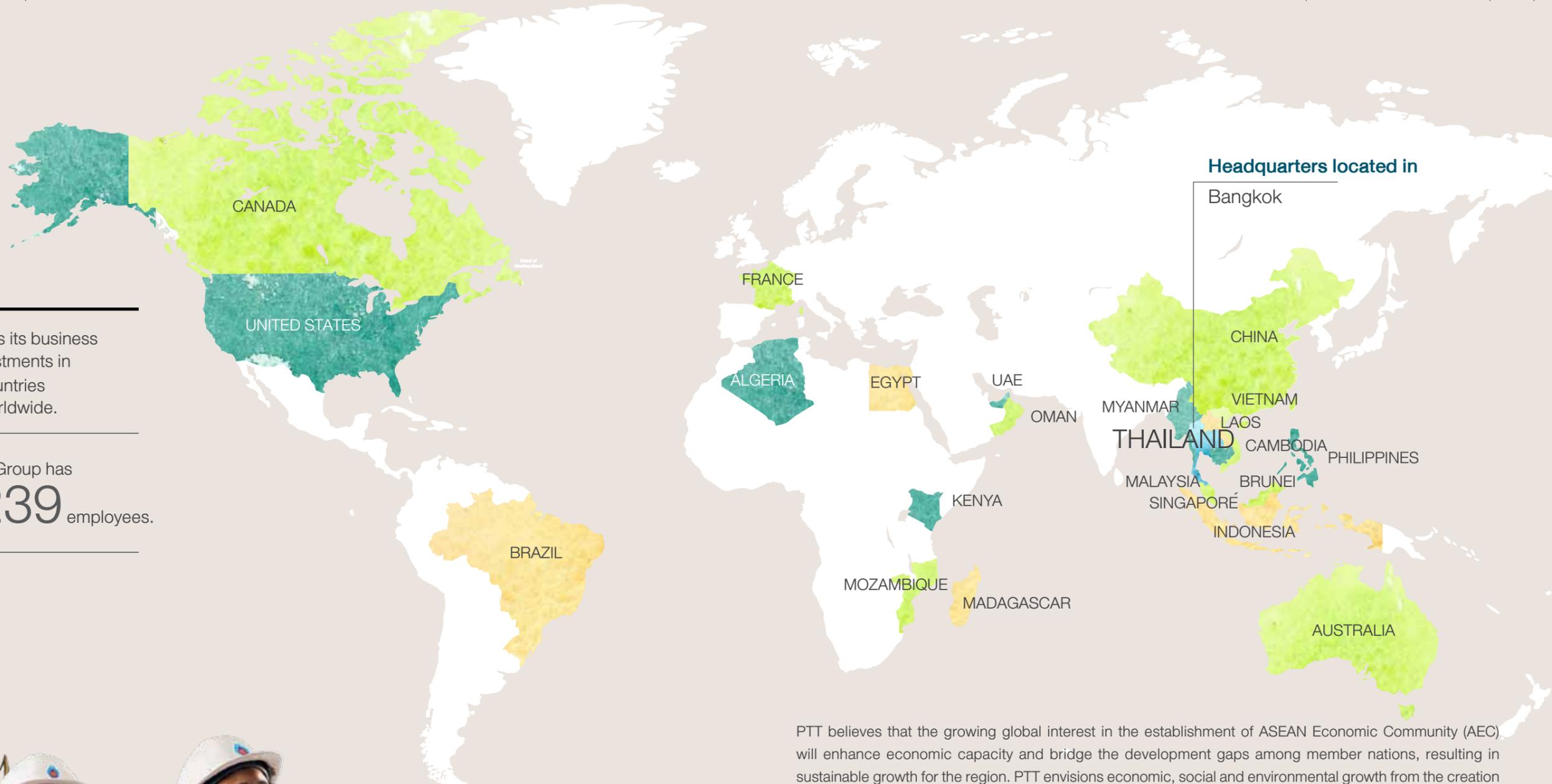
**International Trading Business Unit:** Operate a fully integrated international trade business consisting of crude oil, condensates, refined oil products, Liquefied Petroleum Gas (LPG), petrochemical products and other alternative products such as crude palm oil and biomass, under a strategic framework designed to enhance national energy security, in tandem with the expansion of trading bases to all regions around the world, covering local procurement, import, export, and overseas trading.

**Refinery Business:** Invest in the refinery business where PTT procures crude oil and buys refined products from PTT Group refinery companies for further distribution to its customers.

**Petrochemical Business:** Invest in a fully integrated petrochemical business covering production and distribution of upstream, midstream, and downstream petrochemical products.

## Infrastructure and Sustainability Management Business Group

Manage PTT Group's infrastructural assets to maximum efficiency, covering asset and property management, onshore and subsea gas transmission pipelines, NGV distribution for vehicles, land development, sustainability management and project engineering, and research and technology development of PTT Group.



PTT conducts its business through investments in **23** countries worldwide.



In total, PTT Group has **30,239** employees.

[www.pttplc.com/en/about/](http://www.pttplc.com/en/about/)



PTT believes that the growing global interest in the establishment of ASEAN Economic Community (AEC) will enhance economic capacity and bridge the development gaps among member nations, resulting in sustainable growth for the region. PTT envisions economic, social and environmental growth from the creation of AEC; therefore, it has conducted studies on member countries, and formulated strategies and business plans for PTT Group in the short, medium, and long terms. These help prepare PTT Group for continued investment expansion that will cover the entire ASEAN region. For example, the construction of oil terminals and pilot service stations in neighboring countries including Laos, Cambodia, Myanmar, and the Philippines. Strategic plans for investment and business operations are adjusted to suit the environment of each country, aiming to elevate the livelihoods of communities and local entrepreneurs. PTT Group's employees are encouraged to acknowledge and understand relevant business operations and their corresponding positive and negative impacts through awareness raising, continuous readiness monitoring, as well as the involvement of PTT Group management in policies and operations.



# Business Strategy

## Business Strategy

For the past 37 years, PTT has moved forth in fulfilling its vision in becoming the Thai Premier Multinational Energy Company. With the mission to ensure energy security while taking into consideration the expectations of all stakeholders, PTT builds a business strategy that places the right balance amongst High Performance Organization, Corporate Governance, and Corporate Social Responsibility. The organizational values, SPIRIT, serves as a guideline for all executives and employees in striving towards excellence (Synergy, Performance Excellence and Innovation) and ethics (Responsibility for Society, Integrity and Ethics, Trust and Respect) within PTT and for the wider society, allowing the cultivation of a solid corporate culture, a clear direction, and synergy necessary for strong and sustainable growth.



Synergy      Performance Excellence      Innovation      Responsibility for Society      Integrity & Ethics      Trust & Respect

# SPIRIT

## 2015 Strategy

PTT and PTT Group companies work in collaboration to set strategy on an annual basis. This is done through the analysis of data as well as short and long-term business trends, and the review of SWOT analysis to identify challenges, business opportunities, strategic objectives and core competencies. In doing so, PTT Group is able to formulate the short and long-term strategic plans that are responsive to changing circumstances and potential risks. In 2015, PTT conducted its business based upon the 3 key strategies of technology, sustainability, and portfolio management, as follows.



## Technology

PTT developed technologies to support business growth focusing on 4 primary areas:

### Target

Allocate at least 3% of PTT Group's annual net profit for PTT Group's research and development

Study technologies employed in existing processes in order to develop PTT Group's capacity

Drive PTT Group's innovation culture through proprietary technology and patents

Generate 20% of PTT Group's revenue from technology by 2020

### Performance

Allocated approximately 5.7% of 2014 net profit for research and development, and developed a fund and management guideline to enable PTT Group to invest in target technologies for maximum benefits.

Developed substitute products to reduce imports, including anti-corrosive chemicals for inner-pipe, anti-corrosive chemicals for flange and sorbent chloride.

Collaborated on projects using the expertise of each company to expand research to new businesses and reduce research duplications, as well as build the PTT Group database for technology management. At present, PTT Group licensed two technology patents including Green ABS by IRPC and PTT Diesel CNG by the PTT Research & Technology Institute.

PTT Group strives for continuous improvement to increase revenue from technology, and is developing an indicator that can clearly identify revenue from technology for long-term use.



## Sustainability

PTT operates an environmentally-friendly business under the Green Roadmap. The Green Process focuses on increasing energy efficiency and reducing greenhouse gas emissions. The Green Product guides research and development of products and alternative energy. In addition, PTT increases Public Awareness over environmental conservation to create energy security and respond to stakeholders' expectations.

### Target

Generate 2% of PTT Group's revenue from green products by 2020

Reduce greenhouse gas intensity by 5% by 2020 compared to 2012 baseline

Increase quality forest area to achieve the target of 2.1 million tons of carbon dioxide absorption

Create public awareness to communicate reputation in line with the strategic target as well as build and maintain relationships with stakeholders

### Performance

Realized 44,000 billion baht from green products accounting for 1.5% of total new product development in line with the 2020 target.

Reviewed the investments in new projects related to the greenhouse gas emission reduction, due to the impact of oil price fluctuations on the organization's financial liquidity. However, in 2015, PTT Group could reduce greenhouse gas emissions to 84.74 kgCO<sub>2</sub>eq/BOE, better than the target of 88.5 kgCO<sub>2</sub>eq/BOE. This shows that PTT Group is on track to meet its long-term greenhouse gas intensity target.

Absorb 1.89 million tons of carbon dioxide per year and on track to achieve the target at 2.14 million tons per year in 2018.

Promoted awareness, communicated efforts regarding green technology and innovation such as PTT WEcoZi and the PTT Group Energy Efficiency Roadmap, as well as enhanced understanding towards the organization and energy issues.



## Portfolio Management

PTT Group's portfolio management aligns with corporate direction and strategy. PTT developed the Investment Compass Matrix as a tool for effective investment analysis and PTT Group's competitive advantage assessment.

### Target

Top Quartile ROIC in Asia-Pacific over Cost of Capital

### Performance

- Prepared PTT Group's investment analysis based on Business Groups; developed investment guidelines for various circumstances and presented them at management's Top Thinking Session (TTS)
- Developed investment improvement plans for Upstream Petroleum and Gas, Downstream Petroleum, and Infrastructure and Sustainability Management Business Groups to be presented at the management's Strategic Thinking Session (STS) meeting. The plans guide the development of corporate plans that aligns with the business direction.

## 2016 Strategy

Public trust remains a key challenge for the organization as it may present an obstacle for the business and its sustainable growth. Therefore, PTT has made it the top priority to formulate strategies that enhances the acceptance and admiration of the public towards the organization as Thailand's national energy company. PTT defines the 2016-2020 corporate plan under 2 key strategies, as follows.

### Pride with Inclusiveness Strategy includes:

- Managing stakeholders holistically, proactively and reactively, for example through impact assessment, issue prioritization, and outcome monitoring.
- Strengthening internal and external capacities, for example, instilling the organizational values, SPIRIT, into management's and employees' DNA alongside with developing them to become PTT Brand Ambassadors, especially on R-Responsibility, I-Integrity, and T-Trust.
- Operating on the basis of good corporate governance, for example, upgrading PTT's anti-corruption actions to the international level, and strengthening the anti-corruption network through collaboration with relevant parties.

### Treasure for Sustainability Strategy includes:

- Upstream Petroleum Business Group's corporate plan including PTTEP and Coal Business, for example, maintaining production of current projects, proving new reserves and increasing production, as well as reducing operational costs.
- Gas Business Group's, Infrastructure Business and Sustainability Management Group's and GPSC's corporate plans include increasing energy efficiency in operational processes, growing energy networks to serve long-term natural gas demand, and expanding investments in renewable energy.
- Downstream Petroleum Business Group's corporate plan including Oil, International Trading and Petrochemical and Refinery Business Units, for example, providing support to social enterprise policy, process efficiency improvement, and PTT Group collaboration.

In 2016, PTT will focus on the implementation of the Pride & Treasure of Thailand Concept through the enhancement of organizational value R-I-T, by seeking support from several Champions as follows.

**Mr. Sarun Rungkasiri**

Chief Operations Officer,  
Downstream Petroleum  
Business Group and Club  
President of Thai Volunteer  
Force



*Champion*

Corporate social responsibility aspect to reinforce the volunteer work of PTT Group employees on social activities.

**Mr. Wirat Uanarumit**

Chief Financial Officer



*Champion*

Business operation aspect on the foundation of good corporate governance, transparency and ethics, as well as instilling the sense of honesty, integrity and anti-corruption of all kinds.

**Mr. Auttapol Rerkpiboon**

Senior Executive  
Vice President,  
Oil Business Unit



*Champion*

Corporate communication aspect to build trust and understanding towards PTT's operations in achieving the nation's energy security and economic prosperity, while balancing stakeholders' expectations, and gaining public confidence and trust.

# Stakeholder Engagement



PTT is committed to engaging with stakeholders through a fair, efficient, and systematic approach, to identify important stakeholders, integrate their expectations into company strategy, and consistently monitor and communicate with relevant stakeholders.



## Management Approach

PTT's stakeholders are classified according to 6 main groups: country, community and society, shareholders, customers, partners, and employees. PTT's stakeholder engagement strategy, policy, and management approach are developed by the responsible functions using information from stakeholder engagement activities, issue management, grievance mechanisms, and stakeholder perception evaluation. The results are used to determine appropriate engagement methods to each of their needs, and set KPIs to monitor performance.

In 2015, PTT developed a stakeholder management system to be used in tandem with business decision-making, which has already been utilized in the Strategic Investment Management Process. It is planned that the system will expand its coverage for use with important decision-making processes to ensure that PTT can proactively and comprehensively respond to both stakeholder needs by integrating results from stakeholder satisfaction and perception surveys into the decision-making process.

PTT defines ▲missions in order to engage each group of stakeholders by providing ●various channels of engagement to perceive ■ the stakeholders' expectations.

### Country

- ▲ Provide long-term energy security for Thailand and support economic growth
- Organize regular meetings between PTT management and the Minister of the Ministry of Energy on important issues, to ensure that its business aligns with governmental policy.
- Expect PTT to be a transparent, accountable organization that adheres to principles of good governance; set fair energy prices and disclose information that can be easily understood.

### Community and Society

- ▲ Be a good corporate citizen, manage environmental impacts, and engage in the improvement of livelihoods for communities
- Engage with communities in areas of operations to gather their opinions and build understanding on PTT's projects, by conducting public participation for the Natural Gas Transmission Pipeline No. 4 (Rayong-Khaeng Khoi), the Onshore Gas Transmission Nakornratchasima Project, and the Onshore Gas Transmission Nakornsawan Project. A grievance was received from the Natural Gas Transmission Pipeline No. 4 (Rayong-Khaeng Khoi). (For more information, please see 'Capital Project Management' under the Operational Excellence Chapter).
- Engage with communities and societies through collaboration with various institutions, such as the PTT Reforestation Institute (to continue the 'Wang Chan Forest Project' and officially launch 'PTT Green in the City'), the Green Globe Institute, and the Sustainable Energy Foundation.
- Expect PTT to conduct its business for Thai people, and be a source of pride of Thai people through ensuring economic security, transparent and fair operations, and develop innovations for the environment.

### Shareholders

- ▲ Deliver decent returns from commercial operations
- Host the Annual General Meeting for Shareholders (AGM) according to the Thai Investors Association's AGM Checklist standard to gain feedback from shareholders and communicate performance. PTT received a full score from the AGM Checklist Assessment, which was classified as 'Excellent.'
- Expect PTT to work towards energy security, develop technologies, promote renewable energy, be able to compete internationally, and continue to expand investments.

### Partners

- ▲ Jointly operate business on the basis of fairness and enhance long-term business potential
- Expect PTT to operate business transparently, good governance and accountability, and to have a role in Thailand's sustainable growth.
- Organize an annual Supplier Relationship Management Seminar to communicate the organization's supply chain management policies and management approaches, and to gain suppliers' opinions on improving procurement processes for better efficiency. The seminar also increases suppliers' understanding and satisfaction within the scope of regulations and PTT's requirements, and enhances effectiveness in collaboration.

### Customers

- ▲ Build customer satisfaction and engagement through good quality products and fair pricing
- Conduct a Customer Satisfaction Survey to improve product and service quality and to continuously improve performance.
- Expect PTT to provide products with lower energy costs
- PTT Call Center 1365, which provides services, coordinates requests, receives grievances, and follows up on issues.

### Employees

- ▲ Support employee capacity development and ensure the quality of life
- The President and CEO directly communicates with the executives and employees through various channels such as e-mails, Townhall Meetings, and social networks (Facebook: Tevin at PTT).
- Expect PTT to incorporate findings from the employee engagement survey to improve human resources management.
- Hold a monthly PTT Joint Consultant Committee Meeting to review grievances and suggestions from employees.
- Conduct annual Employee Engagement Surveys and incorporate findings into policies and improvement plans in order to improve employee engagement in the future.

# Sustainability at PTT



In 2015, PTT remained steadfast in its commitment to conducting business upon the foundation of sustainability – delivering globally-recognized performance standards. The PTT Group Sustainability Alignment Committee, consisting of representatives from PTT business units and PTT Group companies, assumes an important role in establishing the company's strategic sustainability direction, providing support for and deploying the PTT Group Sustainability Management (SM) Framework across PTT Group, and monitoring sustainability performance through various verification procedures, including annual self-assessments, 3-year third party assurance, and external report verification. Progress on sustainability performance is further reported to the Corporate Governance Committee on a quarterly basis. PTT's performance in 2015 can be summarized, as follows.

## Content

Details of sustainability management plans were updated to ensure better alignment with the PTT Group Operational Excellence Management System (OEMS). Operational Excellence Sustainability Forums were held for PTT Group employees specializing in each element of the SM Framework to share knowledge and learn from recommended practices in sustainability. Such activities allow for the standardization of recommended practices across PTT Group, ensuring that they can be applied to different operations as appropriate.





## Deployment

The PTT Group Sustainability Management Project organized a company-wide sustainability training course in order to communicate the contents of the SM Framework to PTT employees at all levels. For PTT Group subsidiaries, the SM Framework was deployed through the PTT Way of Conduct. PTT played a supportive role in enabling the organization to announce its own sustainability policy. Presently, 25 PTT Group companies and subsidiaries operate their businesses in accordance with the SM Framework.

## Conformance

PTT Group subsidiaries, under the scope of the PTT Way of Conduct, carried out self-assessments to determine their initial level of conformance to the SM Framework. Results have subsequently been used in developing business strategies and plans, and reported to respective levels of management. Following this process, subsidiaries underwent various verification procedures as stipulated by PTT, where an independent third-party assurer was assigned to assess functions responsible for sustainability management on their maturity in various dimensions of sustainability performance, according to the elements of the SM Framework. The SAC received regular updates on maturity assessment results.

## Performance

PTT's sustainable business operations and continued performance in alignment with the SM Framework resulted in its successful selection as a member of the Dow Jones Sustainability World Index, Oil and Gas Sector, for the 4<sup>th</sup> consecutive year. This accomplishment reflects PTT's adherence to business standards that value the relationship between economic, social, and environmental dimensions of sustainability, and on engagement with all stakeholders. It is, moreover, a testament to the organization's ability, both in terms of size and performance, in delivering sustainable returns to its shareholders. Extending further to successes at the group level, PTTEP, PTTGC, TOP, and IRPC were all selected as DJSI Members, an outcome of not only the continuous sharing of recommended practices, but PTT Group's commitment as a whole to creating and generating long-term value for all stakeholders.

Finally, in understanding its responsibility as a role model in sustainability, PTT committed to expanding a sustainable society by promoting the concept of sustainable development and sharing its own experiences across different national and international platforms. Ultimately, this will foster a strong, sustainable economic foundation for the secure growth of the nation.



# Organizational Governance



“

PTT is committed to good governance as a means to efficiently determine, control, and make decisions on organizational matters. In doing so, PTT embeds sustainability principles reflected by the development of a sustainability management system alongside proactive risk and crisis management in order to achieve the organization's vision.

”

## Corporate Governance and Fair Operating Practices

PTT upholds the principles of good governance as a foundation for business operations. Transparency, accountability, fair operating practices, and balancing stakeholders' interests are fundamental to attaining public trust and driving PTT towards its mission on providing energy security.



ความรู้สร้างอนาคตใหม่



The Board of Directors, management, and employees are strictly required to comply with PTT's Corporate Governance Policy, and adhere to the Corporate Governance, Ethical Standards and Code of Business Ethics Handbook (CG Handbook), which guides business conduct and shared organizational values, along with the consideration of all stakeholders. To guarantee that business operations are conducted upon the basis of good governance, PTT appointed the Corporate Governance Committee to monitor, review, and provide recommendations to the corporate governance working group on a quarterly basis.

PTT instills an organizational culture that enhances the understanding of the Board of Directors, management, and employees on their duties and responsibilities over fair operating practices. This enables the company-wide application of good governance principles, and communication and engagement with relevant stakeholders. In achieving this, PTT has taken on a wide range of approaches, for instance, appointment of a corporate governance working group, and employees' acknowledgement of the CG Handbook prior to commencing their duties. PTT also promotes understanding on good governance principles through CG E-Learning and CG Day, as well as broadcasts news through the CG Intranet. In addition, PTT requires employees in all levels to disclose any conflicts of interest on an annual basis. This is to identify immediate preventative measures which are necessary to averting probable risks to the organization. In the past year, there were no cases of significant conflicts of interest.

## In 2015



In order to confirm effective good governance practices and ensure that the organizational management approach is appraised based on international standards, PTT recurrently arranges internal and independent assessments. In the previous year, PTT was amongst the Top 50 ASEAN Plc, according to the ASEAN CG Scorecard. Similarly, PTT has been recognized for its excellent performance for 7<sup>th</sup> consecutive year from the survey of Corporate Governance Report of Thai-listed companies conducted by the Thai Institute of Directors.

PTT's internal assessments include assessment on committees and employees of all levels. Committee assessments promote accountability in governance, and are beneficial in improving effectiveness of overall business operations. These comprise assessments on the entire committee and individual directors (including self-evaluation and peer evaluation), committee assessments on particular issues, and assessment conducted by independent assessors. An independent assessment by the State Enterprise Policy Office, Ministry of Finance, is conducted on an annual basis, while that by the Thai Institute of Directors occurs every two years. At the employee level, PTT assesses their knowledge and understanding on governance principles, which in 2015 showed a satisfactory result of 94.41%, higher than the expectation of 85%.



### PTT Group CG Day

“Shade of Sharing...Passing the Power Forward”

Every year, PTT Group co-organizes PTT Group CG Day to encourage employees' understanding on good governance, and build a network of good people. Likewise, the event promotes good business conduct based on the principles of transparency and fairness, which extends to its stakeholders. This cooperation is the effort of 6 companies, including PTT, PTTEP, PTTGC, TOP, IRPC, and GPSC. The educational and entertainment activities at this event further provided participants and their business partners with knowledge from discussions by senior executives on “The Role of PTT Group in Promoting Ethics and Transparency to Its Stakeholders,” and also included an exhibition on PTT's good governance performance towards their stakeholders, and musical plays.

“As a state-owned enterprise and public company, PTT has a challenging task in responding to the expectations of many different stakeholder groups. It is vital to gain understanding, acceptance, and trust from society - help them to understand the benefits from our goodwill. We also put emphasis on our internal stakeholders, be it employees or executives, to uphold fair operating practices in a way that will holistically benefit all groups of stakeholders. I would like to urge all employees to always bear in mind the principles of good corporate governance. Corporate governance is not a rigid procedure nor one-size-fits-all principle; there are no specific guidelines on a given situation. However, it requires a deep understanding and consciousness of these principles. Our company's internal activities are useful in that regard – it reinforces our commitment to CG, contributes to the sharing of opinions and understanding, and helps us to learn from each other on the appropriate responses for any particular situation. These efforts are working to continuously shape PTT Group's executives and employees into the good and responsible individuals that they are.”

