



GREE

## Growing Together or the Energy of Thailand



# Corporate Shared Value The Ultimate Value

In our pursuit of business performance with due regard for environmental, community, and social stewardship, plenty of new ideas are applied to derive green innovations. In the process, knowledge transfer to communities takes place. It is through the galvanization of ideas, knowledge, and virtue that PTT Group's business growth has been driven. For we believe that sustained power is what the people of this country need.

## Corporate Sustainability Report 2013 PTT Public Company Limited



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Sustainability at PTT includes two main missions: ensuring Thailand's energy security and creating economic prosperity for the country. These are the two missions that I continue to drive to ensure that PTT's successes are aligned with our mandate as Thailand's national oil company.

We are proactively working to meet the growing demand for energy. Through our TAGNOC (Technologically Advanced and Green National Oil Company) strategy, we are investing in innovation for both conventional, as well as alternative energy sources. We are promoting the transition to a low-carbon society by offering products and services that enable consumers to lower their environmental impacts. In addition, we are continuously managing our operations and external risks to ensure reliable energy supply for the country and business continuity.

In every operation, people are the main driver for success. This is why PTT invests in human capital development by promoting systematic knowledge management and continuing education, as well as investing in innovation. We established the PTT Leadership and Learning Institute to develop our employees in a formal and structured way. In addition, we are investing in education to enhance the country's competitiveness as part of our creating shared value effort. By spearheading the establishment of the RAyong Institute of Science and Technology (RAIST) and RAyong Science Academy (RASA), which are expected to admit their first incoming classes in 2015, PTT plays a big part in creating long-term and sustainable competitiveness for the country through the development of personnel and knowledge in technology, science, and engineering fields.

To raise industry standards, PTT co-hosted the Energy Session to define the direction and framework for energy policy in ASEAN at the World Economic Forum on East Asia held in Naypyidaw, Myanmar. PTT also participated in the Fortune Global Forum in Chengdu, China to discuss how businesses in Asia can contribute to energy security on both national and regional levels. These sessions provided PTT with the platform to shape the dialogues and share expertise on a global stage, as well as prepare PTT for the ASEAN Economic Community in 2015.





In the past year we had many accomplishments which are the results of our commitments and continued efforts. But as our safety performance and this year's pipeline leakage oil spill incident show, there is still room for improvement. Today, the oil spill situation has improved with the collective efforts of the PTT Group who worked tirelessly to earn back the public's approval and trust in our social, community, and environmental commitments, as well as maintain business excellence and good corporate citizenship.

We are committed to the principles in the United Nations Global Compact (UNGC), which guide our approach to human rights, labor, environment and corruption. Our commitments, together with systematic and effective management, have helped us maintained our membership in the Dow Jones Sustainability World Index and we remain the only Thai company in the DJSI World - Oil and Gas Industry. We also moved up