#### Mr. Tevin Vongvanich

President and CEO  
Remark on the “Role of PTT Group in Promoting Ethics and Transparency to Its Stakeholders”  
at PTT Group CG Day 2015



## Anti-corruption

PTT Group strictly opposes all forms of corruptions – either direct or indirect. PTT, PTTEP, PTTGC, TOP, and IRPC manifested this commitment through the ratification of and membership in Thailand's Private Sector Collective Action Coalition against Corruption. Moreover, in the previous year, PTT added the Anti-corruption Policy into the PTT Way of Conduct and CG Handbook, to instill an awareness of anti-corruption into employees' way of thinking – for zero corruption in PTT Group.



In 2015, PTT in collaboration with the Ethical Standard Promotion Bureau under the Ombudsman of Thailand and the Securities and Exchange Commission to organize a training course on ethics and anti-corruption for PTT Group employees, whose roles are involved in good governance conduct, as well as for interested employees. The course aimed to instill knowledge and understanding on all aspects of anti-corruption, and was closed with a satisfaction score of 86.6% from the post-training survey. In 2016, PTT will continue to organize the training so as to further elevate good corporate governance standards for relevant employees.

In achieving its anti-corruption commitment, PTT encourages all employees to inquire when in doubt, and report any suspicious activities, misconduct, or cases contradicting PTT's Code of Business Ethics. Punishment measures are applied on those failing to adhere to the Anti-corruption Policy. In 2015, PTT was assessed on the Anti-corruption Progress Indicator by the Securities and Exchange Commission and Thaipat Institute, and awarded the 5<sup>th</sup> Level, or 'extended to involved parties,' – the highest level for the assessment, reflecting PTT's commitment in deploying the Anti-corruption Policy to all relevant stakeholders, and remaining disassociated with any cases of bribery.

## Respect for Human Rights

PTT upholds the United Nations High Commissioner for Human Rights' 'Protect, Respect, and Remedy' Framework by respecting the rights of all stakeholders. PTT generates awareness amongst employees on the rights to which they are entitled through the integration of human rights principles in business operations, as doing so helps mitigate the risks of human rights violations at all levels and operational sites. To achieve this, PTT has put in place the PTT Group Human Rights Guidelines, and defined human rights as a major element in the PTT Group SM Framework and PTT Group Security Management Standard. Furthermore, PTT appended the issue of human rights into the Leadership Development Program and orientation program for new employees.

Last year, PTT conducted a human rights risk assessment to identify business activities that could pose potential risks to human rights, enabling PTT to determine preventative and risk mitigation measures. Assessments were conducted on activities under PTT's operational control in 22 countries, and involved the identification of issues, impacts on vulnerable groups, and impact likelihood at national, business, and individual levels. In addition, PTT drafted a human rights risk assessment procedure for relevant parties to apply in their operations.



In order to promote human rights principles and their implementation in the organization, the

PTT Leadership and Learning Institute (PLLI) regularly organizes a training course providing basic knowledge on human rights for employees working in the field of human resources, legal, and sustainability management. The course aims to provide knowledge on national and international human rights frameworks, enriching participants' understanding about the value and dignity of humans – the basic principles of human rights. The training also emphasizes on the application of human rights knowledge in relevant areas of work.

## Risk and Crisis Management

Effective company-wide risk and crisis management is fundamental to reinforcing PTT's resilience in promptly managing crises and uncertainties, maintaining trust amongst its stakeholders, and reducing long-term business impacts. PTT has, therefore, established policies and procedures for proactive risk management across the organization, developed a business continuity management system and preventive measures, as well as promoted an organizational risk culture that encourages employee engagement in risk management at all levels.

Building public trust remained a priority area for PTT in 2015. Given that certain circumstances and negative media portrayal may impact upon PTT's reputation and the extent of public trust in the organization, PTT initiated a strategy for proactive issue management to analyze news trends and enhance public understanding on issues that may generate both short- and long-term impacts. Inclusive stakeholder engagement was likewise strengthened to gather public opinions and clarify points of concern. For instance, PTT developed various activities to disseminate knowledge on energy to the public, and to explain PTT's role as national energy provider. Engaging with stakeholders on these issues is thus part of the wider effort in preparing the organization for new and emerging risks that could potentially bring about unprecedented impacts on PTT's business.

Meanwhile, PTT has continued to manage risks arising from economic uncertainties to adapt to fluctuations in the energy industry and volatile prices of petroleum and petrochemical products. This was achieved by reviewing and updating guidelines to reflect current economic conditions, including by implementing risk management tools in each business unit, reducing costs and increasing efficiency in production, and closely monitoring market conditions.

## Preparation for Emerging Risks

PTT recognizes the importance of managing emerging risks that may significantly impact business objectives, or even alter the broader context of business operations. As a result, such risks are incorporated into company risk profiles so that they may be closely monitored and managed, allowing PTT to heighten its preparedness despite any current ambiguities surrounding the impact and likelihood of those risks. At the same time, it also helps PTT to seize opportunities from those risks to achieve secure and sustainable growth.

PTT anticipates that long-term emerging risks would revolve around natural gas production. Besides uncertainties in the volume of natural gas reserves available in the country, trends currently indicate an increase in the costs of developing natural gas reserves and petrochemical bases, as well as an increase in natural gas prices concurrent with a decrease in production volume. This would likely result in the reduction of production capacity of PTT's Gas Separation Plant, preventing it to meet domestic demand. Moreover, technological advancements in finding economically viable alternative energy sources might also impact the competitiveness of natural gas compared to other types of energy. Overall, these factors are crucial to the long-term growth of PTT Group and its ability to provide energy security for the country in the future.



## Risk Culture

PTT encourages all of its executives and employees to take ownership in risk management. This involves engaging in effective risk management practices, and being aware of any risks that could occur in the process of their work, such as unexpected risks and emerging risks with unclear impacts. For the management levels, PTT ties Key Risk Indicators (KRI) to executive performance so as to stimulate accountability for risk management, further linking these KRIs to organizational risk profiles. At the employee levels, PTT promotes a risk culture by providing learning and development programs on risks and risk management in core training programs and technical training programs under each career path, allowing employees to understand and apply risks as appropriate to their roles and responsibilities. Examples include:

- **Elementary Level: Risk Awareness**

Develop employee understanding on the meaning of risks, to highlight the importance of risk management, and to raise awareness on risks.

- **Intermediate Level: Risk Management Principles and Guidelines**

Provide learning on PTT's Enterprise Risk Management, which is in compliance with international risk management standards including COSO ERM and ISO 31000, so that

employees can identify risks, develop mitigation measures, and monitor risk indicators to assess efficiencies in risk management plans.

- **Advanced Level: Value at Risk**

Provide employees with knowledge on how to calculate risk values, as a tool to demonstrate possible losses from business uncertainties. Support employees in understanding the advantages and disadvantages of risk value models, and help them to summarize results for executives to further manage risks.

In addition, PTT promotes an effective risk culture by working to change the perception that PTT Group employees may have on unexpected events, specifically the Black Swan Events, which have low likelihoods of occurrence but considerably high business impact. This is to strengthen employees' capacity to effectively and systematically prepare for such events, and to integrate them into relevant management systems. Not only that, the PTT Way of Conduct also serves as a common guideline for all employees to increase their confidence in risk management to mitigate impacts throughout PTT Group's supply chain. In 2015, PTT improved its emergency and crisis management plan by using the Black Swan Events as the basis of crisis simulations. Lessons learned from these crisis simulation activities were also utilized to improve PTT's emergency plans and business continuity management.

# Value Chain

“

PTT strengthens its supply chain management in order to develop a strong capacity for business growth together with its suppliers, in tandem with managing supply chain risks to promote Thailand's energy security. PTT further strives towards product stewardship to respond to the expectations of its customers.

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## Supply Chain Management

### Supplier Management

PTT's supplier management is classified into 2 levels: Corporate Level – procurement of products and services, and Business Unit Level – procurement of products specific to each business unit's requirements. In 2015, PTT announced the PTT Group Sustainable Procurement and Supplier Management Policy and began implementing the revised Environment, Social and Governance (ESG) Risk Assessment Tool and risk evaluation criteria to effectively prevent and mitigate risks. Two dimensions of risks were assessed: supplier risk, and risk to PTT as a buyer, covering economic, environmental, safety and reputational risks in terms of





No Non-compliance Cases  
in the Supply Chain



**100%**  
Supplier Audits  
Conducted as Planned



**100%**  
of Audited Suppliers  
with Corrective Action  
Plans have Improved  
Their Performance



More Than  
**1 Trillion Baht**  
Revenue from Supply Chain  
Collaboration

their impacts to PTT and its stakeholders. The risk assessment, conducted on 228 supplier groups as classified in the vendor list, divided suppliers according to 3 risk levels: Strategic, Key and Manage. Suppliers falling under the Strategic group are required to conduct the Sustainability Performance Assessment. Those whose scores on the assessment are lower than the threshold specified by PTT must submit corrective action plans with a committed timeline.

Suppliers whose trade value with PTT exceeds 2 million baht are required to sign an acknowledgement of and strictly adhere to the PTT Group Supplier Sustainable Code of Conduct (SSCoC). The SSCoC details the scope of business operations in accordance with applicable laws and regulations. There are 4 areas where compliance is necessary: fair operating practices, corporate social responsibility, safety, and environmental management. PTT encourages suppliers to recognize the importance of embedding sustainability into business operations through the introduction of ESG Standard Terms of Reference (TOR) in the general TOR, and has communicated its expectations to 100% of its suppliers. In the case that an incident of non-compliance is found, PTT will implement a stop work authority that lasts until corrective actions are taken, or terminate the contract. In 2015, there were no claims or non-compliance cases concerning laws and

regulations from suppliers and contractors. Additionally, PTT developed a performance assessment system for the post-delivery of products and services that evaluates suppliers on factors such as quality, delivery, servicing, operations, as well as safety, occupational health and environment in cases of risk. At the initial stage, suppliers will be informed about their assessment results to further develop their capacity. However, suppliers scoring lower than PTT's required threshold will be removed from the vendor list.

PTT performs audits on suppliers and contractors for oil products on a regular basis, enabling PTT to work with them on identifying risks, formulating corrective action plans, and following up on actions. This is to ensure that their management and practices are in compliance with PTT's requirements, applicable labor and environmental laws, as well as standards, including, ISO 9001, ISO 14001, and OHSAS 18001. In 2015, PTT completed audits on 24 suppliers as planned. Suppliers whose audit results did not meet PTT's expectations, for instance, suppliers with deteriorating and unsafe conditions inside their plants and labs, were required to submit timely corrective action plans for PTT's consideration, and carry out improvements as necessary.

## Risk Management for Business Continuity

All business units manage supply chain risks as guided by the Enterprise Risk Management System, and set specific KRIs suitable for different work characteristics to mitigate risks that could impede business operations, and ensure energy security both quantitatively and qualitatively. For the International Trading Business Unit, risk management measures are designated according to each type of product. This includes, for instance, entering into a long-term contract with petrochemical gas suppliers based on analysis of long-term domestic demand for petrochemical gas; and partnering with refinery companies in PTT Group to sign a long-term contract with crude oil suppliers as a way to secure quality crude oil delivery. In chartering freight, PTT employs the PTT Ship Vetting System, which is in line with the Oil Companies International Marine Forum (OCIMF) standard, to ensure safe product transport and minimize impacts on the environment and on communities.



## Supplier Engagement

PTT regularly organizes the Supplier Relationship Seminar to communicate its policies and business directions, sustainable business practices, and Green Procurement guidelines to suppliers for their acknowledgment and implementation. PTT additionally uses this opportunity to verify issues that are of interest to suppliers, so as to improve future engagement processes. Following the seminar, any issues raised are compiled for further consultations with relevant functions to determine solutions, and results from the seminar have also been incorporated into the development of a PTT Supplier Guidebook, available for download at [www.pttplc.com](http://www.pttplc.com).

PTT builds its employees' capacity, specifically those related to procurement activities, to enhance effective

collaboration with suppliers and contractors for continued supplier satisfaction. This includes training courses that promote sustainable supplier management. For example, PTT Group Sustainability Management Training covers an element on supplier management; Procurement Training integrates ESG criteria into the supplier selection and procurement processes; and Green Procurement. Likewise, PTT focuses on developing employees' skills in using newly developed systems to support procurement activities. The systems include work tracking and product approval processes in which supplier performance assessments are added after the product is delivered. Finally, PTT appoints sustainability-related KPIs for procurement staff, incentivizing them to integrate sustainability into their decision-making process.

In 2015, the overall supplier satisfaction towards the collaboration with PTT's procurement unit increased to 87% due to the improvements in efficiency, and supplier engagement.



**87%**

## Supply Chain Collaboration

PTT collaborates with PTT Group companies in order to improve efficiency, elevate supply chain management, and create alignment throughout the organization. In the past year, PTT moved forward in the Group Integrated Supply Chain Management and Optimization (GISMO) Project, a collaboration between PTT Group refinery companies including TOP, PTTGC, and IRPC. GISMO is consisting of:

- **Petrochemicals and Refining Integrated Supply Chain Management (PRISM):** Maximizing the efficiency of oil tankers by long-term freight chartering to transport crude oil from petroleum production sites to refineries located in various areas, as well as sharing loading areas on the vessel. Consequently, the cost saving amounts to 100 million baht per year. One of the sub-projects under PRISM, crude oil and petrochemical products price forecasting, helped PTT Group to incorporate current economic conditions into business planning, and additionally promoted regular information sharing on price forecasts to the government over the past year.



- **Group Logistics Management (GLM):** Preparing logistics infrastructure to serve future business expansion, as well as to build capacity through collaboration between 11 companies under the Downstream Petroleum Business Group to reduce costs and add value. In the past year, a product discharge standard was developed for refineries in PTT Group, in addition to a standard for truck transportation, and an assessment form on truck conditions. The project focuses on reducing greenhouse gas emissions through several methods, for example, collecting carbon dioxide emissions data from PTT Group's transportation activities, conducting studies on backhaul management, changing transportation methods by using mobile silos, and providing reward mechanisms for transport contractors as a motivation to reduce fuel consumption and to recognize the importance of operating in an environmentally-friendly manner.

## Petroleum Terminal Improvement

The Petroleum Terminal Improvement Project at Suratthani and Songkhla Provinces was initiated to solve a number of issues: high costs of transporting ethanol by truck from Central Thailand to Southern Thailand, the potential to encounter road blockage from protests, and greenhouse gas emissions. In response, PTT reallocated oil tanks and is in the process of building ethanol receiving pipes to transform the transportation mode into sea transport – which is slated for completion in 2016. Apart from contributing to energy security for customers in the South, PTT expects to achieve cost-savings from transportation by 9.3 million baht per year and a reduction in greenhouse gas emission by 812 tons of carbon dioxide equivalents per year.



## Products and Customers

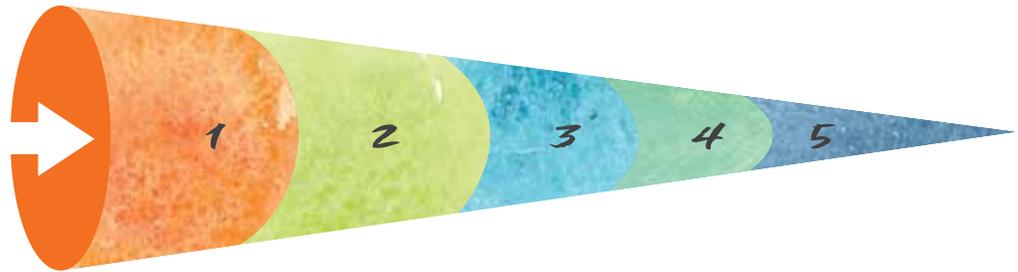
PTT recognizes the importance of innovating socially and environmentally responsible products and services that respond to the changing needs of customers, alongside with domestic and international market trends.

## Research and Development

With the commitment to become a leading energy company in technological advancement and investments in renewable and bio-energy, PTT developed the PTT Group Technology Strategy to serve as a guideline for group-wide research and development. The guideline ensures that research and development progresses along a viable path, as well as aligns with organizational vision and objectives. The Technology Taskforce, comprised research and development departments from PTT Group companies, is tasked with the joint mission to determine the organization's direction in technology and innovation, and driving real-life applications for innovations.

### PTT I2C Gate

Business Unit Request, PTT Research and Technology Institute, and Voice of Customer (VOC)



PTT employs the PTT I2C Gate as a tool for screening research ideas and innovations, composed of 5 stages: Ideation, Scoping, Research and Development, Pilot, and Commercialization. The process begins with the formulation of a project plan and budget by considering factors such as business unit requests, Voice of Customer (VOC) input, and employee innovation ideas, to develop the Annual Research and Development Plan and the Research and Technology Institute (RTI) 5-Year Business Plan. Following, the plans are submitted to the PTT Board Committee for approval prior to further action. The use of the PTT I2C Gate enables PTT to appropriately respond to a diversity of internal and external stakeholders' needs and opinions, and further provides the benefit of reducing unnecessary investments in research.



### PTT Research and Technology Institute

PTT Research and Technology Institute (RTI) is a national research center dedicated to integrated research and development in the petroleum and petrochemical fields. The mission of RTI is to be a national energy, petroleum, and petrochemical research institute supporting PTT Group and government policy through the creation of social and business value from progressive technologies and environmental awareness.

By 2020, PTT aims to generate at least 20% of PTT Group's revenue from technology, and is in the process of developing an indicator that can clearly identify revenue from technology for use in the long-term. At present, the R&D Performance Index is used to monitor progress in product research and development, where the Index value in 2015 was at 327, higher than the targeted 326. A total of 53 new products and services were developed, of which 13 received patents and 3 received petty patents. Highlights of products and services include: Colorful PV Solar Panel, Anti-Corrosive Chemicals for the Natural Gas Pipeline System; Rainfall Forecast Model for Water Management in Map Ta Phut Industrial Estate, Rayong Province, and automotive and industrial lubricants.

### Pilot Electric Vehicle Charging Station

In the future, Thailand will witness an increasing trend in the use of electric vehicles. To meet this anticipated demand, PTT initiated studies in 2010 to understand systems and standards associated with electric charging stations, and in 2011, constructed its first pilot station at the PTT Research and Technology Institute. Over the past year, PTT expanded upon this research and constructed an additional 6 electric vehicle charging stations in areas within and outside of PTT Service Stations. The objective of these stations is to enhance public awareness on electric vehicles, and advance further knowledge on these services from real-life application. All stations adhere to the European International Electrotechnical Commission Standard and the Japanese CHAdeMO Standard, and are able to support diverse types of electric vehicles.

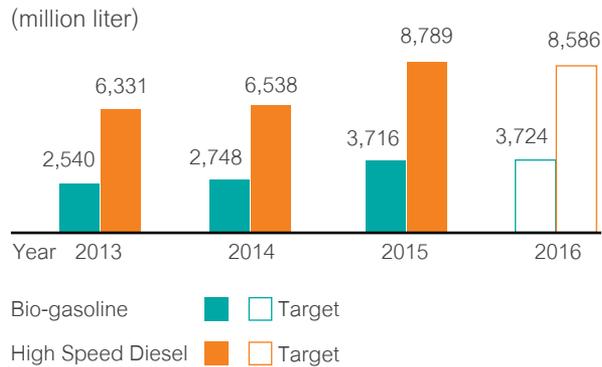


In terms of green product development, PTT has established the target to generate 2% of revenue from green products by 2020. In 2015, revenue from green products amounted to 1.48% of total revenue. Furthermore, five products from the Rayong Gas Separation Plant received carbon footprint certifications from the Thailand Greenhouse Gas Management Organization (TGO), which are NGV, Ethane, Propane, LPG, and Natural Gas Liquid (NGL).

## Revenue from Green Products



## Sales Volume of Biofuels in Thailand



## Green for Life Eco-label

PTT developed the Green for Life Eco-label (self-certified) to communicate the organization's commitment to, and encourage awareness amongst stakeholders of, product and service responsibility. The Eco-label was created on a scientific basis and in line with international certification standards, ensuring that it is accurate, verifiable, relevant, and non-misleading. In 2015, efforts in improving environmental performance efficiency for service stations resulted in the certification of 2 service stations and 1 product group, as indicated below:

- PTT Service Station, Wong Waen Branch  
Reduced water consumption by 22% following installation of the wastewater treatment system to reuse wastewater; reduced greenhouse gas emissions by 49.8 tons carbon dioxide equivalents per year following installation of a solar energy generation system; and reduced waste to landfill through organic waste composting and trash separation by 19 tons per year.
- PTT NGV Service Station Pro-technology  
Reduced electricity consumption per sales volume by an average of 26.64%; reduced greenhouse gas emissions by an average of 27.2%, and reduced waste to landfill through organic waste composting and trash separation by 8.85 tons per year.
- Packaging for PTT Lubricants, consisting of:
  - 1 New packaging for automotive lubricants
  - 5 Different packaging sizes for Benzene and Diesel automotive lubricants.

The new packaging reduced High-Density Polyethylene (HDPE) plastic use by 5 to 12.73%, resulting in a lower carbon footprint compared to old packaging methods, due to footprint reduction during raw materials procurement.

In 2016, PTT plans to increase service labeling by at least one service per one business unit.

## PTT Group Bio-Hub

PTT Group is committed to developing Thailand as a center for the production and trade of bio-fuels and bio-plastics within 20 years, by collaborating with Sasin Graduate Institute of Business Administration, Chulalongkorn University, to research and develop a strategy that can lead the country towards the stated objective. The Bio-Hub would include an industrial center for bio-fuel, bio-chemicals and bio-plastics set in the same location as required raw materials; and an integrated utilities infrastructure to support production units delivering the highest efficiency in energy use and production, and even produce organic fertilizer and recycle water for agricultural purposes and renewable energy.

Given that the activities of PTT Group are highly relevant to bio-industry, be it in terms of the organization's capacity in bio-fuels or bio-plastics, PTT Group is, therefore, determined to build awareness and understanding amongst the public, create markets for bio-products, reduce investment risks and build confidence for international investors, to create value and business opportunities from this new industry – generating income for Thailand in the future.

## Product Life Cycle Analysis

PTT Group focuses on conducting life cycle assessments for products from the Petroleum Exploration and Production Business Unit, Natural Gas from the Rayong Gas Separation Plant, Petrochemical and Refinery Business Unit, and fuels. For water and carbon footprint assessments, PTT has committed to assessing products from the Infrastructure and Sustainability Management Business Unit. Results from the above assessments are analyzed to improve production processes, reduce environmental impact throughout a product's life cycle, and generate shared value with relevant stakeholders, from suppliers recruiting environmentally-friendly raw materials, to customers choosing products that produce minimal environmental impact.

In 2015, PTT conducted LCAs and water footprint assessments for products from the Rayong Gas Separation Plant, namely Olefins and HDPE, for a total of 27 product

grades as planned. Assessment results have further been integrated into process improvements for greater efficiency. PTT has begun to expand coverage of LCAs for products in PTT Group, and is under the process of developing a 2016-2020 Product Life Cycle Risk Assessment Plan to cover more PTT Group products in the future.

## Customer Relationship Management

Customer views and concerns are received through the annual satisfaction and engagement survey, where the feedback is employed for performance improvements to respond better to customer needs – to reinforce PTT's ability to attract and retain customers over the long-term. In 2015, there were no incident of non-compliance with national and international regulations concerning the health and safety of products and services, product labeling, customer data privacy, or marketing communications.

### Customer Satisfaction Survey Results (percent)

						
	Oil	Natural Gas	Electricity	Industry	Petroleum and Petrochemical Products	International Trading
2015 Target	95	91.2	89	91.5	91	≥90
2015 Satisfaction Level	97	92	90.6	92	92	89
2016 Target	≥95	93	91.6	93	93	≥90

#### Remark:

In 2015, the International Trading Business Unit expanded its coverage of customer satisfaction surveys to include the Contract Management Group, from initially including only Trader and Operation Groups.

Results from the 2015 Customer Satisfaction Survey indicated an increase in the level of satisfaction for the Oil and Natural Gas Business Units from 2014. However, for the International Trading Business Unit, reasons for the decrease point to customers' perception on the lengthy timeframes required to process necessary paperwork, and its complexity. Nevertheless, customers expressed satisfaction for customer relations and the willingness from PTT to provide assistance; accuracy in contract paperwork and timely product delivery. In 2016, PTT aims to improve the quality and speed of service provision, to reduce complexity and length of time in processing paperwork, and communicate with business partners regularly on PTT's work processes. Finally, PTT will work to ensure that it can maintain its strength in customer relations for the long-term.

# Operational Excellence



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PTT is committed to enhancing the health and safety of employees and communities and preserving the environment in all of its operations through proactive management approach and reducing impacts from business operations. PTT combines technology and best management approaches to improve performance, while focusing on monitoring key emerging issues.

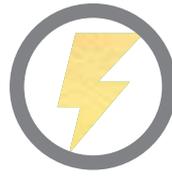
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## ENVIRONMENT

Environmental responsibility is at the heart of how PTT Group operates, and is reflected through the 2020 Strategic Objectives. With the commitment to continuous improvement, PTT Group sets appropriate indicators to improve the effectiveness of environmental performance in all areas so as to reduce impacts from its operations on all stakeholder groups.



**256.51**  
Million Baht<sup>1</sup>  
Cost Savings from  
Environmental Investments



**69.78**  
Million Gigajoules<sup>2</sup>  
Energy Saving



**587,433**  
Tons of Carbon Dioxide Equivalents<sup>2</sup>  
GHG Scope 1 and 2  
Emission Reduction



**5.49**  
Million Cubic Meters<sup>3</sup>  
Water Consumption  
Reduction



**396.11**  
Tons<sup>3,4</sup>  
Hazardous Waste Reduction



Land Transport Accidents  
per 1,000,000 Kilometers

## Climate Change and Energy Management

Climate change has increasingly been thrust to the center of the national and international stages, and is an issue that is receiving heightened interest from a diverse range of stakeholder groups, from governments to investors and societies. As an environmentally and socially responsible organization, PTT Group is cognizant of its role in managing greenhouse gas emissions in the most effective manner. Doing so helps to curb financial and non-financial impacts on the organization.

At present, national policy on greenhouse gas reduction targets tends toward a more challenging direction given

intensified global pressure, particularly following COP21 held by the United Nations Framework Convention on Climate Change (UNFCCC). PTT recognizes that climate change has implications on its business in both the short and long terms, and spans across several areas, for instance, natural disasters, droughts, as well as the rise of consumer awareness that may alter product selection behavior. In response, PTT Group has set the target to reduce greenhouse gas intensity by 5% by 2020 compared to 2012, and has integrated greenhouse gas management into its strategies for deployment to all operational levels in accordance with the Green Roadmap.

<sup>1</sup> Scope of data covers Upstream Petroleum and Gas Business Group and Downstream Petroleum Business Group.

<sup>2</sup> Scope of organizations covers companies under PTT's operational control in accordance with the Quality, Safety, Health and Environment Policy (QSHE Policy), including PTT and companies in which PTT holds the majority of shares or equal amount of shares as other shareholders.

<sup>3</sup> Scope of data collection covers PTT, PTTEP, PTTGC, TOP, IRPC, and GPSC.

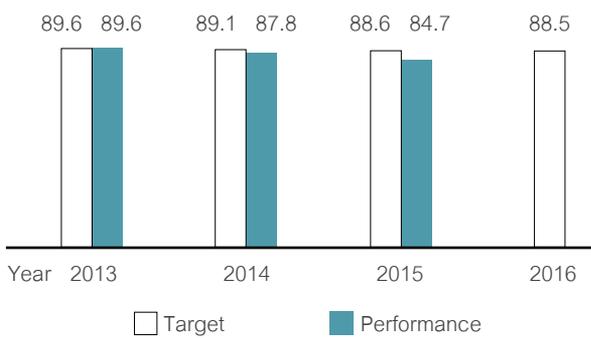
<sup>4</sup> Total hazardous waste to landfill from operations was reduced as waste was sorted at the source, which improved the effectiveness of waste disposal and aligns with PTT Group's Strategic Objective to reduce the amount of industrial waste to landfill to zero by 2020.

In 2015, PTT Group continued engaging with policy makers on issues concerning climate change, and revised the process management strategy to enhance energy efficiency and reduce greenhouse gas emissions in line with the organization's Green Process strategy. PTT Group has further established a target to participate in the Thailand Voluntary Emission Reduction Program (T-VER), and incorporated carbon pricing into the investment decision-making process. The Group achieved the target

of controlling greenhouse gas scope 1 and 2 emissions to be within 88.6 kilograms of carbon dioxide per barrel of oil equivalents. Likewise, PTT achieved the intensity target set by the State Enterprise Performance Appraisal (SEPA) on direct and indirect greenhouse gas (scope 1, 2, and 3) at 380.81 kilograms of carbon dioxide per barrel of oil equivalents. As a result, PTT Group is on track to achieving its long-term greenhouse gas target.

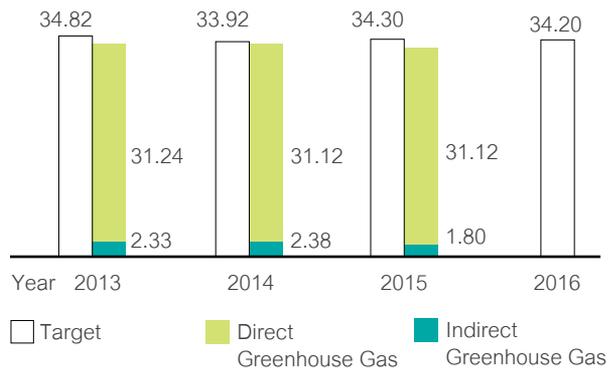
### Greenhouse Gas Intensity

(kilogram carbon dioxide per barrel of oil equivalents)



### Direct and Indirect Greenhouse Gas Emissions

(million ton of carbon dioxide equivalents)



**Remark:**

PTT recalculated greenhouse gas emissions in 2013 - 2014 to align with the scope of this report.



## Methane Leakage Management Project

PTT improved its operations based on results received from assessments on methane leakage in PTT's operational areas and PTTEP's S1 drilling platform during 2013-2014. As a consequence, 10,700 tons of carbon dioxide equivalents were saved, accounting for cost savings of 3 million baht per year. In 2015, 9 operational areas were assessed in which the findings and results will be used to develop plans for 2016.

Additionally, PTT organized an international workshop to educate PTT Group's employees on best practices in methane management, inviting experts from various organizations including the U.S. Environmental Protection Agency (US EPA), Embassy of the United States in Thailand, United Nations Environment Program (UNEP), and Cairn Energy Co., Ltd. to share knowledge to relevant PTT Group's employees.



As the nation's leader in energy conservation with the commitment to reduce climate change impacts, PTT integrated its energy efficiency plan into the PTT Group Energy Efficiency Master Plan to ensure alignment of group-wide energy management. PTT committed to energy intensity reduction at 1.9% per year until 2017 compared to business as usual in 2011, and is currently under way to set the 2020 long-term target. In 2015, PTT reduced energy intensity to 0.775% per year compared to business as usual operations, which accounted for 500,000 gigajoules per year, equivalent to the cost savings of 194 million baht per year<sup>1</sup>. Key initiatives included the energy reduction project at Rayong Gas Separation Plant, where PTT invested 1,500 million baht to set up a heat exchange system at the pressure enhancer unit of pipeline No.3<sup>2</sup> in order to utilize waste heat. The project improved energy efficiency of the production process and reduced energy by 2,082,237 gigajoules and greenhouse gas emissions reduction of 98,000 tons of carbon dioxide.

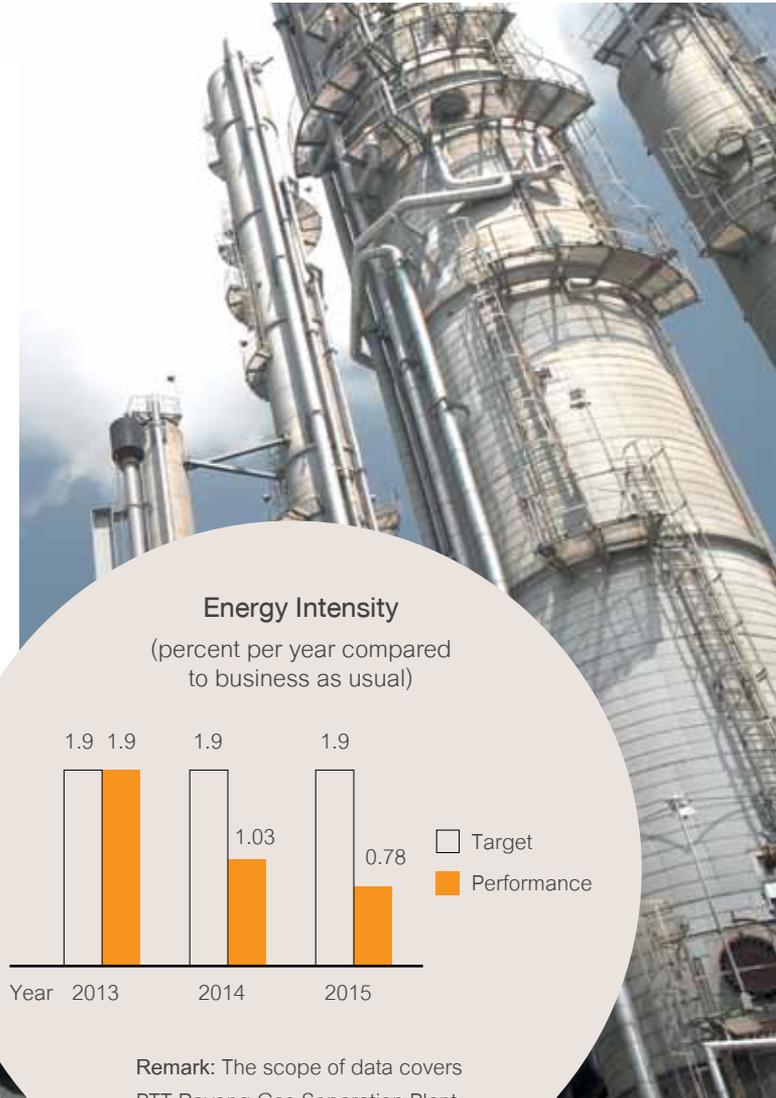
<sup>1</sup> Assuming the energy consumption value at 387.92 baht per gigajoule, according to PTT Group's average consumption

<sup>2</sup> The Natural Gas Transmission Pipeline No. 3 from Rayong Gas Separation Plant continues to Amata Nakorn Industrial Estate in Panthong District, Chonburi Province, onward to Wang Noi District, Ayutthaya Province, and connects to the Natural Gas Transmission Pipeline Thai – Myanmar in Nontaburi Province.

## Energy Management Project

The PTT Group Energy Management Project was initiated in 2012 with the objective to analyze PTT Group's capacity in energy conservation. The diagnostic phase is comprised of the study of corporate environmental and energy conservation policy, analysis of internal and external conditions, data, and issues within operational areas; short-term target setting and formation of long-term energy conservation strategy, monitoring of management effectiveness, and overall enhancement of the project in order to achieve set targets.

Currently, the project's target group consists of companies and functions whose activities consume significant amounts of energy such as PTT Rayong Gas Separation Plant, PTTEP, PTTGC, TOP, and IRPC.



## Integrated Water Management

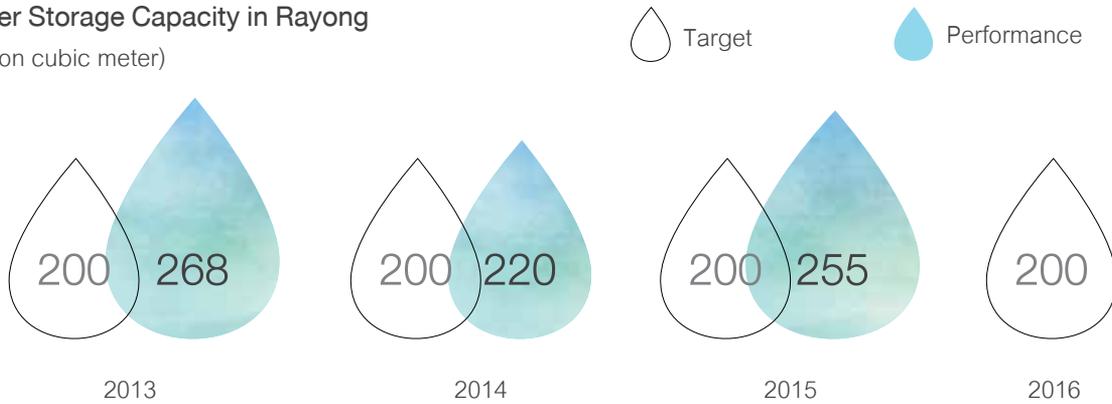
Due to the increasing trends of water consumption in the domestic, agricultural, and industrial sectors, and long-term drought as a result of climate change, PTT Group is committed to effective and proactive integrated water management. The PTT Group Water Management Team works closely with the government networks and the private sector to prevent and reduce risks of water shortage that may impact on stakeholders.

By cooperating with Rayong Province's eastern water management committee, PTT Group is able to monitor and evaluate water conditions and develop response measures in a timely manner, such as through building

2 water pump stations between Prasae and Nong Pla Lai water reservoirs, and developing a water allocation strategy for Chonburi Province. Such measures allowed for the organization to achieve the 2015 target of ensuring that the water reserve was sufficient for water demand. Finally, PTT effectively contributed to enhancing the abundance of water resources for the benefit of the surrounding communities.

For the internal water management, PTT Group operated in line with the 3Rs (Reduce, Reuse, Recycle) principles to enhance the effectiveness of water consumption in the production process and reduce raw water consumption in water-stressed operations – saving water by 5.49 million cubic meters per year.

### Water Storage Capacity in Rayong (million cubic meter)



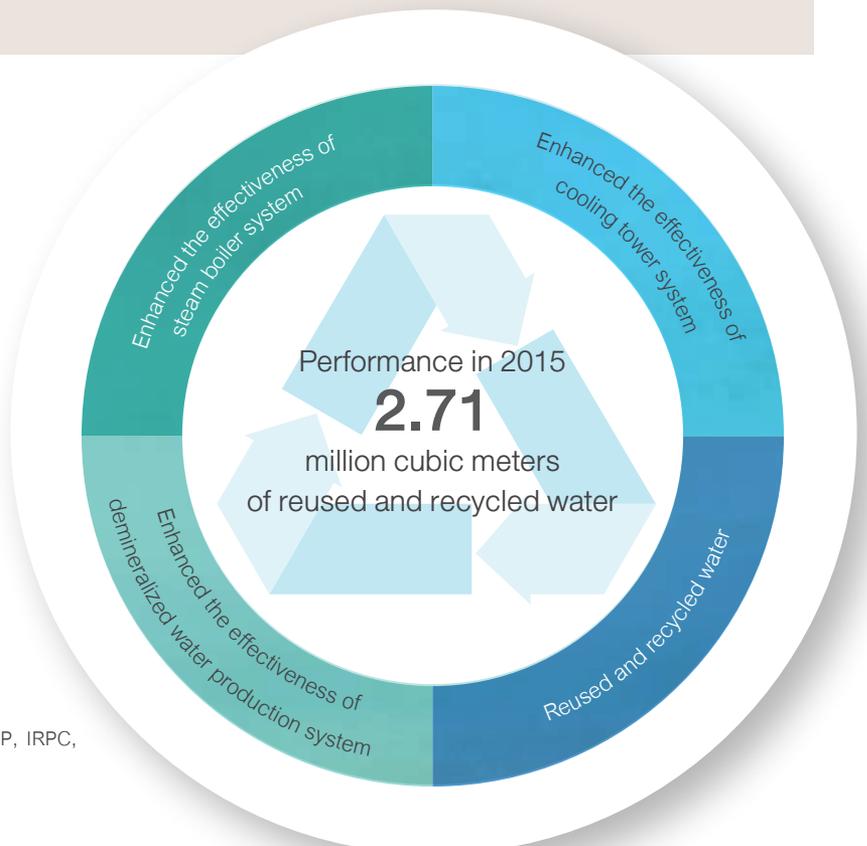
### Weather Forecast Technology and Water Management in Rayong



PTT Research & Technology Institute conducted research to forecast the amount of primary water sources in Rayong from 3 water reservoirs: Nong Pla Lai, Dok Sai, and Khlong Yai. The reservoirs have a total storage capacity of 275 million cubic meters, whereas water demand from all sectors in the area is 400 million cubic meters per year – the industrial sector alone accounts for 75 % of total water consumption. As Rayong is PTT's main production base facing risk of water shortages, PTT forecasts water resource availability by using weather forecast and runoff simulation models to display the relationship between rainfall and runoff for the 3 reservoirs. The findings are then integrated with the information on rainfall simulation from the European Center for Medium-range Weather Forecast's weather model, allowing PTT to predict the risk of water shortage six months in advance.



### Water Management



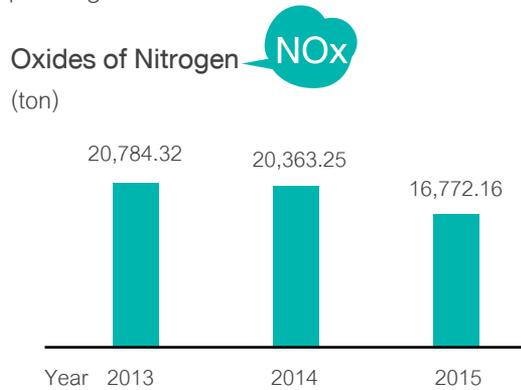
**Remark:**

The scope of data covers PTT, PTTEP, PTTGC, TOP, IRPC, and GPSC.

## Air Quality Control

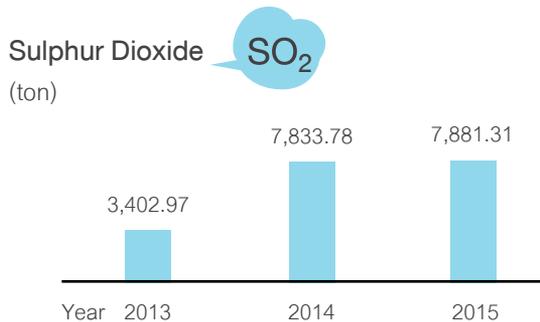
Air quality management is an issue of interest for the government, communities and societies, and employees, given its potential impacts on health and the environment. PTT Group, therefore, sets the targets on increased emission rate of oxides of nitrogen (NOx), and sulfur dioxide (SO<sub>2</sub>) and volatile organic compounds (VOCs), to be zero, by the year 2020.

PTT Group applies air treatment technology that meets international standards to control and reduce the amount of air emissions within the regulated standard value, such as Selective Catalytic Reduction (SCR), and Dry Low Emission NOx (DLE) burner system. In addition, the Continuous Emission Monitoring System was installed at Rayong Gas Separation Plant to monitor air quality on a regular basis, which can also be used to assess air quality impacts for effective operational planning.



**Remark:**

Nitrogen oxide (NOx) emission trend decreased due to the application of air treatment technologies within PTT Group.

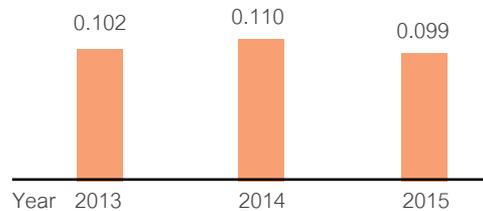


**Remark:**

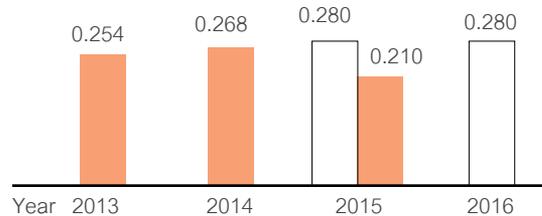
The scope in 2013 covers PTT, PTTEP, PTTGC, TOP and IRPC. The scope in 2014-2015 covers PTT, PTTEP, PTTGC, TOP, IRPC, and GPSC.



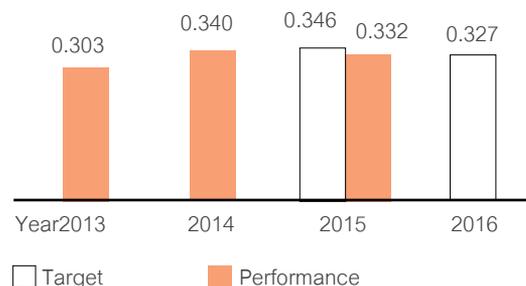
**Volatile Organic Compounds (VOCs) emissions per distribution unit<sup>1</sup>: Rayong Gas Separation Plant**  
(kilogram of VOCs per ton production)



**Volatile Organic Compounds (VOCs) emissions per distribution unit<sup>1,2</sup>: LPG Terminal**  
(kilogram of VOCs per million liter of production)



**Volatile Organic Compounds (VOCs) emissions per distribution unit<sup>1,2,3</sup>: Oil Terminal**  
(ton of VOCs per million liter of production)



**Remark:**

<sup>1</sup> The performance in 2013 has been adjusted for greater accuracy and suitability.

<sup>2</sup> No target was set for 2013-2014.

<sup>3</sup> PTT expanded the scope in 2014 to include 5 additional oil terminals, totaling 9 oil terminals and 6 petroleum terminals.

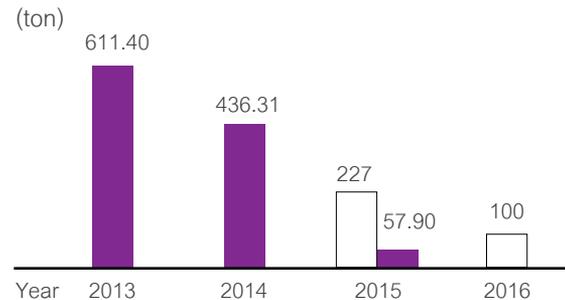
## Waste Management

To achieve the Strategic Objective that aims to reduce the amount of industrial waste to landfill to zero by 2020, PTT Group commits to managing waste in all processes ranging from product design, production planning, production process, and waste management. By applying the 3Rs principles to reduce waste at the source, reuse and recycle waste, environmental impacts are mitigated.

In 2015, PTT Group in Map Ta Phut, Rayong Province, initiated the PTT Group Waste Pooling Project. The project marks the beginning of the development of industrial waste database to store information on waste from PTT Group production process, in order to work towards resources reuse optimization and a reduction in industrial waste to landfill. In 2015, a criterion for industrial waste was identified for the project, and in 2016, PTT Group will cooperate with waste treatment entities in surrounding areas to dispose of waste through means other than the landfill. PTT will elaborate on the progress of the project in 2017.

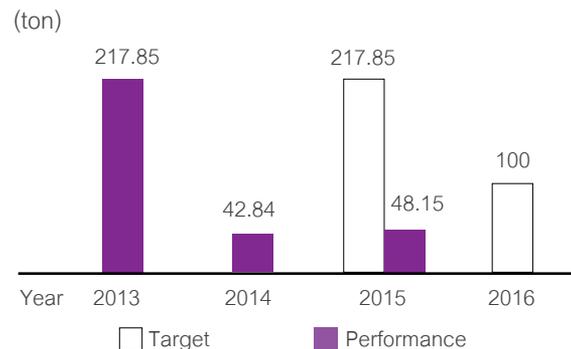
### Hazardous Waste to Landfill

#### Rayong Gas Separation Plant



### Hazardous Waste to Landfill

#### Oil Terminal, LPG Terminal, and Petroleum Terminal



**Remark:**

No target was set for 2013-2014.

## Oil and Chemical Spills

Oil and chemical spills prevention is the most important mission for a petroleum business. PTT Group has, therefore, committed measures to mitigate and monitor spills within its operational areas, as well as during product and raw material transportation throughout its supply chain. Aside from setting its annual target, a 2020 Strategic Objective was also set to ensure that the number of oil and chemical spills greater than one barrel is equal to zero. This is to be accomplished by enhancing readiness in the workforce, equipment, and efficiency in systems such as the Supervisory Control and Data Acquisition (SCADA), which enables the control of valves via satellite in case of gas leakage in the gas transmission pipeline system, etc. Finally, emergency plans are developed, and spill prevention drills are conducted regularly with governmental cooperation at the provincial and national levels.

In 2015, PTT's operational areas had no cases of oil and chemical spills to the environment. However, there were 4 cases of spills that resulted from the transportation of products and raw materials, where in most cases, this was caused by transportation accidents from driver fatigue. In remedying environmental damages from spills, supervisors, transport operators, and transport departments have developed appropriate emergency response procedures. For instance, if an oil spill seeps into the soil, the affected area will be removed for treatment as required. Whereas, if a spill occurs in a water source, PTT will investigate the water flow and direction, remove all oil slicks, and constantly monitor the spill area to ensure that no oil remains. In terms of oil spill prevention, PTT adheres to the PTT Group Road Safety Management Guideline, which stipulates procedures for transportation management beginning from a transport risk assessment throughout the entire transport process, to operational control, and driver management, in particular on issues of driver fatigue; path selection, and regular transport vehicle maintenance. Furthermore, PTT organizes awards for drivers and transport operators who demonstrate excellent performance. In the case of the spills that occurred, the causes of each spill were thoroughly investigated, and preventive measures were developed to promptly control each situation in order to manage spills and prevent reoccurrence.

## SAFETY

PTT gives utmost importance to safety management in all stages of business operations, covering from personal, process, to transportation safety, and aims to reduce potential impacts to all personnel and surrounding communities. Safety at PTT begins with cultivating a safety culture to reinforce safety behavior for all relevant stakeholders, namely, employees, business partners, and contractors. PTT strives for continuous improvement under the Security, Safety, Health and Environment (SSHE) Management System with strategic objectives and annual targets set to consistently monitor performance among PTT Group companies.

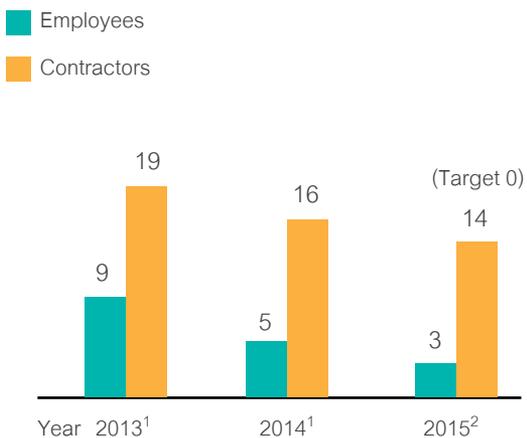
### Health and Safety Culture

Fostering an organizational culture of good occupational health and safety is fundamental to preventing illnesses and injuries. Since the first day of work, all employees are trained as part of their orientation session to raise awareness and enrich their depths of understanding on safety that can be turned into practice. At the same time, safety leadership is enhanced through activities such as the Safety Tour, where management conduct tours on operational sites to observe actual conditions, helping them to understand problems that exist and build employee morale through discussions and consultations. Additionally, the Health Risk Assessment

Manual guides the assessment of work-related health risks for further establishment of control measures to mitigate such risks. In 2015, the PTT Group Occupational Health Management System Guideline was developed in line with the international standards, focusing on creating alignment in safety management amongst PTT Group.

In managing its business partners and contractors, PTT integrates SSHE requirements into their terms of references to ensure that operations are conducted in accordance with the organization's standards. In this regard, PTT highly values the capacity development of its contractors and thus, initiated several programs in 2015, including the Contractor SSHE Capacity Registration, which welcomed interested contractors to learn about their SSHE capacity through assessments. Another program was the Contractor SSHE Clinic, which allowed contractors to consult with experts from PTT so as to further develop their own management practices. Apart from minimizing losses and impacts from operations, these initiatives helped to elevate safety standards in the supply chain. In 2015, a total of 50 contractors participated in the program. As for 2016, PTT will continue the Contractor SSHE Capacity Registration for the second year as well as expand the scope of application for more intensive contractor SSHE management in PTT operations.

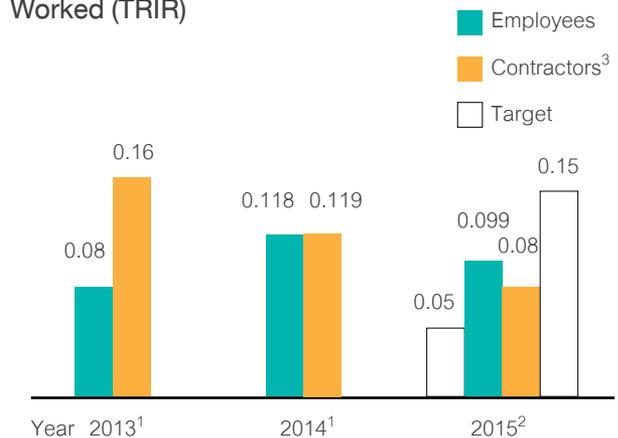
### Lost Workday Cases (LWC)



#### Remark:

3 lost workday cases for PTT Group employees were due to slips, trips, and falls during work which resulted in injury.

### Total Recordable Injuries Rate per 200,000 Hours Worked (TRIR)



<sup>1</sup> The scope covers PTT, PTTEP, PTTGC, TOP, and IRPC.

<sup>2</sup> The scope covers PTT, PTTEP, PTTGC, TOP, IRPC, and GPSC.

<sup>3</sup> Contractors refer to both supervised and independent contractors.



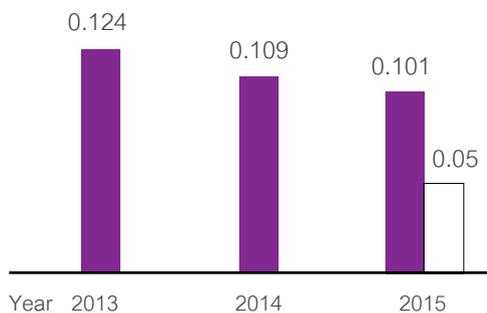
Guided by the Logistic Accident Policy and the target to reduce serious transport accidents to zero, PTT launched the PTT Group Road Safety Management Guideline for its logistic operators network. In 2015, the In-Vehicle Monitoring System (IVMS) was installed in 1,300 oil trucks. The IVMS, combining CCTV and GPS technologies, can track transport trucks from their point of departure until their destination. This allows PTT to monitor unsafe driving behaviors such as speeding, abrupt breaking, and unfastening seatbelts while driving. Furthermore, the Transportation Control Center (TCC) monitors real-time driving conditions over 24 hours, allowing the drivers to monitor and adjust their behaviors. Such efforts have resulted in the continuous decrease in serious transport accident cases over time. Other initiatives to that end include audit programs for logistic operators as well as the PTT Group Logistic Zero Accident Project, which sets PTT Group safety direction and enhances group-wide collaboration.



อุบัติเหตุ  
ไม่มีอุบัติเหตุ  
Zero Accident



PTT's Land Transport Accident  
(number of land transport accidents per 1,000,000 kilometers)



□ Target  
■ Performance

Remark:

The number of land transport accidents in 2015 reduced by 10% compared to the previous year, and demonstrates a steadily decreasing trend. Although the target was not achieved, PTT continued to manage road transportation safety and monitor performance in various aspects, such as monitoring driver behavior to reduce accidents, investigating the root causes of accidents to determine prevention methods and solutions – all of which contribute to an improving trend in accident rates.

## Process Safety

Accidents in operations can be damaging to life, property, and the environment, and can pose threats to stakeholders in the supply chain from upstream onwards. PTT Group, therefore, strictly manages process safety starting from the management level by establishing the PTT Group Process Safety Management (PSM) Taskforce to build a network of executives and employees from companies in the Group. This is to drive collaboration and sharing of in-depth PSM Technical Implementation results from experienced personnel. Furthermore, the PTT Group Process Safety Leading Indicator Guideline has also been developed to proactively track performance with an aim to prevent losses. PTT Group's target is Zero Tier 1 Process Safety Events, where safety events in this case are evaluated according to the American Petroleum Institute's API Recommended Practice 754 on spills. Finally, to expand the scope of process monitoring and generate overall awareness on process safety, in 2015 PTT Group began collecting data on Tier 2 Process Safety Events as part of its efforts in accident prevention.

### PTT Group's Tier 1 Process Safety Event in 2015<sup>1</sup>

Fire	Fume ventilation	Chemical overflows or leakages
		

<sup>1</sup> The scope covers PTT, PTTEP, PTTGC, TOP, IRPC, and GPSC

## Security

Security threats can impact upon the organization's personnel and assets, as well as disrupt business continuity. PTT thus assesses security risks such as criminal threats, drugs, insurgency and protests, and sets preventive measures at all stages of business conduct to curb security emergencies, resulting in zero to minimum losses.

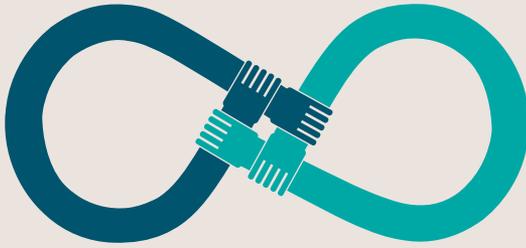
In 2015, PTT successfully deployed the PTT Group Security Management System in all operations, where security assessments were conducted. All operations passed the assessment criteria, ensuring their ability to limit the severity and losses in the case of an emergency. Furthermore, PTT signed an endorsement for collaboration amongst 7 organizations, in order to jointly share knowledge in areas of security-related management approaches, standards, technologies, and possible threats. Overall, this will increase security management efficiency and strengthen relationships among the state-owned enterprise network.

Completed investigations on cases of security violations that resulted in losses, and developed solution plans for all cases

**100%**



Conduct community consultations



**36**  
Operations,  
Accounting for  
**100%**  
of Total Operations

**69**  
Development Projects,  
Accounting for  
**100%**  
of Total Projects

## Capital Project Management

Creating sustainable harmony between communities and the environment is vital as communities are an important stakeholder group that may be susceptible to impacts from project operations. PTT is, therefore, committed to reducing social and environmental impacts throughout a project's lifetime, starting from pre, during and post-development phases, by conducting active engagement with communities surrounding operations, environmental impact assessments (EIA), and community grievance management. Building good relationships with communities and gaining their trust will allow for business continuity, and fundamentally, lead to sustainable energy security.

No. 4 (Rayong-Khaeng Khoi) on an herbal plantation in the area of Abhaiphubet Chaopraya Hospital Foundation, Noen Hom Sub-district, Muang District, Prachinburi Province. In response, PTT expressed its intention to provide remedy to the impacted areas, and collaborated with local governmental agencies in Prachinburi Province, the Energy Regulatory Commission, and Abhaiphubet Chaopraya Hospital Foundation to resolve the issue.

As demonstrated in the above case, all grievances are monitored by PTT, and information received from grievances and their methods of resolution are used in developing mitigation measures as well as for continuous monitoring of environmental and social impacts. Not only that, PTT measures the effectiveness of engagement using the Community Engagement Score, and sets targets on community acknowledgement and project acceptance of at least 60%, assessed from survey samples drawn during the environmental impact study phase. In 2015, community acknowledgement and project acceptance rates were 69.6% and 87.5%, respectively, and no cases of relocations of any stakeholder groups took place.

## Community Engagement

In 2015, PTT continued its work on the Gas Transmission Pipeline Project initiated in 2014 and completed two projects as planned: the Onshore Gas Transmission Nakornsawan Project and Natural Gas Transmission Pipeline No. 4 (Rayong-Khaeng Khoi). The Onshore Gas Transmission Nakornratchasima Project has progressed to phase 2, where public participation has been conducted in accordance with the Regulations of the Office of the Prime Minister B.E. 2548. PTT further implemented mitigation measures with regard to environmental impacts and grievance mechanisms as identified in the EIA. A newly launched Natural Gas Transmission Pipeline No. 5 Project is currently undergoing the public consultation phase, and the ESHIA for this project is scheduled for completion in the second quarter of 2016.

PTT respects community rights in all of its business activities, and carries out project operations on the foundation of stakeholder engagement – opening various channels for communities and stakeholders to submit their views and concerns. Based on community consultations during the EIA process and other grievance channels, PTT received concerns regarding impacts from the Natural Gas Transmission Pipeline



**100%**  
of current and new projects  
conducted community  
consultations



Community engagement  
score of the Onshore  
Gas Transmission  
Nakornratchasima Project

## Biodiversity Impact Management

In order to prevent losses and negative impacts on biodiversity that may arise from new project development, PTT conducts a biodiversity risk screening process for new projects in line with the requirements of the PTT Group Biodiversity and Ecosystem Services Management Manual. In the case that a project poses high biodiversity risk, more studies will be conducted and a Biodiversity Action Plan will be developed.

Biodiversity risk screening results over the past year indicated that the new gas transmission pipeline projects under the gas separation industry were not located in any protected areas or posed high biodiversity risks. Given this, PTT carried out environmental impact studies as required by the standards of the Office of Natural Resources and Environmental Policy and Planning (ONEP) and relevant parties. In addition, to ensure that all biodiversity issues are incorporated into decision-making and business operations, PTT organized 2 biodiversity management workshops for employees with responsibilities relating to environmental management. The workshops provided them with knowledge on biodiversity management and ecosystem services, biodiversity risk assessment, and mitigation plans for projects with high biodiversity risks. The Phuket Aircraft Fuel Station was selected as a pilot case to teach employees on Biodiversity Action Plan development.

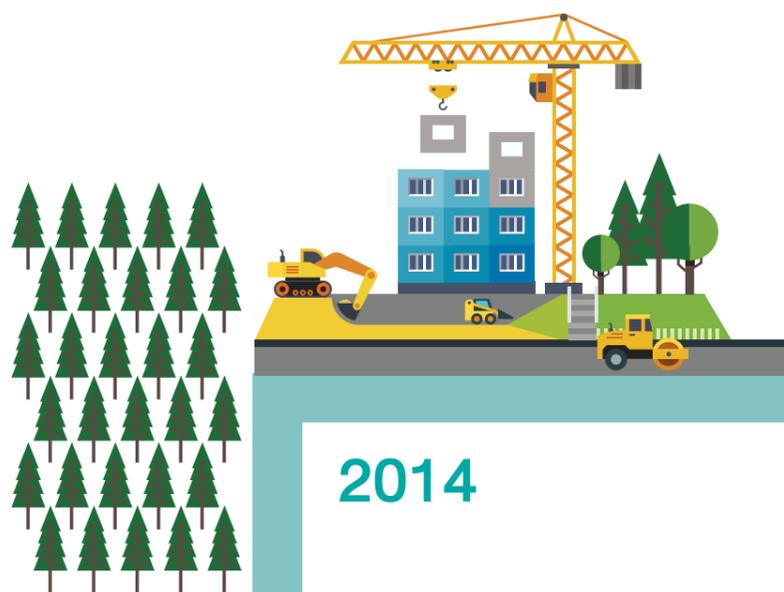
**100%** of all new projects have been screened for biodiversity risks in 2015



## PTT WEcoZi Eco-industrial Zone Development

PTT continued its development of the eco-industrial zone, or PTT Wanarom Eco Zone Industries (PTT WEcoZi) in the Asia Industrial Estate. In support of PTT Group's Green Roadmap, PTT aims to develop the project as a prototype eco-industrial zone where industry, communities, and the environment can co-exist in a sustainable manner, meanwhile increasing PTT Group's competitive advantage.

The PTT WEcoZi formally opened on 28<sup>th</sup> January 2015, with details summarized as follows.



### 2013

**Annual Target:**

Increase the natural protection strip from ecoforest

**Performance:**

Increased ecoforest areas along the natural protection strip by 8.48 hectares from 2012, totaling 14.56 hectares

### 2014

**Annual Target:**

Build fully integrated central utilities, a green office building, and PTT Group Wanarom Ecoforest Learning Center

**Performance:**

Completed the construction of fully integrated central utilities comprising industrial water plant, a green office building, and PTT Group Wanarom Ecoforest Learning Center

### 2015

**Annual Target:**

Launch PTT WEcoZi and develop an eco-industrial and environmental management system according to standard, and build upon the successes of PTT Group Rayong Wanarom Ecoforest.

**Performance:**

PTT WEcoZi was launched on January 28<sup>th</sup>, 2015 and certified by the Industrial Estate Authority of Thailand as the first eco-industrial zone at the Eco Champion Level in Thailand. The eco-industrial and environmental management system is in accordance with ISO14001 standard.



PTT built upon the successes of PTT Group Rayong Wanarom Ecoforest by participating in the Thailand Voluntary Emission Reduction Program (T-VER). It is the first forest area in the eco-industrial zone that was registered with T-VER,

greenhouse gas emissions by **20,000** tons of carbon dioxide equivalents throughout the project life.

absorb more than **1,290** tons of carbon dioxide

release over **1,032** tons of oxygen back to the environment

sufficient for **3,870** people per year

More biodiversity is present in the area with over

**172** species of trees, animals, birds and insects, creating a more balanced ecosystem.

In addition, PTT MCC BioChem Company Limited, a polybutylene succinate producer (PBS), is the first company that has located its plant in the eco-industrial zone. This is a crucial component to strengthen PTT Group's competitive advantage in the long-term in order to achieve the target of expanding investments in bioplastics to 690,000 tons per year, as well as to promote Thailand as a manufacturing and distribution hub of biofuels and bioplastics within 2020.

"What PTT has accomplished here is propitious, and it has become the most tangible prototype for an eco-industrial zone."

**Mr. Thada Suthornpan**  
Director at Industrial Estate Authority of Thailand, Eastern Hemaraj, Map Ta Phut Municipality, Rayong

"Developing an eco-industrial zone supports communities to be happier and have trust in PTT, because PTT is helping to erase the bad images of manufacturing plants in the past."

**Mr. Suchin Poonhirun**  
Mayor, Ban Chang Sub-district, Rayong



# People



PTT is committed to developing and retaining valuable talent, inspiring its people, and exchanging knowledge to enhance business efficiency – transforming into a learning organization. PTT encourages all employees to be ethical, talented individuals and lifelong learners based upon the 3 principles of Care, Share, and Respect.



## Human Capital Development

Employees are PTT's enabling force driving the organization towards success in its vision; the diversity of skills and experiences represented in the organization strengthen PTT's capacity to achieve sustainable growth and attain competitive advantage. Through this understanding, PTT remains fully committed to developing and enhancing employee engagement and retention, building a strong organizational culture, and managing valuable knowledge in the organization for years to come.

PTT's performance in 2015 clearly demonstrates this commitment, evidenced by an increase in the employee engagement score from 4.09 in 2014 to 4.22 – exceeding the target of 4.11. Given that 96% of all employees participated in the annual engagement survey, this serves as an indication for PTT of their willingness to support the organization towards excellence. Moreover, the increase in the engagement level reflects many aspects of PTT's efforts in caring for the diverse needs of its employees, both in their work and daily lives, such as by building up a Leadership Pool for all career paths, supporting job rotations within PTT Group, engaging with the new generation of employees to enhance understanding of their perspectives and expectations, and improving remuneration structures to promote higher qualities of life. PTT is additionally in the process of developing a conceptual design on long-term incentives for employees to maintain their continued engagement, which has been submitted to management to evaluate feasibility and possible future implementation.





**4,660**  
Total Number  
of Employees



**245**  
Million Baht  
Human Capital Return  
on Investment



Employee  
Engagement  
Score  
(Out of 5.00)



**161**  
Million Baht  
Total Investments  
in Employee Training

### Increasing Employee Engagement

- **Functional Academy**  
Organize training with employees as lecturers to build expertise in each career path.
- **Excellence People Manager Project**  
Strengthen leadership capacity for line managers.
- **Reunion for Building Engagement Session Project**  
Engage with the new generation of employees to enhance communication and gather opinions for improving overall engagement.
- **Sook Jai Dee Project**  
Increase engagement channels for employees and their families to provide advice related to work, family, and any other issues of concern.
- **Global Mobility Package**  
Revise benefits and compensation for employees filling job postings abroad to ensure they are standardized across PTT Group.
- **Infrastructure and Sustainability Management Business Unit**  
Prepare for the expansion of the Infrastructure and Sustainability Management Business Unit by instating new career paths, Quality Assurance and Engineering, and Corporate Organizational Excellence, to increase opportunities and career path choices for employees.

Furthermore, PTT recognizes the importance of attracting the right talent in terms of skills and experiences to align with business needs, and provides equal opportunities for all interested applicants to become a part of the organization. From new graduates to experienced professionals, PTT recruits talents without discrimination based on gender, religion, cultural beliefs, age, or educational background, with the view that such diversity matches well with the different perspectives and backgrounds of the organization's stakeholders. Through continued improvements in employee compensation and benefits, and supporting a better quality of life, PTT has moved forth in its efforts towards becoming an employer of choice. PTT has developed plans to instill a sense of pride at being a part of the organization for new employees – allowing them to work to their fullest potential. This is accomplished through various methods such as orientation for new employees, development of an "Excellence People Manager" Project to enhance leadership roles for line managers, and improving benefits to better reflect their needs and ways of living.

"The 96% response rate during this year's employee engagement survey speaks to the commitment of our employees in seeing PTT as a home and a source of pride."



**Mr. Tevin Vongvanich**

President and  
Chief Executive Officer

Similarly, PTT supports continuous learning for employees as a way to enable the organization to adapt to and prepare for any changes, as well as retain skilled individuals. The PTT Leadership and Learning Institute (PLLI) was established with a vital role to promote learning opportunities through a diverse number of courses. In 2015, PLLI organized 240 training courses for 15 career paths, consisting of Core Courses, Functional Courses, and Leadership Acceleration Programs, totaling an average of 53.99 training hours per person. PTT further developed success profiles and individual development plans to specifically cater to individual employee needs in a comprehensive manner. A total of 68.77% of all employees have completed their individual development plans (IDPs), short of the 100% target due to the establishment of the Infrastructure and Sustainability Management Business Unit, as the organization underwent changes to develop new career paths, namely Quality Assurance and Engineering, and Corporate Organizational Excellence. Nevertheless, PTT still continued to engage in regular employee training and development throughout.

The expansion of the organization with the new business unit also signified an increase in the number of new employees. To respond to this need, PTT developed and improved behavioral-based interviewing techniques to better reflect the success profiles of each career path, and connected the organization's core values and core competencies to each career. These developments allowed the recruitment committee to have a more concrete framework for conducting behavioral-based interviews, permitting a more systematic approach to selecting and evaluating potential candidates, reducing the time needed for each interview, leading to better selections of candidates that more accurately met the specific needs of each position.

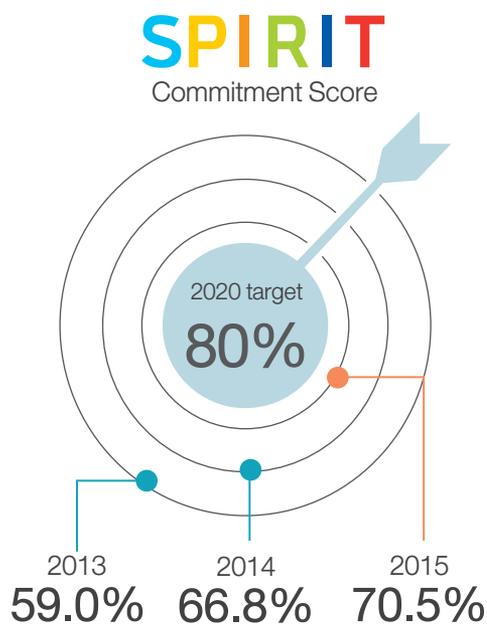


**53.99**  
hours  
Average number of  
training hours per employee

### PTT Sustainability Management Training

PTT Group Sustainability Management Project, in collaboration with the PTT Leadership and Learning Institute (PLLI), organized a company-wide training course on sustainability management in 2015 to equip management and employees with the ability to jointly move the organization towards sustainability, in alignment with PTT's strategy and direction. A total of 44 training sessions were held for 3,425 participants – 80% of the targeted 4,300 participants – of whom evaluated their satisfaction with the course at 4.21 out of 5.00 following training completion. The sustainability training course has now been integrated as a core course in the PLLI, and will be organized on an annual basis.

PTT SPIRIT values are the foundation that shape management and employees into talented and ethical individuals, responsible to the organization and society.



PTT continuously works to elevate the quality of its performance assessment system to reinforce alignment with the organization's SPIRIT values. All employees are required to develop individual KPIs that can concretely reflect their behavioral performance, and all levels of management must be able to demonstrate through evidences that their performances are in line with SPIRIT values. The integration of behavioral KPIs as part of the employee performance assessment can account for more dimensions of performance, and build a closer relationship between career management and SPIRIT values for a stronger organizational culture.

## Knowledge Management

PTT is committed to transforming from a resource-based to a knowledge-based organization, with the goal of becoming a learning organization by 2020. PTT values effective knowledge management as a way for employees to develop their own capacity as experts, and to support innovations that can deliver value to PTT Group's business, financially and non-financially.

### Approach to Knowledge Management at PTT

The PTT Group Knowledge Management Committee is responsible for knowledge management through People, Process, and Technology; sharing Practices and elevating them to Best Practices, and ultimately building Synergy and Competitiveness within PTT Group.



"I think that exchanging knowledge in the BRIGHT system is like keeping something valuable in a treasure chest. Whatever is considered a piece of knowledge or experience, no matter how small, can be useful."

#### Mr. Songwoot Srichairatanakool

Sales Promotion Officer,  
Retail Services & Administration Division.

In 2015, knowledge sharing in the organization generated more than 10,000 million baht in business value through cost-savings, increased sales, and higher levels of efficiency in operations. The Knowledge Management Team of the Organizational Development Department developed the Knowledge Management Maturity Assessment Survey as a tool to evaluate organizational capacity in knowledge management from various dimensions, where results would be used towards improving the efficiency of the knowledge sharing in business operations. During the past year, the PTT KM Maturity Assessment score was at 61%, compared to the target of 60%. In order to ensure that PTT will continue to progress towards the long-term 2020 target of an 80% score, in 2016 PTT will analyze opportunities for improvement in each business unit, and strengthen the efficiency of knowledge sharing by using the BRIGHT system, an online knowledge database for PTT Group employees. The BRIGHT system provides employees with a channel to systematically search for and exchange knowledge, opinions, and store knowledge, and enhances more effective collaboration.

PTT encourages its employees to develop skills in presentation and communication by providing them with opportunities to become internal trainers, leading courses within career paths in which they are specialized, as a way of extending the knowledge and experiences of different employees from generation to generation. Not only does this approach foster good relations between employees themselves, but also creates an atmosphere of learning through knowledge sharing and mutual experiences. In 2015, PTT organized 5 training sessions for 78 employees, who in turn were able to deliver 99 training courses, translating into a cost-savings of 9,257,400 baht by reducing the need to hire external trainers.



"PTT's knowledge management approach should be carried out systematically – there should be courses and content that respond to the organization's strategy and business needs. To build experts that are able to communicate their knowledge effectively, PTT needs to advance individual development and cultivate a constant willingness to learn amongst employees. Therefore, we should provide employees with work that challenges them, build up their confidence, and offer opportunities of learning by doing. This will allow employees to understand their capabilities and see where they want to develop their skills. Managers can then respond with appropriate training and development opportunities."

#### Mr. Chansak Chuenchom

Executive Vice President, Engineering and  
Project Management

# Corporate Citizenship



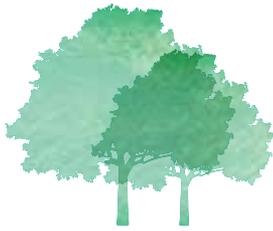
“

PTT is committed to being a good corporate citizen by supporting the creation of long-term benefits for all stakeholders, through clearly defined social activities and solid management approaches, covering community and social development, human resources development, and natural resources conservation – for the mutual progress of Thai society and a secure and sustainable future.

”

PTT strongly values solid relationships, trust, and confidence amongst its stakeholders. Guided by the Community Development and Community Relations Guidebook (CD-CR), the organization's approach to community relations covers all stages of engagement from social analysis, stakeholder prioritization, development of projects and activities, target-setting, through to implementation. In the meantime, PTT ensures that community development approaches are consistent across the organization and aligns with business strategy, organizational budget, and above all, community needs. PTT's corporate citizenship activities focus on 3 main areas: Human Resources Development, Community and Social Development, and Natural Resources Conservation. Over the past year, PTT contributed a total of 1,407.88 million baht to community and social development, divided into 1.67% in commercial initiatives, 64.22% in community investments, and 34.11% in charitable donations. Performance is summarized as follows.





**193,136**  
Hectares  
of Trees Reforested  
**1.987**  
Million Tons of  
CO<sub>2</sub> Absorption Capacity



**21,823**  
Hours  
Total Employee  
Volunteering During  
Work Hours



**1,971**  
Hours  
Total Employee  
Volunteering  
Outside Work Hours



**130**  
Households  
Supported towards  
Energy  
Self-reliance



#### Human Resources Development

- Vidyasirimedhi Institute of Science and Technology (VISTEC)
- Kamneotvidya Science Academy (KVIS)
- PTT Art Project
- PTT Rayong Football Academy
- Capacity Development for Thai Language Teachers at Border Patrol Police Schools



#### Community and Social Development

- Community Biogas System from Pig Farming
- Community Energy Training Course
- HRH Princess Maha Chakri Sirindhorn Herbal Garden



#### Natural Resources Conservation

- Reforestation Project to Honor His Majesty the King
- Wang Chan Forest Project
- PTT Green in the City
- Vetiver Plantation for Landslide Reduction Project

For more information on PTT's community projects, please visit [www.pttplc.com](http://www.pttplc.com)

## Human Resources Development

In recognizing that developing human resources remains essential to enhancing livelihoods and building the capacity to transform the country into a knowledge-based economy, PTT has dedicated its efforts to providing educational opportunities at all levels. From basic education to research and development for science and technological innovation, specialized knowledge in petroleum and petrochemicals, and fostering creativity in thinking, PTT highlights the importance for today's youth to think outside the box as a way to analyze and solve their problems. At the same time, PTT also supports quality sports education for youth to encourage a balance between physical and mental well-being.

## Vidyasirimedhi Institute of Science and Technology (VISTEC) and Kamneotvidya Science Academy (KVIS)

On the 6<sup>th</sup> of August 2015, PTT received the gracious honor of welcoming Her Royal Highness Princess Maha Chakri Sirindhorn as the chair to the opening ceremony of KVIS and VISTEC. The official opening of these two academic institutions marks not only the culmination of PTT's dedication to the "Learning Triad for Sustainability," which comprises of KVIS, VISTEC, and PLLI, but supports PTT in moving from a resource-based to a knowledge-based organization. With KVIS officially starting classes in June, and VISTEC in August, these institutions provide students with learning opportunities that can significantly enhance their capacity in science and technology. Ultimately, this will build competitiveness and contribute to national development in the future.



"Our country should conduct research that is applicable in real life – with our own patents. Research should create benefits for industry. At Thailand's current capacity, that can be achieved, but what is needed is essential equipment that require significant amounts of investment. I hope that Thailand will have a position not only in the ASEAN region, but globally. I believe that all students here have the same objective as PTT Group in building this institute for Thailand's national development."

**Ms. Wanruedee Wannaphakdee**  
PhD Student at VISTEC

"I decided to attend KVIS because of its state-of-the-art facilities and its readiness in many areas. There are not too many students in each classroom, the teachers are brilliant, and the important thing is that I get to practice my English. You could say that KVIS has provided me with a lot of opportunities, without which I would not have been so prepared and able to learn so many different things to improve own abilities."

**Ms. Nutthanicha Prahomthip**  
10<sup>th</sup> Grade Student at KVIS



## PTT Rayong Football Academy

PTT established the Sports Services Alliance Co, Ltd. in order to manage professional sports in the form of the PTT Rayong Football Academy, to generate income for youth development in Rayong Province, develop learning and excellence in the sport of football, and encourage the beneficial use of leisure time. Part of the aim of this project is to reduce the potential for youth to associate with harmful influences and activities, to stimulate the local economy and employment, and fundamentally strengthen the social fabric of Rayong Province through unity and close familial ties. Performance in 2015 includes:

- Establishment of the PTT Rayong Football Academy to select talented youth players between the ages of 15-16 who are interested in football to train with professionals, and support their education. More than 500 young players expressed their interest, out of which 13 were selected into the Football Academy.
- Organization of the PTT Group Cup, a youth football league in Rayong, to promote youth participation and the regional level, and nationally under the Department of Physical Education. The PTT Group Cup would instill a sense of sportsmanship, support healthy lives, and the beneficial use of free time.
- Stimulation of local employment through local procurement, which led to income generation of approximately 5 million baht per year through the sales of food and beverages, and activities before and during football games.
- Contribution of more than 1 million baht in income tax back to the people of Rayong for their continued development.



## PTT Art Project

To promote creativity amongst Thai youth and artists, and to foster the development of Contemporary Thai Art, PTT collaborated with Silpakorn University to organize the 30<sup>th</sup> PTT art under the theme, "Image of the Future." The competition encouraged participants to express their thoughts, feelings, and imagination on how ways of living in the present will impact upon life in the future different perspectives, such as living conditions, the society, environment, etc. From all over the country, 545 contestants submitted 665 pieces of artwork to the competition, of which 24 winners received awards granted by Her Royal Highness Princess Soamsawali.



## Capacity Development for Thai Language Teachers at Border Patrol Police Schools

The Sustainable Energy Foundation, in collaboration with Office of Language Development in Border Patrol Police Schools and Local Development of the Chiangrai Rajabhat University, and Border Patrol Police Unit 32, launched a capacity development project to enhance Thai language teaching skills for teachers from Border Patrol Police schools. The objective of the project was to increase the levels of literacy among students, and equip them with the ability to understand different subjects. Since the project's inception in 2012, PTT has continued to organize training sessions and followed up on improvements in teacher performance from Border Patrol Police Schools, Unit 32, in Chaingrai, Phayao, and Nan Provinces. These projects have, up to the present, developed over 49 model teachers who are able to transfer their knowledge and Thai teaching skills to others. Apart from this, a Community Science Curriculum has also been developed to support teaching and learning procedures in the sciences, along with a handbook of scientific knowledge to encourage students to learn and sharpen their skills in scientific analysis.

## Community and Social Development

PTT has been involved in the development of community livelihoods by building upon its energy expertise to create opportunities and generate community benefits. The following projects represent PTT's commitment to building strong community self-reliance in energy.

### Community Biogas System from Pig Farming

The objective of the Community Biogas System from Pig Farming Project was to form a model community where members are involved in the management of their own energy systems. Located in Tha Manao Sub-district, Chai Badan District, Lopburi Province, the project encouraged community members to play an active role in disseminating and sharing practical knowledge on energy management to other interested communities, where upon success, the community would become a knowledge hub for community energy management in the central region. Based on studies from 24 sub-districts across the country, Tha Manao Sub-district was found to have relatively high energy expenses per household, and was dealing with issues of environmental impact due to wastewater released from pig farming. Nevertheless, the Tha Manao community exhibited strengths in community participation and readiness of resources for alternative energy development. As a result, PTT worked with the Tha Manao community to expand upon the biogas production and transmission system using swine manure, which originally could produce biogas from one farm for use in merely 10 households, to production in four pig farms for 130 households, composed of a pipeline distribution system extending 4,166 meters. For continuous development, the community plans to expand the biogas distribution system to an additional 900 households, through collaboration with the Ministry of Energy and Lopburi Provincial Energy Office, to achieve ultimate goal of becoming a "Tambon without LPG" by 2018.

An important contributor to the success of this project was the active participation of Tha Manao community members in all stages of project development – from preliminary surveys to gain an overview of the situation, to sharing and disseminating knowledge, project design and development, installation of the biogas production and transmission system, and system maintenance. Not only did the project inspire community ownership of their own biogas production and distribution system, it was able to mitigate initial problems concerning environmental impacts from wastewater discharge as well as any community conflicts associated with pollution from pig farming. Owing to this success, the community was awarded the Sub-district Administrative Organization Energy Awards by the Energy Policy and Planning Office, Office of the Permanent Secretary, Ministry of Energy. Furthermore, PTT was also awarded the Outstanding State-Owned Enterprise Awards for social and environmental performance by the State Enterprise Policy Office.

#### Achievements from the Community Biogas System from Pig Farming Project



**130** households in Tha Manao Sub-district received direct benefits

Reduction in LPG use by **7,936** 936 kg per year  
(23.69 tons CO<sub>2</sub>e per year)

Reduction in diesel use by **10,800** liters per year  
(29.3 tons CO<sub>2</sub>e per year)

Reduction in electricity use by **6,491** units of electricity  
(3.89 tons CO<sub>2</sub>e per year)

Greenhouse gas reduction of **56.88** tons CO<sub>2</sub>e per year

Resulting in total cost-savings of **518,980** baht per year



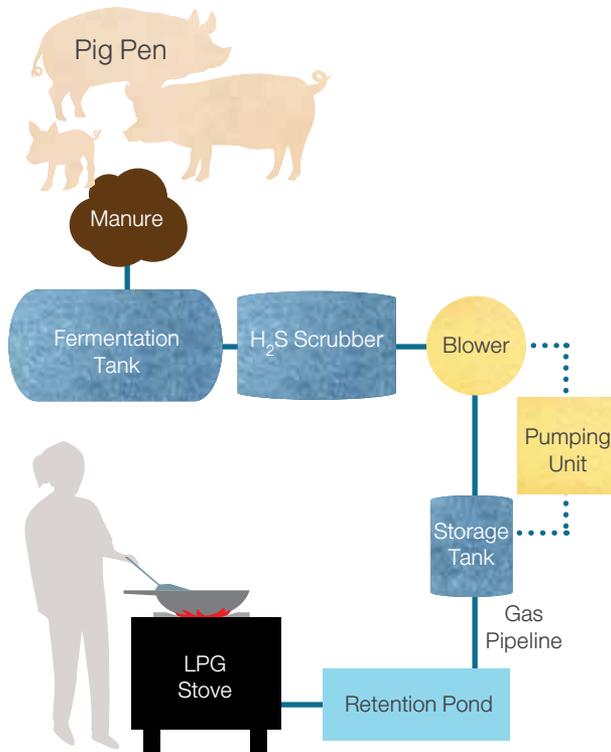
Increase in agricultural revenue by **423,780** baht per year

including from increasing yields of sugarcane production by using sludge from biogas production instead of chemical fertilizers, from sales of sludge, and increased value from pig sales due to contract farming.



Income generation by **121,360** baht per year from construction and maintenance of the biogas system

### Biogas System from Pig Farming



“This project would not have happened without an understanding of harmony. Everyone has come together, from the farm owners to community members and local organizations; because harmony is the key to success – achieve that and benefits will naturally follow. The pig farmers are happy, the community is happy, because everyone was able to benefit. At the end of the day, the success from this development lies with the community.”

#### Dr. Sumet Tantivejkul

Secretary-General of the Chaipattana Foundation

### Community Energy Training Course

PTT believes that building knowledge and understanding of energy for communities will help them to develop skills and ways of thinking for energy management – leading towards true community self-reliance. In this view, over the past year PTT organized a community energy training course to promote integration of the Sufficiency Economy Policy into community energy management approaches. The course emphasized on developing ways of thinking, planning, and analyzing, and consisted of 3 main subjects: Energy, Energy Management, and Community Development Planning. A total of 2 training courses were held for approximately 100 people. In 2016, PTT plans to continue organizing energy training courses.

### Vetiver Plantation for Landslide Reduction Project

Between 2013 and 2015, PTT collaborated with communities in 14 areas throughout the country to develop appropriate, scientifically-proven methods for landslide prevention through the use of vetiver and vegetation planting (by preserving soil cover on a sloping surface through the construction of perpendicular boundaries, thereby reducing the speed and direction of water flow).

The 14 pilot areas were utilized as case studies to gather and disseminate knowledge on landslide prevention through vetiver and vegetation plantation. Following implementation of these projects, communities were able to reduce costs associated with landslide remediation by 90,476 per year per area, and generate income from harvesting planted vegetation by 27,357 baht per year. Moreover, communities were able to deeply recognize the benefits of vetiver use, were able to exchange and expand upon this knowledge for greater results, and even participate in vetiver conservation networks with other like-minded communities.



14 Areas

#### 2015

Communities in 14 areas across the country used vetiver and other vegetation through mechanical means to prevent landslides, and became learning models for landslide prevention at the community level.

#### 2014

Plant vegetation, such as local flora and vetiver that can grow in the selected areas, to reduce long-term land erosion.

#### 2013

Develop mechanical blueprints for use in landslide risk areas, in 14 areas across the country.

## Natural Resources Conservation

Through the PTT Reforestation Institute and relevant partnership networks, PTT has jointly been involved in the restoration and conservation of natural resources to maintain ecosystem abundance in areas surrounding operations and across the country, as well as the promotion of community conservation. Over the past year, PTT sustained these commitments in forest conservation, expanding conservation networks, and managing knowledge on natural resources and environmental conservation. Performance highlights are summarized below.

## Reforestation Project to Honor His Majesty the King

PTT Group continued to maintain the 1,600 million m<sup>2</sup> forest area planted in honor of the 50<sup>th</sup> anniversary of His Majesty the King's ascension to the throne. In 2015, an additional 5,364.8 hectares were planted in order to meet the 2024 target of increasing quality forest area in Thailand to absorb 2.1 million tons of carbon dioxide.



“PTT Reforestation Institute is a leader in forestry and forest restoration, delivering innovations for a balanced ecosystem and reducing global warming for a sustainable future.”



## Wang Chan Forest Project

PTT established an integrated learning center on forestry and forest restoration on an area of 56.16 hectares in Pa Yup Nai Sub-district, Wang Chan District, Rayong Province. The learning center is to serve as a resource for education and research, and a place to compile PTT's knowledge assets on social and community development for public dissemination. Not only is the forest area an important source of water for Rayong Province, an area of 29.64 hectares has also been listed as a pilot site under the T-VER certification of the TGO due to its carbon dioxide absorption capacity of 176 tons per year, and will also be used as a pilot site for carbon credits in the future.



## PTT Green in the City

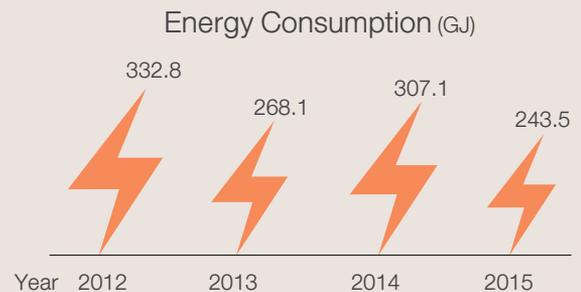
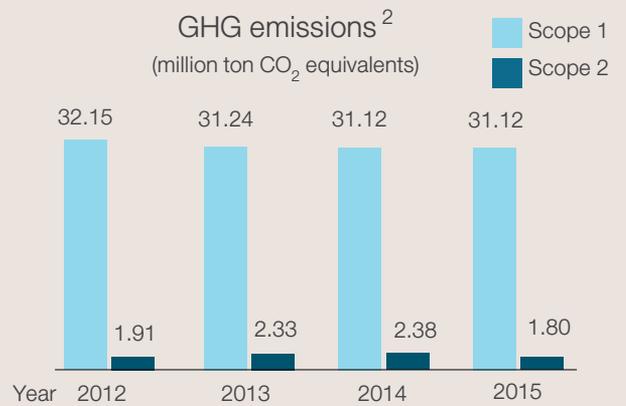
PTT launched the “PTT Green in the City” Project on Sukhaphiban 2 Road, Bangkok, to support the expansion of green spaces in the city, and as part its enduring commitment to reforestation. An area of 1.92 hectares was developed as “new lungs” for city dwellers, and is divided as follows: 75% as forest area, 10% as water area, and 15% for industrial use. The project focused on creating a diverse forest ecosystem with more than 250 tree species, designing a water management system that contributes to ecosystem balance, and designing an environmentally-friendly building that can blend into its surroundings. PTT Green in the City received recognition from the Low Emission Support Scheme (LESS) of the TGO, owing to its carbon dioxide absorption capacity of 68.24 tons and ability to release a total of 54.59 tons of oxygen.

# PTT Group Performance Highlights

Total waste to landfill<sup>1</sup> (ton)



**193,136**  
Hectares  
of Trees Reforested;  
**1.987**  
Million Tons of CO<sub>2</sub>  
Absorption Capacity



More than **1 Trillion Baht**  
in revenue generated from supply chain  
collaboration



More than **10,000 Million Baht**  
in business value generated through  
cost-savings, increased sales, and  
higher efficiency



Lost Time Injury Frequency Rate (LTIFR)

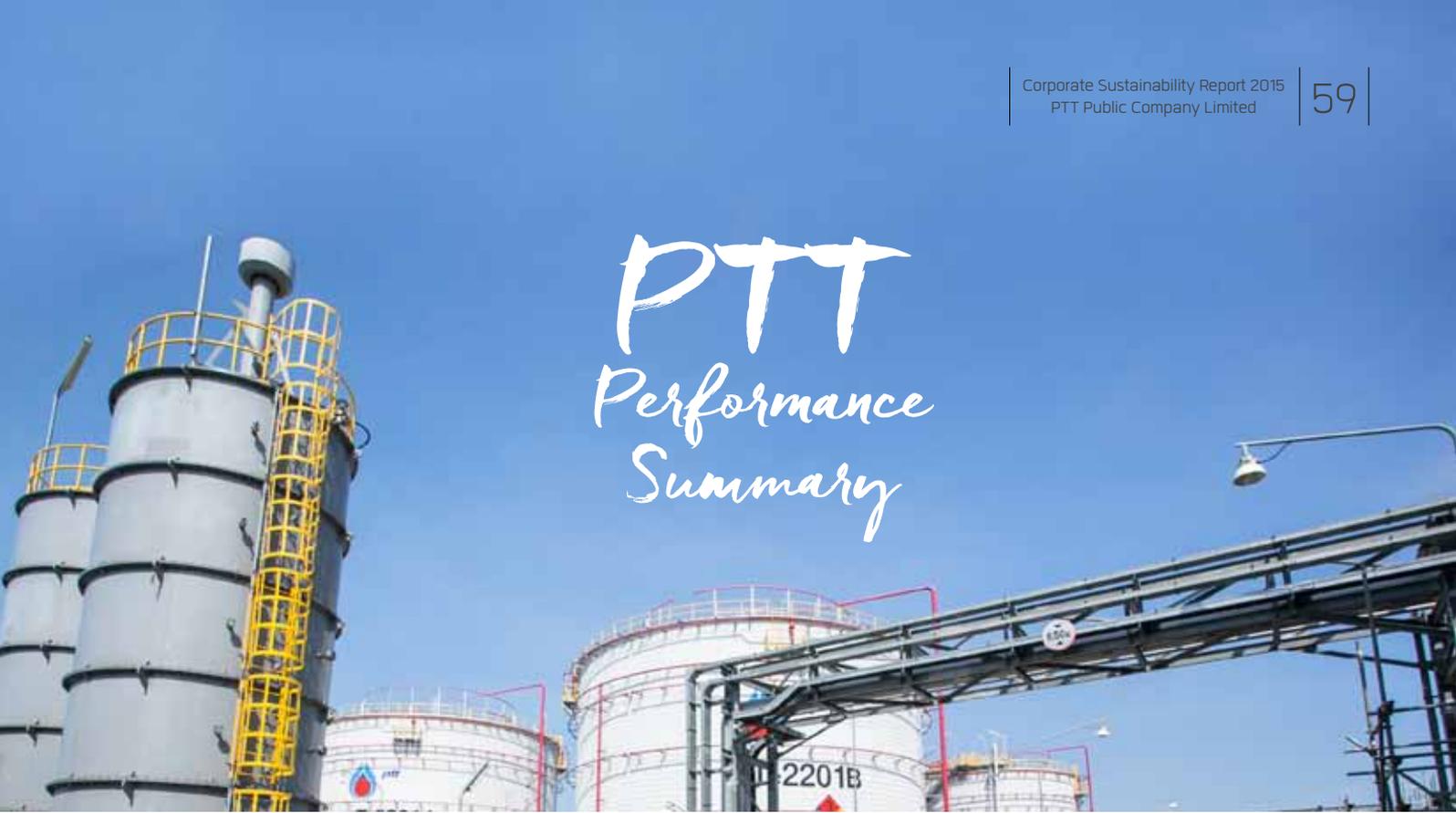


Remark:

<sup>1</sup> The scope of measurement for environmental performance covers the following PTT Group companies: PTT, PTTEP, PTTGC, TOP, IRPC, and GPSC.

<sup>2</sup> Greenhouse gas emissions and energy consumption covers PTT Group companies in which PTT holds more than 20% of shares in ownership.

<sup>3</sup> The scope of measurement for 2014 does not cover GPSC.



## ECONOMICS<sup>1</sup>

GRI	Required Data	Unit	PTT	
				2015
G4-EC1	Sales revenues	Million Baht	2,605,062	2,026,912
	Operating costs	Million Baht	2,374,014	1,803,585
	Employee wages and benefits <sup>2</sup>	Million Baht	8,785	8,792
	Dividend payments for the performance of the year	Million Baht	31,401	28,562
	Payments to government	Million Baht	3,772	4,003
G4-EC4	Tax privileges from the Board of Investment, Thailand	Million Baht	6,315	3,723

**Remarks:**

<sup>1</sup> Due to the change in the Accounting Policies effective since January 1, 2015, the Group has restated and presented the financial statements for 2015 and 2014. Please see more details at Annual Report 2015.

<sup>2</sup> Employee wages and benefits for employees managed under PTT include: PTT's employees, PTT's secondment and employees in subsidiaries under PTT financial management. The scope does not include the Chief Executive Officer and top executives. Employee wages and benefits include salaries, bonuses, contributions to provident funds, etc. (if applicable).

<sup>3</sup> Revised numbers.



## PEOPLE

GRI	Required Data	Unit	2013		2014		2015		
			Male	Female	Male	Female	Male	Female	
G4-10	Permanent employees	Manpower	2,953	1,441	3,009	1,507	3,083	1,577	
	Outsourced workers <sup>1</sup>	Manpower	1,945		2,029		2,113		
	Workforce <sup>2</sup>	Manpower	6,339		6,545		6,773		
	Employees by area								
	• Bangkok <sup>3</sup>	Manpower	1,550	1,264	1,593	1,313	1,594	1,361	
	• Others <sup>4</sup>	Manpower	1,359	164	1,370	181	1,442	200	
	• Overseas <sup>5</sup>	Manpower	44	13	46	13	47	16	
G4-LA12	Employees by age								
	• Over 50 years old	Manpower	651	317	677	341	652	331	
	• 30-50 years old	Manpower	1,591	810	1,665	837	1,729	900	
	• Below 30 years old	Manpower	711	314	667	329	702	346	
	Employees by level								
	• Executive (Level 13-18)	Manpower	146	56	141	58	141	67	
	• Middle management (Level 10-12)	Manpower	334	220	342	240	343	257	
	• Senior (Level 8-9)	Manpower	761	475	812	470	842	462	
	• Employee (Level 7 and below)	Manpower	1,712	690	1,714	739	1,757	791	
	G4-LA1	Total new employees	Manpower	317		270		305	
New employees		Manpower	196	121	154	116	177	128	
New hire rate		%	6.64	8.40	5.12	7.70	5.74	8.12	
New employees by area									
• Bangkok		Manpower	120	110	114	95	94	110	
		%	4.06	7.63	3.79	6.30	3.05	6.98	
• Others <sup>4</sup>		Manpower	76	11	40	21	83	18	
		%	2.57	0.76	1.33	1.39	2.69	1.14	
New employees by age									
• Over 50 years old		Manpower	2	0	2	0	0	0	
		%	0.07	0.00	0.07	0.00	0.00	0.00	
• 30-50 years old		Manpower	29	18	22	19	11	14	
		%	0.98	1.25	0.01	0.01	0.36	0.89	
• Below 30 years old		Manpower	165	103	130	97	166	114	
		%	5.59	7.15	4.32	6.44	5.38	7.23	
Total employee turnover <sup>6</sup>	Manpower	156		136		158			
Employee turnover <sup>6</sup>	Manpower	93	63	89	47	103	55		
Employee turnover rate	%	3.15	4.37	2.96	3.12	3.34	3.49		

GRI	Required Data	Unit	2013		2014		2015	
			Male	Female	Male	Female	Male	Female
Employee turnover by area								
	• Bangkok	Manpower	62	59	67	47	26	22
		%	2.10	4.09	2.23	3.12	0.84	1.40
	• Others <sup>4</sup>	Manpower	32	4	25	1	7	1
		%	1.08	0.28	0.83	0.07	0.23	0.06
Employee turnover by age								
	• Over 50 years old	Manpower	72	28	64	25	70	32
		%	2.44	1.94	2.13	1.66	2.27	2.03
	• 30-50 years old	Manpower	11	15	18	18	14	11
		%	0.37	1.04	0.60	1.19	0.45	0.70
	• Below 30 years old	Manpower	11	20	10	5	19	12
		%	0.37	1.39	0.33	0.33	0.62	0.76
G4-LA3	Number of employees entitled to parental leave <sup>7</sup>	Manpower	2,953	1,441	3,009	1,507	3,083	1,577
	Number of employees taking parental leave <sup>8</sup>	Manpower	0	21	0	27	0	38
	Number of employees returning to work after parental leave <sup>9</sup>	Manpower	0	21	0	27	0	38
	Number of employees returning to work after parental leave who are still employed for the next 12 months <sup>10</sup>	Manpower	0	15	0	25	0	NA
	Retention rate	%	0.00	71.43	0.00	92.59	0.00	NA
G4-LA9	Average hours of training per employee <sup>11</sup>	Hour per employee	37.52	47.87	32.44	39.15	48.84	64.06

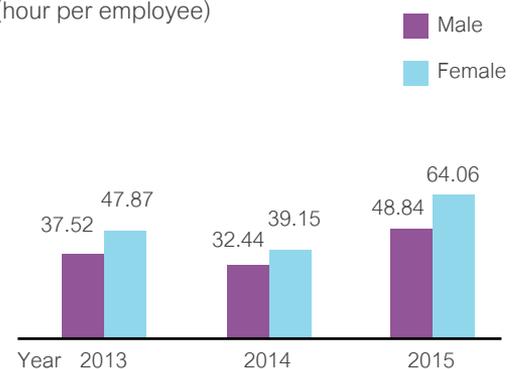
Remarks:

NA Not available

- <sup>1</sup> Outsourced workers refers to contractors who deliver tasks specified in the annual TOR and do not include short-term outsourced workers during the year e.g. sub-contractors, consultants, housekeepers, etc.
- <sup>2</sup> Workforce = Permanent employees + Outsourced workers.
- <sup>3</sup> The data of number of employees by area in 2013 have been adjusted after including overseas employees in 2014.
- <sup>4</sup> Others refers to other provinces outside Bangkok where PTT's offices are situated. The data of number of employees by area in 2013 have been adjusted after including overseas employees in 2014.
- <sup>5</sup> Overseas employees include employees working abroad in Cambodia, China, UAE, Laos, Myanmar, Malaysia, Philippines, and Singapore.
- <sup>6</sup> Total employee turnover in 2013 has been adjusted.
- <sup>7</sup> Number of male employees entitled to parental leave in 2013 has been adjusted to include paternity leave benefits.
- <sup>8</sup> Number of employees taking parental leave in 2013 has been adjusted.
- <sup>9</sup> Number of employees returning to work after parental leave in 2013 has been adjusted.
- <sup>10</sup> Number of employees returning to work after parental leave who are still employed for the next 12 months in 2013 has been adjusted. Data for 2015 has not been included in the reporting cycle.
- <sup>11</sup> Hours of training and further study are included in the average hours of training per year per employee.

Average hours of training per employee

(hour per employee)





GRI	Required Data	Unit	PTT		
			2013	2014	2015
G4-LA6 <sup>1</sup>	Lost workday case (LWC) <sup>2</sup>				
	• Total workforce	Person	5	7	4
	• Independent contractor	Person	2	1	0
	Total recordable injuries case (TRIC) <sup>3</sup>				
	• Total workforce	Person	13	17	5
	• Independent contractor	Person	4	7	1
	Total recordable injuries rate (TRIR) <sup>3</sup>				
	• Total workforce <sup>4</sup>	Person per	0.11	0.13	0.03
	• Independent contractor <sup>5</sup>	200,000 hours worked	0.14	0.10	0.02
	Lost day rate (LDR)				
	• Total workforce	Lost days per	0.79	0.46	0.28
	• Independent contractor	200,000 hours worked	1.23	0.45	0
	Absentee rate (AR)				
	• Total workforce	%	1.54	1.32	1.53
• Independent contractor	%	NA	NA	NA	
Lost time injury frequency rates (LTIFR) <sup>3</sup>					
• Total workforce	Person per	0.07	0.05	0.03	
• Independent contractor	200,000 hours worked	0.07	0.01	0.02	
Occupational illness frequency rate (OIFR) <sup>3</sup>					
• Total workforce	Person per	0.01	0.00	0.00	
• Independent contractor	200,000 hours worked	NA	NA	NA	
Fatalities					
• Total workforce	Person	3	0	0	
• Independent contractor	Person	NA	0	0	
Near Misses					
• Total workforce & independent contractor	Case	134	154	146	
-	Accident				
• Number of accidents from using corporate vehicles <sup>6</sup>	Case	19	8	14	
• Number of land transport accidents per 1,000,000 km <sup>7</sup>	Case	0.12	0.11	0.10	

Remarks:

NA Not available

<sup>1</sup> The reporting boundary covers domestic operations only, not broken down at the regional level. OH&S data is also not broken down by gender because PTT equally regards the importance of safety for all employees, in accordance with PTT's Code of Business Ethics. The data excludes contractors working on construction projects that have not yet been handed over to PTT, such as the Natural Gas Transmission Pipeline Project.

<sup>2</sup> Monitored by calendar day, and is recorded after the day on which the incident occurred. 2020 target is equal to zero.

<sup>3</sup> Do not include first aid cases.

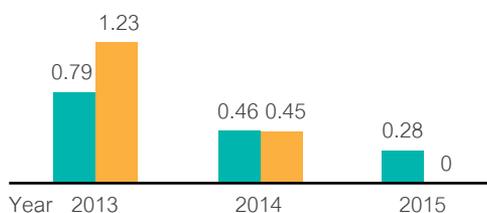
<sup>4</sup> 2020 target for total workforce is equal to 0.066 per 200,000 hours.

<sup>5</sup> 2020 target for independent contractors equals to 0.086 per 200,000 hours.

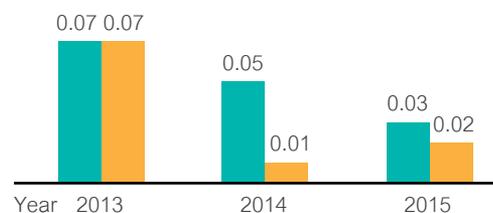
<sup>6</sup> 2015 target equals to 6.

<sup>7</sup> 2015 target equals to 0.05.

**Lost day rate (LDR)**  
(lost days per 200,000 hours worked)



**Lost time injury frequency rates (LTIFR)**  
(lost days per 200,000 hours worked)



■ Total workforce ■ Independent contractor



# ENVIRONMENT

Reporting Scope	Year	PTT Operated Business												2015 Coverage (%)		
		PTT Building				Gas Separation Plant (GSP)	Gas Transmission (GTM)	Terminal			Retail	Lubrication	Transportation		NGV Service Stations	
		Head Office	Prakanong Office	Research & Technology Institute	Rayong Office			Gas Terminal	Oil Terminal	Aviation						
Direct GHG emissions (Scope 1)	2015	*	*	*	NA	*	*	*	*	*	*	*	*	*	*	100
	2014	*	*	*	NA	*	*	*	*	*	*	*	*	*	*	
	2013	*	*	*	NA	*	*	*	*	*	*	*	*	*	*	
Indirect GHG emissions (Scope 2)	2015	*	*	*	NA	*	*	*	*	*	*	*	*	*	*	100
	2014	*	*	*	NA	*	*	*	*	*	*	*	NR	*	*	
	2013	*	*	*	NA	*	*	*	*	*	*	*	NR	*	*	
Direct energy consumption	2015	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100
	2014	*	*	*	NA	*	*	*	*	*	*	*	*	*	*	
	2013	*	*	*	NA	*	*	*	*	*	*	*	*	*	*	
Electricity purchased	2015	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100
	2014	*	*	*	NA	*	*	*	*	*	*	*	NR	*	*	
	2013	*	*	*	NA	*	*	*	*	*	*	*	NR	*	*	
Water withdrawal	2015	*	*	*	NA	*	*	*	*	*	*	*	NR	*	*	100
	2014	*	*	*	*	*	*	*	*	*	*	*	NR	*	*	
	2013	*	*	*	*	*	*	*	*	*	*	*	NR	*	*	
Effluents	2015	NR	NR	NR	NR	*	NR	*	*	*	*	NR	NR	*	*	100
	2014	NR	NR	NR	NR	*	NR	*	*	*	*	*	NR	*	*	
	2013	NR	NR	NR	NR	*	NR	*	*	*	*	*	NR	*	*	
Produced water	2015	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	2014	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	2013	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Waste disposal	2015	*	*	*	*	*	*	*	*	*	*	*	NR	*	*	100
	2014	*	*	*	*	*	*	*	*	*	*	*	NR	*	*	
	2013	*	*	*	*	*	*	*	*	*	*	*	NR	NA	*	
Oil and chemical spills	2015	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100
	2014	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	2013	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Oxides of nitrogen (NOx)	2015	NR	NR	NR	NR	*	*	NR	NR	NR	NR	NR	NR	NR	NR	100
	2014	NR	NR	NR	NR	*	*	NR	NR	NR	NR	NR	NR	NR	NR	
	2013	NR	NR	NR	NR	*	*	NR	NR	NR	NR	NR	NR	NR	NR	
Sulphur dioxide (SO <sub>2</sub> )	2015	NR	NR	NR	NR	*	*	NR	NR	NR	NR	NR	NR	NR	NR	100
	2014	NR	NR	NR	NR	*	*	NR	NR	NR	NR	NR	NR	NR	NR	
	2013	NR	NR	NR	NR	*	*	NR	NR	NR	NR	NR	NR	NR	NR	
Volatile organic compounds (VOCs)	2015	NR	NR	NR	*	NR	*	NA	NR	NR	NR	NR	NR	NR	NR	100
	2014	NR	NR	NR	NR	*	NR	*	NA	NR	NR	NR	NR	NR	NR	
	2013	NR	NR	NR	NR	NA	NR	*	NA	NR	NR	NR	NR	NR	NR	
Volume of methane (CH <sub>4</sub> ) emitted	2015	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100
	2014	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	2013	*	*	*	NA	*	*	*	*	*	*	*	*	*	*	
Direct methane (CH <sub>4</sub> ) emissions	2015	*	*	*	*	*	*	*	*	*	*	*	*	*	*	100
	2014	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	2013	*	*	*	NA	*	*	*	*	*	*	*	*	*	*	

**Remarks:**

NA Not available

NR Not relevant



## WATER

GRI	Required Data	Unit	PTT		
			2013	2014	2015
G4-EN8	Total water withdrawal	Million m <sup>3</sup>	3.03	3.24	3.63
	• Surface water	Million m <sup>3</sup>	0.14	0.19	0.27
		%	4.58	5.73	7.44
	• Seawater	Million m <sup>3</sup>	0.01	0.01	0.01
		%	0.23	0.24	0.19
	• Water supply	Million m <sup>3</sup>	2.84	2.92	3.18
		%	93.81	90.28	87.50
	• Groundwater	Million m <sup>3</sup>	0.04	0.11	0.15
		%	1.38	3.42	4.10
	• Rainwater	Million m <sup>3</sup>	0.00	0.01	0.03
		%	0.00	0.33	0.72
	Total salt/brackish water (seawater + once through cooling)	Million m <sup>3</sup>	0.01	0.01	0.01
	Water from all other sources (surface water + groundwater)	Million m <sup>3</sup>	0.18	0.30	0.42
	G4-EN10	Recycled & reused water	Percentage of water withdrawal	0.96	5.04
Million m <sup>3</sup>			0.03	0.17	0.23
Water intensity		m <sup>3</sup> boe	0.008	0.009	0.009

**Remarks:**

- Strategic Objective 2020: Reduce water consumption in high risk areas and limit the increase of water consumption in areas with high consumption.
- In 2015, PTT revised its collection and reporting methodologies for Rayong Gas Separation Plant to ensure more completeness of data. Data from previous years have also been recalculated to match the new methodologies and are included in this report.
- Increase in water supply usage was due to testing of equipment for the demineralized water project at Rayong Gas Separation Plant (Eco-Cure Project), which utilizes membrane technology and EDI system in place of the existing system, allowing for more environmentally-friendly operations.
- Increase in freshwater withdrawal was due to testing of the fuel storage tank at Surat Thani Petroleum Terminal (Fuel and LPG).
- Increases in the volume of recycled and reused water were also a result of the Eco-Cure Project.



## EMISSIONS

GRI	Required Data	Unit	PTT		
			2013	2014	2015
G4-EN22	Total water discharge	Million m <sup>3</sup>	1.20	1.26	1.49
	Chemical oxygen demand (COD)	Ton	105.28	121.28	132.64
	Biochemical oxygen demand (BOD)	Ton	3.82	3.85	4.72

**Remarks:**

- Total water discharge COD and BOD increased as Rayong Gas Separation Plant underwent routine maintenance for its Comprehensive Wastewater Treatment Plant, during which the water recycling system was temporarily stalled for improvements. However, the quality of effluents was not affected and remained in line with legal requirements.



## WASTE

GRI	Required Data	Unit	PTT		
			2013	2014	2015
G4-EN23	Waste from routine operations	Ton	13,117.03	13,303.74	15,517.39
	Total hazardous waste disposal	Ton	4,943.52	2,933.41	4,448.45
	• Secure landfill	Ton	895.03	513.03	110.42
	• Reuse	Ton	3.55	7.05	0.05
	• Recycle	Ton	167.72	202.09	537.36
	• Recover	Ton	2,852.56	1,905.22	3,335.31
	• Others (incineration, compositing, deep well injection)	Ton	1,024.67	306.07	465.30
	Total non-hazardous waste disposal	Ton	8,173.51	10,370.33	11,068.95
	• Landfill	Ton	52.27	116.12	24.04
	• Reuse	Ton	1.63	540.51	0.12
	• Recycle	Ton	2,169.23	458.40	1,788.62
	• Recover	Ton	0.00	8.47	161.18
	• Domestic waste	Ton	5,950.38	9,246.82	9,095.00
	Waste from non-routine operations (e.g. construction waste, spill clean-up waste, crisis management waste)	Ton	2,503.81	3,136.40	2,993.39
	Total hazardous waste disposal	Ton	37.18	1,899.74	1,725.25
	• Secure landfill	Ton	23.30	99.39	131.83
	• Recycle	Ton	0.00	110.84	0.00
	• Recover	Ton	12.88	724.58	1,537.48
	• Others	Ton	1.00	964.93	55.94
	Total non-hazardous waste disposal	Ton	2,466.63	1,236.67	1,315.47
	• Landfill	Ton	0.00	68.51	25.43
	• Reuse	Ton	2,450.00	1,080.20	710.00
	• Recycle	Ton	0.00	78.99	287.30
	• Domestic waste	Ton	16.63	8.96	5.31
	Waste On-site storage	Ton	60.19	64.77	467.85

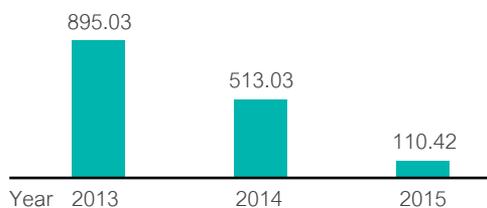
### Remarks:

- Decrease in the amount of waste to landfill from routine operations is due to the separation of waste that occurs at the beginning of the disposal process, allowing for more appropriate waste disposal methods, in alignment with the Strategic Objective 2020 of "Zero Hazardous Waste to Landfill."
- Volume of waste from non-routine operations includes waste generated from the construction of capital projects and risk and crisis management.
- There is no established threshold for hazardous waste, as all operations must report their total volume of hazardous wastes sent for disposal.
- In 2015, the Increase in waste from routine operations was due to the routine maintenance of Rayong Gas Separation Plant #5.

### Total Hazardous Waste Disposal

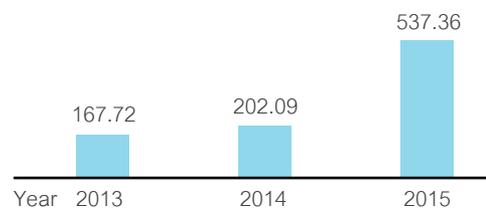
#### Secure landfill

(ton)



#### Recycle

(ton)



## SPILLS

GRI	Required Data	Unit	PTT		
			2013	2014	2015
G4-EN24	Oil and chemical spills				
	From PTT operational boundary				
	• Number of hydrocarbon spills	Number of spills	1	1	0
	• Volume of hydrocarbon spills	m <sup>3</sup>	6.00	0.30	0.00
	• Number of non-hydrocarbon spills	Number of spills	0	0	0
	• Volume of non-hydrocarbon spills	m <sup>3</sup>	0.00	0.00	0.00
	From 3 <sup>rd</sup> party (transportation): truck transportation				
	• Number of hydrocarbon spills	Number of spills	8	6	4
	• Volume of hydrocarbon spills	m <sup>3</sup>	40.95	42.03	18.25
	• Number of non-hydrocarbon spills	Number of spills	0	0	0
	• Volume of non-hydrocarbon spills	m <sup>3</sup>	0.00	0.00	0.00
	From 3 <sup>rd</sup> party (transportation): ship and barge transportation				
	• Number of hydrocarbon spills	Number of spills	NA	NA	0
	• Volume of hydrocarbon spills	m <sup>3</sup>	NA	NA	0.00
	• Number of non-hydrocarbon spills	Number of spills	NA	NA	0
	• Volume of non-hydrocarbon spills	m <sup>3</sup>	NA	NA	0.00
	Significant spill (Volume ≥ 100 barrel)				
	From PTT operational boundary				
	• Number of hydrocarbon spills	Number of spills	0	1	0
	• Volume of hydrocarbon spills	m <sup>3</sup>	0.00	26.00	0.00
	• Number of non-hydrocarbon spills	Number of spills	0	0	0
	• Volume of non-hydrocarbon spills	m <sup>3</sup>	0.00	0.00	0.00
	From 3 <sup>rd</sup> party (transportation): truck transportation				
	• Number of hydrocarbon spills	Number of spills	3	3	4
	• Volume of hydrocarbon spills	m <sup>3</sup>	90.80	83.00	129.35
	• Number of non-hydrocarbon spills	Number of spills	0	0	0
	• Volume of non-hydrocarbon spills	m <sup>3</sup>	0.00	0.00	0.00
	From 3 <sup>rd</sup> party (transportation): ship and barge transportation				
	• Number of hydrocarbon spills	Number of spills	NA	NA	0
	• Volume of hydrocarbon spills	m <sup>3</sup>	NA	NA	0.00
	• Number of non-hydrocarbon spills	Number of spills	NA	NA	0
	• Volume of non-hydrocarbon spills	m <sup>3</sup>	NA	NA	0.00

**Remarks:**

NA Not available

- Volume of hydrocarbon and non-hydrocarbon spills include spills which occur in operational areas, as well as those from truck and shipping transportation, that result in a volume of more than 1 barrel of oil spilled to the environment. In the case of spills, PTT executes spill response procedures to control spills within the shortest time possible in order to minimize environmental impacts, for instance, with booms and skimmers.

## EMISSIONS

GRI	Required Data	Unit	PTT		
			2013	2014	2015
G4-EN21	Volatile organic compounds (VOCs)	Ton	6,749.70	7,798.05	9,472.17
	VOCs Intensity	Ton per million barrel oil equivalents (mboe)	17.69	21.12	24.38
	Oxides of nitrogen (NOx)	Ton	969.46	970.33	1,145.90
	NOx intensity	Ton per million barrel oil equivalents (mboe)	2.54	2.63	2.95
	Sulphur dioxide (SO <sub>2</sub> )	Ton	121.00	138.56	77.35
	SO <sub>2</sub> intensity	Ton per million barrel oil equivalents (mboe)	0.32	0.38	0.20

**Remarks:**

- Strategic Objective 2020: Zero emission rate of SO<sub>2</sub>, NOx, and VOCs.
- VOCs emissions increased as PTT expanded the scope of reporting included 7 aviation depots and 92 PTT-owned and operated service stations.
- SO<sub>2</sub> and NOx emissions from all facilities remain below the legal threshold for air quality.



## ENERGY

GRI	Required Data	Unit	PTT		
			2013	2014	2015
G4-EN3	Total direct energy consumption	GJ	45,240,812	46,963,071	48,339,286
	Total indirect energy consumption	GJ	2,676,817	2,817,088	2,620,978
	Electricity purchased	GJ	2,676,817	2,817,088	2,620,978

GRI	Required Data	Unit	PTT Group		
			2013	2014	2015
G4-EN3	Total energy consumption	GJ	288,423,645	331,372,596	261,592,484
	Total direct energy consumption				
	• PTT operational control	GJ	268,127,556	307,138,291	243,485,680
	Total indirect energy consumption	GJ	20,296,089	24,234,305	18,106,804
G4-EN5	Direct energy intensity				
	• Oil and gas production	GJ/mboe	228,497	165,510	190,238
	• Refinery throughput	GJ/Ton refinery throughput	1.53	1.13	1.91
	• Petrochemical throughput	GJ/Ton petrochemical product	3.76	11.20	2.88

**Remarks:**

- Strategic Objective 2020: Reduce energy intensity by at least 1.9% annually based on a business as usual (BAU) scenario until 2017.
- Only electricity purchased is counted as part of indirect energy consumption.
- Energy intensity of Oil & Gas Production, Refinery and Petrochemical Businesses covers Rayong Gas Separation Plant, PTTEP, PTTGC, TOP, and IRPC.

CH<sub>4</sub>

## METHANE (CH<sub>4</sub>) EMITTED AND CH<sub>4</sub> EMISSIONS

GRI	Required Data	Unit	PTT Group		
			2013	2014	2015
	Volume of methane emitted (leakage, venting, and flaring)	m <sup>3</sup>	72,826,380	83,405,431	77,698,553
	Direct CH <sub>4</sub> emissions (extracted from GHG)	Ton	49,443	56,566	52,686
G4-OG6	Volume of flared hydrocarbon	m <sup>3</sup>	789,082	686,912	764,932
	Volume of vented hydrocarbon	m <sup>3</sup>	46,332	32,745	55,562

**Remarks:**

- PTT conducts analyses on methane leakage from various cases. Continuous reporting and preventive measures on future methane leakage are also considered.
- Restatement: In 2015, PTT updated its methane leakage calculation methodologies for better accuracy and consistency. Data from previous years have also been recalculated and are included in this report.
- The volume of methane emitted includes leakage, gas vented from processes (CO<sub>2</sub> separation and ethylene production), methane emitted from vented emissions, and flaring.
- Direct CH<sub>4</sub> emissions include those from aforementioned sources, as well as direct CH<sub>4</sub> emitted from combustion sources.

GHG

# GHG AND METHANE (CH<sub>4</sub>) EMISSIONS

GRI	Required Data	Unit	PTT		
			2013	2014	2015
	Total GHG emissions	Ton CO <sub>2</sub> equivalents	10,889,108	11,776,221	11,762,998
G4-EN15	GHG Scope 1	Ton CO <sub>2</sub> equivalents	10,506,883	11,371,147	11,407,679
G4-EN16	GHG Scope 2	Ton CO <sub>2</sub> equivalents	382,224	405,074	355,319
G4-EN17	GHG Scope 3	Ton CO <sub>2</sub> equivalents	122,310,077	122,819,319	129,633,169

GRI	Required Data	Unit	PTT Group		
			2013	2014	2015
G4-EN15	GHG Scope 1				
	• PTT operational control	Ton CO <sub>2</sub> equivalents	31,241,208	31,122,074	31,115,981
	• PTT equity share	Ton CO <sub>2</sub> equivalents	20,302,869	20,950,243	20,701,762
G4-EN16	GHG Scope 2				
	• PTT operational control	Ton CO <sub>2</sub> equivalents	2,329,662	2,382,210	1,800,870
	• PTT equity share	Ton CO <sub>2</sub> equivalents	1,374,324	1,406,599	1,080,016
G4-EN17	GHG Scope 3	Ton CO <sub>2</sub> equivalents	122,329,999	122,819,319	125,722,575
G4-EN18	GHG Intensity				
	• Oil and gas production	Ton CO <sub>2</sub> equivalents/Million barrel oil equivalents	48,995	35,617	38,130
	• Refinery	Ton CO <sub>2</sub> equivalents/Ton refinery throughput	0.1286	0.0877	0.0899
	• Petrochemical	Ton CO <sub>2</sub> equivalents/Ton petrochemical product	0.6817	0.6461	0.5499

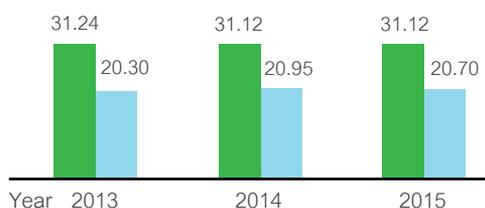
Remarks:

- Strategic Objective 2020: Reduce GHG intensity by 5% based on business as usual (BAU) scenario, from a 2012 baseline.
- The organizational boundary of PTT based on the operational control approach is in compliance with the PTT Group SSHE Policy.
- The organizational boundary of PTT based on the equity share approach includes all domestic subsidiaries in which PTT directly owns more than 20% of shares or indirectly owns 100% of shares.
- Scope 3 emissions include the combustion of fuel sold by PTT only.
- Restatement: In 2015, PTT recalculated GHG emissions up to 2012 to better reflect completeness of data due to the sales of shares from BCP, SPRC, and BUP unit.
- Restatement: In 2015, PTT recalculated GHG emissions up to 2012 to better reflect accuracy and continuity of data due to improved collection processes from CO<sub>2</sub> separation and ethylene production activities, as well as methane leakage from the NGV business.
- GHG intensity of the Oil and Gas Production Business increased in 2015 compared to the previous year due to lowered production in Greater Bongkot South, despite a decrease in absolute emissions of approximately 5%.
- GHG intensity reporting boundary for the Refinery Business includes PTTGC, TOP, and IRPC.
- GHG intensity reporting boundary for the Petrochemical Business includes IRPC, HMC, PTTGC and PTTAC, and demonstrates a decreasing trend.

## GHG emissions of PTT Group

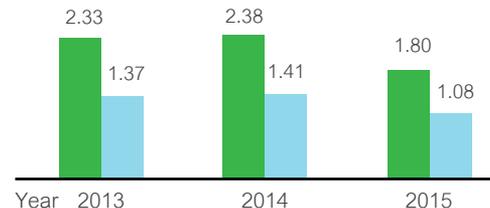
### Scope 1

(million ton CO<sub>2</sub> equivalents)



### Scope 2

(million ton CO<sub>2</sub> equivalents)



■ PTT operational control ■ PTT equity share

# Awards and Recognitions

In 2015, PTT received a total of 77 awards and certifications from 45 institutes

**National Awards**

**57 Awards** | **34 Institutes** | such as

**International Awards**

**20 Awards** | **11 Institutes** | such as



## Sustainability Report Award 2015, Best Award

Given by the Securities and Exchange Commissions, the Thai List Companies Association, and the Thaipat Institute

- Sustainability Awards
- Thailand Sustainability Investment Awards

Given by the Stock Exchange of Thailand

## Outstanding Industry Award 2015 in the Energy Management Category

Given by the Ministry of Industry

## State Enterprise Outstanding Awards:

- Outstanding Information Disclosure and Transparency Award
- Award for the environmental and social work
- Outstanding Innovation Award, for the 6<sup>th</sup> consecutive year

Given by the State Enterprise Policy Office



- Board of Directors 2015
- Special Prestige Award for the Board of Directors with Continually Good Performance

Given by Thai Institute of Director, together with the Thai Chamber of Commerce and Board of Trade of Thailand, the Federation of Thai Industries, the Thai Bankers' Association, the Thai Listed Companies Association, and the Federation of Thai Capital Market Organizations



Granted an award from HRH Princess Maha Chakri Sirindhorn at the Thailand Corporate Excellence Awards 2015 event

- Award for Excellence in Social Responsibility
- 3 Outstanding Awards for Excellence in Leadership, Excellence in Human Resource Management, and Excellence in Financial Management

Given by Thailand Management Association and Sasin Graduate Institute of Business Administration of Chulalongkorn University

## Trophy of Honor

Trophy of Honor from Prime Minister General Prayuth Chan-ocha to PTT for being listed as a member of the Dow Jones Sustainability Indices (DJSI) for the 3<sup>rd</sup> consecutive year and to 4 PTT Group subsidiaries also listed as members of DJSI 2014

Given by the Stock Exchange of Thailand



PTT Wanarom Eco Zone Industries (PTT WECOzi) passed the assessments and was certified from 3 institutes; namely,

- Eco-industrial Zone Eco Champion Award, the first in Thailand from the Industrial Estate Authority of Thailand
- ISO14001: Environmental Management System

from the Management System Certification Institute (Thailand)

- Thailand Voluntary Emission Reduction (T-VER) of PTT WECOzi was registered by Thailand Greenhouse Gas Management Organization (Public Organization)

## Colorful PV Rest Area Research

Received the Creative Technology for Society Award 2015 from the Best Machinery Technology Award

Given by the Ministry of Science and Technology

## National Public Service Award in the Excellent Service Development category

PTT Contact Center 1365 and the automatic buying system from direct debit received the award at the Good Level

Given by the Office of the Public Sector Development Commission

- PTT service stations were voted from consumers as the Most Favorite Brand, for the 12<sup>th</sup> consecutive year
- PTT lubricant products were voted as No.1 Brand, for the 5<sup>th</sup> consecutive year

Given by BrandAge Magazine

## ESG100 Certificate

Received ESG100 Certificate for its outstanding environmental, social, and governance practices

Given by Thaipat Institute

PTT remained the member in Dow Jones Sustainability World Index (DJSI World) and Dow Jones Sustainability Emerging Markets Index (DJSI Emerging Markets) in the Oil and Gas Industry: OIX for the 4<sup>th</sup> consecutive year.

Given by RobecoSAM and S&P Dow Jones Indices

MEMBER OF

# Dow Jones Sustainability Indices

In Collaboration with RobecoSAM



Asian Excellence Recognition Awards 2015 from the 5<sup>th</sup> Asian Excellence Recognition Awards 2015,

- 3 awards for individuals:
- Asia's Best CEO (for 5<sup>th</sup> consecutive year): Dr. Pailin Chuchottaworn
  - Asia's Best CFO: Mr. Wirat Uanarumit
  - Best Investor Relations Professional: Mr. Pijin Apiwanthanaporn

- 3 awards for the organization:
- Best Investor Relations Responsibility
  - Best Environment Responsibility
  - Best Corporate Social Responsibility

Given by Corporate Governance Asia Magazine

## Green Rankings 2015

PTT was ranked 111<sup>th</sup> in the Green Ranking 2015 and the 2<sup>nd</sup> in the Energy Category

Given by Newsweek Magazine



In 2015, PTT was ranked 93<sup>rd</sup> from global 500 largest companies

Given by Fortune Magazine Global 500



## The Asset Corporate Awards 2015

Platinum Award Winners received for the 7<sup>th</sup> consecutive year

Given by the Asset Magazine



## ASEAN Corporate Governance Awards

ASEAN Corporate Governance Awards as the Thai listed company, as the TOP 50 ASEAN PLCs according to the ASEAN CG Scorecard 2015 criteria

Given by ASEAN Corporate Governance



## The King of Thailand Vetter Awards

- The King of Thailand Vetter Awards, Outstanding People Public Participation – Disaster Mitigation or Environmental Protection
- The King of Thailand's Certificate of Excellence, Dissemination and Technology Transfer

Given by Chaipattana Foundation, Office of the Royal Development Projects Board, and Vetter Network International

## Asia's Most Admired Brand 2014

in the Energy Business

Given by World Consulting and Research Center (WCRC) Co., Ltd.

## Granted Outstanding Award for 4 aspects:

- Most Organized Investor Relations
- Strongest Adherence to Corporate Governance
- Most Consistent Dividend Policy
- Best Annual Report in Thailand

Given by the Alpha Southeast Asia Magazine

# GRI, IR, UNGC and UN SDGs content index

## GLOBAL REPORTING INITIATIVE (GRI)

### General Standard Disclosures

Profile	Description	Page/Link/Comment
<b>Strategy and Analysis</b>		
G4-1	CEO Statement	4-5
G4-2	Key Impacts, Risks, and Opportunities	5, 9, 22-23
<b>Organizational Profile</b>		
G4-3	Name of the organization	6
G4-4	Primary brands, products, and services	6-7
G4-5	Location of organization's headquarters	9
G4-6	Countries of operation	8-9
G4-7	Nature of ownership and legal form	6
G4-8	Markets served	6-9
G4-9	Scale of the reporting organization	8, 47, 60
G4-10	Total workforce by type	60
G4-11	Percentage of total employees covered by collective bargaining agreements	<a href="http://www.pttplc.com/en/Career/Sustainable-Human-Resource-Management/Pages/Performance.aspx">http://www.pttplc.com/en/Career/Sustainable-Human-Resource-Management/Pages/Performance.aspx</a>
G4-12	Describe the organization's supply chain	6-7
G4-13	Significant changes during the reporting period regarding the organization's size, structure, ownership, or supply chain	<i>No significant changes regarding the organization's size, structure, ownership or supply chain in 2015.</i>
G4-14	Report whether and how the precautionary approach or principle is addressed by the organization	33
G4-15	List externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or endorses	<a href="http://www.pttplc.com/en/Sustainability/PTT-Sustainability/Pages/Collaboration.aspx">http://www.pttplc.com/en/Sustainability/PTT-Sustainability/Pages/Collaboration.aspx</a>
G4-16	List memberships of associations and national or international advocacy organizations in which the organization is part	<a href="http://www.pttplc.com/en/Sustainability/PTT-Sustainability/Pages/Collaboration.aspx">http://www.pttplc.com/en/Sustainability/PTT-Sustainability/Pages/Collaboration.aspx</a>
<b>Identified Material Aspects and Boundaries</b>		
G4-17*	List all entities included in the organization's consolidated financial statements or equivalent documents, and whether any entity is not covered by the report	1
G4-18*	Explain the process for defining report content and the Aspect Boundaries, and how the organization implements the Reporting Principles for Defining Report Content	2-3
G4-19*	List all the material Aspects identified in the process for defining report content	3
G4-20*	Report the Aspect Boundary within the organization for each material Aspect	3
G4-21*	Report the Aspect Boundary outside the organization for each material Aspect	3
G4-22*	Report the effect of any restatements of information provided in previous reports, and the reasons for such restatements	1
G4-23*	Report significant changes from previous reporting periods in the Scope and Aspect Boundaries	1
<b>Stakeholder Engagement</b>		
G4-24*	List of stakeholder groups engaged by the organization	14-15 <a href="http://www.pttplc.com/en/Sustainability/PTT-Sustainability/Stakeholder-Engagement/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/PTT-Sustainability/Stakeholder-Engagement/Pages/default.aspx</a>
G4-25*	Basis for identification and selection of stakeholders	14 <a href="http://www.pttplc.com/en/Sustainability/PTT-Sustainability/Stakeholder-Engagement/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/PTT-Sustainability/Stakeholder-Engagement/Pages/default.aspx</a>
G4-26*	Organization's approach to stakeholder engagement	14 <a href="http://www.pttplc.com/en/Sustainability/PTT-Sustainability/Stakeholder-Engagement/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/PTT-Sustainability/Stakeholder-Engagement/Pages/default.aspx</a>
G4-27*	Key topics and concerns raised through stakeholder engagement, and how the organization has responded	14-15

Profile	Description	Page/Link/Comment
<b>Report Profile</b>		
G4-28	Reporting period	1
G4-29	Date of the most recent previous report	1
G4-30	Reporting cycle	1
G4-31	Contact point for the report	Front cover
G4-32	GRI Content Index for "in accordance" option the organization has chosen	72-77
G4-33	Report the organization's policy and current practice regarding external assurance for the report	78-79
<b>Governance</b>		
G4-34	Governance structure of the organization	<a href="http://www.pttplc.com/en/About/Organization/pages/Organization-Chart.aspx">http://www.pttplc.com/en/About/Organization/pages/Organization-Chart.aspx</a>
G4-35	Process for delegating authority for economic, environmental, and social topics	<a href="http://www.pttplc.com/en/Sustainability/PTT-Sustainability/Governance/Pages/Corporate-Governance.aspx">http://www.pttplc.com/en/Sustainability/PTT-Sustainability/Governance/Pages/Corporate-Governance.aspx</a>
G4-36	Appointment of an executive-level position or positions with responsibility for economic, environmental and social topics	16
G4-38	Composition of the highest governance body and its committees	Annual Report 2015
G4-39	Report whether the Chair of the highest governance body is also an executive officer	Annual Report 2015
G4-40	Nomination and selection processes for the highest governance body and its committees	Annual Report 2015
G4-41	Processes for the highest governance body to ensure conflicts of interest are avoided and managed	19
G4-44	Processes for evaluation of the highest governance body's performance with respect to economic, environmental, and social topics	16-19
G4-46	Role of highest governance body in reviewing the effectiveness of the organization's risk management processes for economic, environmental, and social topics	23
G4-48	Highest committee or position that formally reviews and approves the organization's sustainability report and ensures all material Aspects are covered	2
<b>Ethics and Integrity</b>		
G4-56	Organization's values, principles, standards and norms of behavior	10, 18-19, 21, 46-49
G4-57	Internal and external mechanisms for seeking advice on ethical and lawful behavior, or matters related to organizational integrity	21
G4-58	Internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity	21

\* Indicators G4-17 to G4-27 have been externally verified by an independent third party organization.

## Specific Standard Disclosures: Economic

Profile	Description	Page/Link/Comment
<b>Economic Performance</b>		
G4-DMA	Disclosure on Management Approach	10-12
G4-EC1	Direct economic value generated and distributed	59
G4-EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	33-34
G4-EC4	Financial assistance received from government	59
<b>Indirect Economic Impacts</b>		
G4-DMA	Disclosure on Management Approach	50-57
G4-EC7	Development and impact of infrastructure investments and services supported	50-57
G4-EC8	Significant indirect economic impacts	27, 50-57

## Specific Standard Disclosures: Environmental

Profile	Description	Page/Link/Comment
<b>Energy</b>		
G4-DMA	Disclosure on Management Approach	33-36 <a href="http://www.pttplc.com/en/Sustainability/Environment/Stewardship/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Environment/Stewardship/Pages/default.aspx</a>
G4-EN3*	Direct energy consumption	68
G4-EN4	Indirect energy consumption	68
G4-EN5*	Energy intensity	36, 68
G4-EN6	Reduction of energy consumption	33, 68
<b>Water</b>		
G4-DMA	Disclosure on Management Approach	36 <a href="http://www.pttplc.com/en/Sustainability/Environment/Stewardship/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Environment/Stewardship/Pages/default.aspx</a>
G4-EN8*	Total water withdrawal by source	65
G4-EN9	Water sources significantly impacted by water withdrawal	36-37
G4-EN10	Percentage and total volume of water recycled and reused	65

Profile	Description	Page/Link/Comment
<b>Biodiversity</b>		
G4-DMA	Disclosure on Management Approach	44 <a href="http://www.pttplc.com/en/Sustainability/Environment/Biodiversity/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Environment/Biodiversity/Pages/default.aspx</a>
G4-EN12	Description of significant impacts of activities, products, and services on biodiversity	44-45
G4-OG4	Number and percentage of significant operating sites in which biodiversity risk has been assessed and monitored	44
<b>Emissions</b>		
G4-DMA	Disclosure on Management Approach	38 <a href="http://www.pttplc.com/en/Sustainability/Environment/Climate-Strategy/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Environment/Climate-Strategy/Pages/default.aspx</a>
G4-EN15*	Direct greenhouse gas (GHG) emissions (Scope 1)	34
G4-EN16*	Energy indirect greenhouse gas (GHG) emissions (Scope 2)	34
G4-EN17	Other indirect greenhouse gas (GHG) emissions (Scope 3)	69
G4-EN18	Greenhouse gas emissions intensity	69
G4-EN21*	NOx, SOx, and other significant air emissions	38, 67
<b>Effluents and waste</b>		
G4-DMA	Disclosure on Management Approach	39 <a href="http://www.pttplc.com/en/Sustainability/Environment/Stewardship/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Environment/Stewardship/Pages/default.aspx</a>
G4-EN22*	Total water discharge by quality and destination	65
G4-EN23*	Total weight of waste by type and disposal method	66
G4-EN24*	Total number and volume of significant spills	39, 67
G4-OG6*	Volume of flared and vented hydrocarbon	68
<b>Products and Services</b>		
G4-DMA	Disclosure on Management Approach	28 <a href="http://www.pttplc.com/en/Sustainability/Environment/Product-Stewardship/Pages/Product-Safety.aspx">http://www.pttplc.com/en/Sustainability/Environment/Product-Stewardship/Pages/Product-Safety.aspx</a>
G4-EN27	Extent of impact mitigation of environmental impacts of products and services	28-31
<b>Compliance</b>		
G4-DMA	Disclosure on Management Approach	<a href="http://www.pttplc.com/en/Sustainability/Environment/Stewardship/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Environment/Stewardship/Pages/default.aspx</a>
G4-EN29	Value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	<i>No issues of non-compliance with environmental laws and regulations in 2015.</i>
<b>Transport</b>		
G4-DMA	Disclosure on Management Approach	40-41 <a href="http://www.pttplc.com/en/Sustainability/Social/Security-Safety-Health/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Social/Security-Safety-Health/Pages/default.aspx</a>
G4-EN30	Significant environmental impacts of transporting products and other goods and materials	39-41
<b>Supplier Environmental Assessment</b>		
G4-DMA	Disclosure on Management Approach	24-25 <a href="http://www.pttplc.com/en/Sustainability/Economics/Supply-Chain-Management/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Economics/Supply-Chain-Management/Pages/default.aspx</a>
G4-EN32	Percentage of new suppliers screened using environmental criteria	25

\* Indicators G4-EN3, G4-EN5, G4-EN8, G4-EN15, G4-EN16, G4-EN21, G4-EN22, G4-EN23, G4-EN24, and G4-OG6 have been externally verified by an independent third party organization.

## Specific Standard Disclosures: Social

Profile	Description	Page/Link/Comment
<b>Employment</b>		
G4-DMA	Disclosure on Management Approach	46-47 <a href="http://www.pttplc.com/en/Career/Sustainable-Human-Resource-Management/Pages/Sustainable-Human-Resource-Management.aspx">http://www.pttplc.com/en/Career/Sustainable-Human-Resource-Management/Pages/Sustainable-Human-Resource-Management.aspx</a>
G4-LA1	Total number and rates of new employee hires and employee turnover	60-61
G4-LA2	Benefits provided to full-time employees	47
G4-LA3	Return to work and retention rates after parental leave	61
<b>Occupational Health and Safety</b>		
G4-DMA	Disclosure on Management Approach	40-42 <a href="http://www.pttplc.com/en/Sustainability/Social/Security-Safety-Health/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Social/Security-Safety-Health/Pages/default.aspx</a>
G4-LA6*	Types of injury and rates of injury, occupational diseases, lost days, absenteeism, and total number of work-related fatalities	40, 63
G4-LA7	Workers with high incidence or high risk of diseases	40

Profile	Description	Page/Link/Comment
<b>Training and Education</b>		
G4-DMA	Disclosure on Management Approach	46-47 <a href="http://www.pttplc.com/en/Career/Sustainable-Human-Resource-Management/Pages/Sustainable-Human-Resource-Management.aspx">http://www.pttplc.com/en/Career/Sustainable-Human-Resource-Management/Pages/Sustainable-Human-Resource-Management.aspx</a>
G4-LA9*	Average hours of training per year per employee	48, 61
G4-LA10	Programs for skills management and lifelong learning	46-49
G4-LA11	Percentage of employees receiving regular performance and career development reviews	48
<b>Diversity and Equal Opportunity</b>		
G4-DMA	Disclosure on Management Approach	47 <a href="http://www.pttplc.com/en/Career/Sustainable-Human-Resource-Management/Pages/Sustainable-Human-Resource-Management.aspx">http://www.pttplc.com/en/Career/Sustainable-Human-Resource-Management/Pages/Sustainable-Human-Resource-Management.aspx</a>
G4-LA12	Composition of governance bodies and breakdown of employees per employee category	60
<b>Supplier Assessment for Labor Practices</b>		
G4-DMA	Disclosure on Management Approach	24-25 <a href="http://www.pttplc.com/en/Sustainability/Economics/Supply-Chain-Management/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Economics/Supply-Chain-Management/Pages/default.aspx</a>
G4-LA14	Percentage of new employees screened using labor practices criteria	25 <a href="http://www.pttplc.com/en/Sustainability/Economics/Supply-Chain-Management/Pages/Supply-Chain-Management-Performance.aspx">http://www.pttplc.com/en/Sustainability/Economics/Supply-Chain-Management/Pages/Supply-Chain-Management-Performance.aspx</a>
G4-LA15	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken	25
<b>Labor Practices Grievance Mechanisms</b>		
G4-DMA	Disclosure on Management Approach	<a href="http://www.pttplc.com/en/Sustainability/Social/Fair-Practice/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Social/Fair-Practice/Pages/default.aspx</a>
G4-LA16	Number of grievances about labor practices filed, addressed, and received through formal mechanisms	<i>No grievances about labor practices filed in 2015.</i>
<b>Non-discrimination</b>		
G4-DMA	Disclosure on Management Approach	<a href="http://www.pttplc.com/en/Career/Sustainable-Human-Resource-Management/Pages/Sustainable-Human-Resource-Management.aspx">http://www.pttplc.com/en/Career/Sustainable-Human-Resource-Management/Pages/Sustainable-Human-Resource-Management.aspx</a>
G4-HR3	Total number of incidents of discrimination and corrective actions taken	<a href="http://www.pttplc.com/en/Sustainability/Social/Fair-Practice/Pages/PerformanceFairOperating.aspx">http://www.pttplc.com/en/Sustainability/Social/Fair-Practice/Pages/PerformanceFairOperating.aspx</a>
<b>Freedom of Association and Collective Bargaining</b>		
G4-DMA	Disclosure on Management Approach	<a href="http://www.pttplc.com/en/Career/Sustainable-Human-Resource-Management/Pages/Sustainable-Human-Resource-Management.aspx">http://www.pttplc.com/en/Career/Sustainable-Human-Resource-Management/Pages/Sustainable-Human-Resource-Management.aspx</a>
G4-HR4	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk	<a href="http://www.pttplc.com/en/Sustainability/Social/Fair-Practice/Pages/PerformanceFairOperating.aspx">http://www.pttplc.com/en/Sustainability/Social/Fair-Practice/Pages/PerformanceFairOperating.aspx</a>
<b>Assessment</b>		
G4-DMA	Disclosure on Management Approach	22
G4-HR9	Total number and percentage of operations that have been subject to human rights reviews or impact assessments	22
<b>Supplier Human Rights Assessment</b>		
G4-DMA	Disclosure on Management Approach	24-25 <a href="http://www.pttplc.com/en/Sustainability/Economics/Supply-Chain-Management/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Economics/Supply-Chain-Management/Pages/default.aspx</a>
G4-HR10	Percentage of new suppliers that were screened using human rights criteria	25
<b>Local Communities</b>		
G4-DMA	Disclosure on Management Approach	43 <a href="http://www.pttplc.com/en/Sustainability/Economics/Project-Management/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Economics/Project-Management/Pages/default.aspx</a>
G4-SO1	Percentage of operations with local community engagement, impact assessments, and development programs	43, 50-51
G4-SO2	Operations with significant actual or potential negative impacts on local communities	43
G4-OG10	Number and description of significant disputes with local communities and indigenous peoples	43
<b>Anti-corruption</b>		
G4-DMA	Disclosure on Management Approach	21 <a href="http://www.pttplc.com/en/Sustainability/Social/Fair-Practice/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Social/Fair-Practice/Pages/default.aspx</a>

Profile	Description	Page/Link/Comment
G4-SO4	Communication and training on anti-corruption policies and procedures	21
G4-SO5	Confirmed incidents of corruption and actions taken	<i>No incidents of corruption occurred in 2015.</i>
<b>Public Policy</b>		
G4-DMA	Disclosure on Management Approach	<a href="http://www.pttplc.com/en/Sustainability/PTT-Sustainability/Pages/Collaboration.aspx">http://www.pttplc.com/en/Sustainability/PTT-Sustainability/Pages/Collaboration.aspx</a>
G4-SO6	Total value of political contributions by country and recipient	<i>Political contributions are prohibited under PTT regulations.</i>
<b>Compliance</b>		
G4-DMA	Disclosure on Management Approach	<a href="http://www.pttplc.com/en/Sustainability/Social/Fair-Practice/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Social/Fair-Practice/Pages/default.aspx</a>
G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	25, 34
<b>Supplier Assessments for Impacts on Society</b>		
G4-DMA	Disclosure on Management Approach	24-25 <a href="http://www.pttplc.com/en/Sustainability/Economics/Supply-Chain-Management/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Economics/Supply-Chain-Management/Pages/default.aspx</a>
G4-SO9	Percentage of new suppliers screened using social impacts criteria	25
<b>Involuntary Resettlement</b>		
G4-DMA	Disclosure on Management Approach	<a href="http://www.pttplc.com/en/Sustainability/Economics/Project-Management/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Economics/Project-Management/Pages/default.aspx</a>
G4-OG12	Operations where involuntary resettlement took place	43
<b>Asset Integrity and Process Safety</b>		
G4-DMA	Disclosure on Management Approach	40, 42 <a href="http://www.pttplc.com/en/Sustainability/Social/Security-Safety-Health/Pages/default.aspx">http://www.pttplc.com/en/Sustainability/Social/Security-Safety-Health/Pages/default.aspx</a>
G4-OG13	Process safety events, by business activity	42
<b>Customer Health and Safety</b>		
G4-DMA	Disclosure on Management Approach	30 <a href="http://www.pttplc.com/en/Sustainability/Environment/Product-Stewardship/Pages/Product-Safety.aspx">http://www.pttplc.com/en/Sustainability/Environment/Product-Stewardship/Pages/Product-Safety.aspx</a>
G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services	<i>No incidents of non-compliance concerning health and safety of products and services in 2015.</i>
<b>Product and Service Labeling</b>		
G4-DMA	Disclosure on Management Approach	30 <a href="http://www.pttplc.com/en/Sustainability/Environment/Product-Stewardship/Pages/Product-Safety.aspx">http://www.pttplc.com/en/Sustainability/Environment/Product-Stewardship/Pages/Product-Safety.aspx</a>
G4-PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling	<i>No incidents of non-compliance concerning product and service information and labeling in 2015.</i>
G4-PR5	Results of customer satisfaction surveys	31
<b>Fossil Fuel Substitutes</b>		
G4-DMA	Disclosure on Management Approach	29-30 <a href="http://www.pttplc.com/en/Sustainability/Environment/Product-Stewardship/Pages/Product-Safety.aspx">http://www.pttplc.com/en/Sustainability/Environment/Product-Stewardship/Pages/Product-Safety.aspx</a>
G4-OG14	Volume of biofuels produced and purchased	30

\* Indicators G4-LA6 and G4-LA9 have been externally verified by an independent third party organization.  
Green text means indicators with added commentary in GRI Oil and Gas Sector Disclosure (OGSD)

## INTEGRATED REPORTING <IR>

### Integrated Reporting <IR> Capitals

Capital	Description	Page
Financial	The pool of funds that is available to organization for use in the production of goods or the provision of services; and obtained through financing, such as debt, equity or grants, or generated through operations or investments.	27-30, 33, 47, 50, 58-59
Manufactured	Manufactured physical objects that are available to an organization for use in the production of goods or the provision of services (e.g., buildings, equipment, and infrastructure).	24-31, 44-45, 52, 57
Intellectual	Organizational, knowledge-based intangibles including intellectual property (e.g. patents, copyrights, software, rights and licenses) and organizational capital (e.g., tacit knowledge, systems, procedures and protocols).	46-49
Human	People's competencies, capabilities and experience, and their motivations to innovate.	28-31, 46-49
Social and Relationship	The institutions and relationships within and between communities, groups of stakeholders and other networks, and the ability to share information to enhance individual and collective well-being (e.g. shared norms, common values and behaviors; key stakeholder relationships; intangibles associated with the brand and reputation; social license to operate).	14-15, 27, 46-49, 50-57
Natural	All renewable and non-renewable environmental resources and processes that provide goods or services that support the past, current or future prosperity of an organization (e.g. air, water, land, minerals and forests, biodiversity and eco-system health).	32-39, 43-45, 54-57

## UNITED NATIONS GLOBAL COMPACT (UNGC)

### Communication on Progress – Advanced Level

Criterion	Description	Page
1	The COP describes mainstreaming into corporate functions and business units	16-17
2	The COP describes value chain implementation	24-27
3	The COP describes robust commitments, strategies or policies in the area of human rights	18-22
4	The COP describes effective management systems to integrate the human rights principles	22
5	The COP describes effective monitoring and evaluation mechanisms of human rights integration	22
6	The COP describes robust commitments, strategies or policies in the area of labor	24-25, 40, 42
7	The COP describes effective management systems to integrate the labor principles	24-25, 40, 47
8	The COP describes effective monitoring and evaluation mechanisms of labor principles integration	19, 25-26, 40
9	The COP describes robust commitments, strategies or policies in the area of environmental stewardship	11, 28-29
10	The COP describes effective management systems to integrate the environmental principles	11
11	The COP describes effective monitoring and evaluation mechanisms for environmental stewardship	11, 29
12	The COP describes robust commitments, strategies or policies in the area of anti-corruption	21
13	The COP describes effective management systems to integrate the anti-corruption principle	21
14	The COP describes effective monitoring and evaluation mechanisms for the integration of anti-corruption	21
15	The COP describes core business contributions to UN goals and issues	22
16	The COP describes strategic social investments and philanthropy	50-57
17	The COP describes advocacy and public policy engagement	21, 42
18	The COP describes partnerships and collective action	20-21, 27, 30, 42, 51-57
19	The COP describes CEO commitment and leadership	4-5
20	The COP describes Board adoption and oversight	16-17
21	The COP describes stakeholder engagement	14-15

## UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS (UN SDGs)

Criterion	Description	Page
1	End poverty in all forms everywhere	50-55
2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	54-57
3	Ensure healthy lives and promote well-being for all at all ages	50-57
4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	46-49, 51-55
5	Achieve gender equality and empower all women and girls	46-48
6	Ensure availability and sustainable management of water and sanitation for all	56-57
7	Ensure access to affordable, reliable, sustainable and modern energy for all	54-55
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	46-49
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	29, 44-45, 51-52, 54-55
10	Reduce inequality within and among countries	9, 50-55
11	Make cities and human settlements inclusive, safe, resilient and sustainable	40-45, 52-55
12	Ensure sustainable consumption and production patterns	28-31
13	Take urgent action to combat climate change and its impacts	28-31, 32-36
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	36-37
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	54-57
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	18-22, 43, 47-48
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	9, 14-15, 50, 59



## LRQA Assurance Statement

### Relating to PTT Public Company Limited's Corporate Sustainability Report for the calendar year 2015

This Assurance Statement has been prepared for PTT 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 PTT Public Company Limited (PTT) to provide independent assurance on its Corporate Sustainability Report 2015 ("the report") against the assurance criteria below to a moderate level of assurance and at the materiality of the professional judgement of the verifier using Accountability's AA1000AS (2008) Type 2 approach.

Our assurance engagement covered PTT's operations and activities in Thailand and specifically the following requirements:

- Evaluating the nature and extent of PTT's adherence to all three AA1000 AccountAbility Principles - inclusivity, materiality and responsiveness.
- Evaluating the reliability of sustainability performance information for only those selected specified indicators listed below at facilities directly under PTT's operational control:
  - Economic: Community investment (G4-EC1)
  - Environmental: energy consumption within the organization (G4-EN3), energy intensity (G4-EN5), water withdrawal by source (G4-EN8), direct and indirect GHG emissions (G4-EN15 & 16), NO<sub>x</sub>, SO<sub>x</sub>, and other significant air emissions (VOC) (G4-EN21), water discharge by quality and volume (G4-EN22), total weight of waste by type and disposal method (G4-EN23), number and volume of significant spill (G4-EN24), volume of flared and vented hydrocarbon (G4-OG6)
  - Social: type of injury and rates of injury, occupational diseases, lost days (G4-LA6), number of process safety events (G4-OG13) and average hours of training per employee (G4-LA9).
- Confirming that the report is in accordance with:
  - GRI G4's reporting guidelines and core option
  - GRI G4's oil and gas sector disclosures.

Our assurance engagement excluded data and information from PTT's operations and activities outside of Thailand and its suppliers, contractors and any third-parties mentioned in the report.

LRQA's responsibility is only to PTT. LRQA disclaims any liability or responsibility to others as explained in the end footnote. PTT'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 PTT.

#### LRQA's opinion

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

- Met the requirements above
- Disclosed reliable sustainability performance for the selected specified indicators as no errors or omissions were detected
- 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 moderate level of assurance and at the materiality of the professional judgement of the verifier.

Note: The extent of evidence-gathering for a moderate assurance engagement is less than for a high assurance engagement. Moderate 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 Accountability's AA1000AS (2008) Type 2 approach. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:

- Assessing PTT's approach to stakeholder engagement to confirm that issues raised by stakeholders were captured correctly. We did this through interviewing PTT's employees who are engaging directly with stakeholder groups and reviewing associated records.

- Reviewing PTT'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 PTT 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 PTT makes informed business decisions that may create opportunities that contribute towards sustainable development.
- Auditing PTT's data management systems to confirm that there were no significant errors, omissions or mis-statements in the report. We did this by reviewing the effectiveness of data handling procedures, instructions and systems, including those for internal verification. We also spoke with those key people responsible for compiling the data and drafting the report.
- Reviewing supporting evidence made available at a representative facility for each of PTT's business operations. These facilities were:
  - the head office in Bangkok
  - a gas pipeline operation, western route, Ratchaburi
  - an oil and gas terminal in Surathani
  - the gas separation plants in Rayong.

### 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 PTT's stakeholder engagement process. However, PTT should consider engaging further with under-represented groups. For example: independent contractors, providing maintenance services, to learn their views on PTT's occupational health and safety issues (G4-LA6) and whether the performance indicator needs to capture their data.
- Materiality:  
We are not aware of any material issues concerning PTT's sustainability performance that have been excluded from the report. PTT reviews regularly their material issues, against their established and extensive criteria for determining material issues, to reconfirm that their material issues are still relevant. The criteria for determining materiality are not biased to PTT.
- Responsiveness:  
PTT has processes for responding to various stakeholder groups. Principally the report is prepared with the aim of providing performance data and information to investors or wholesale clients. However, we believe that in addition to the strategic disclosure of how PTT corporately addresses material issues, future reports should share information on their involvement at the community level; i.e. explain what PTT's operating facilities do to manage these same material issues.
- Reliability:  
PTT uses a well-defined and centralized system to collect and calculate its data and information associated with the selected specific indicators. PTT also carries out its own internal data verification process to ensure the reliability of its reported performance data and information.

### 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 is the only work undertaken by LRQA for PTT and as such it does not compromise our independence or impartiality.

Signed:



Opart Charuratana  
LRQA Lead Verifier

On behalf of Lloyd's Register Quality Assurance  
14th Floor, Sirinrat Building, 3388/46 Rama IV Road  
Klongton, Klongtoey, Bangkok 10110 THAILAND

LRQA Reference: BGK6036723

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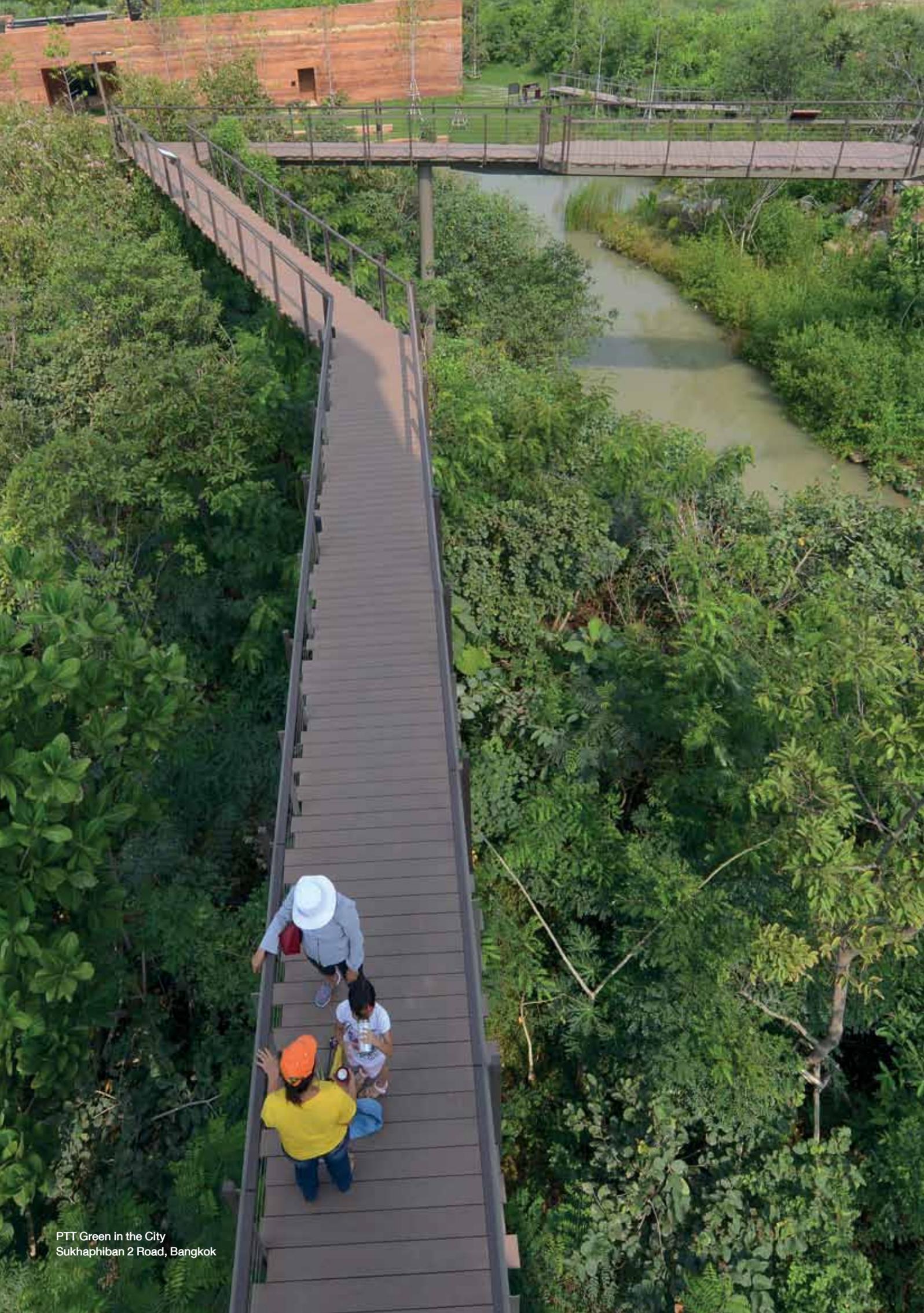
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PTT Green in the City  
Sukhaphiban 2 Road, Bangkok

# Reader Feedback Survey PTT Corporate Sustainability Report 2015

Feedback received from this survey will be used for the improvement of the 2016 Corporate Sustainability Report. Thank you for your kind cooperation.



Please indicate an X in the box  and provide additional comments and opinions in the space provided.

### 1 Please specify your relationship with PTT

- Investor/Shareholder     Customer
- Employee     Partner
- Academic     Government
- Media     Student
- Community around operations
- Others (Please specify) .....

### 2 Please indicate your interest in reading the 2015 Sustainability Report

- Get to know PTT
- Support investment decisions
- For research/education
- Prepare own sustainability report
- Others (Please specify) .....

### 3 Please rate your view on the completeness and reliability of the 2015 Sustainability Report:

- Understanding of PTT's material issues     High  Medium  Low  Improve
- Alignment between sustainability performance and PTT's sustainability strategy     High  Medium  Low  Improve
- Completeness and reliability of content     High  Medium  Low  Improve
- Report content meets your expectations     High  Medium  Low  Improve

### 4 Please indicate which of the following PTT material issues you are interested in

- Corporate Governance     Human Rights
- People     Safety, Health and Environment
- Fair Operating Practices     Corporate Citizenship
- Stakeholder Engagement     Supply Chain Management
- Product Stewardship     Reporting and Reputation
- Others (Please specify) .....

### 5 Does this report cover all material aspects relevant to PTT's sustainability? If not, please specify which aspects should be included in future reports:

.....  
.....

### 6 Please provide other comments and suggestions on how the sustainability report can be improved in the future:

.....  
.....



# Reader Feedback Survey

PTT Public Company Limited  
Corporate Sustainability Report 2015



PTT Group Sustainability Management Project

PTT Public Company Limited

Thailand  
10900  
Chatuchak, Bangkok  
555 Vibhavadi Rangsit Road,



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สำนักงานคณะกรรมการกฤษฎีกา





บริษัท ปตท. จำกัด (มหาชน)  
PTT Public Company Limited

555 Vibhavadi Rangsit Rd.,  
Chatuchak, Bangkok 10900,  
Thailand  
Tel. 66 (0) 2537-2000

[www.pttplc.com](http://www.pttplc.com)



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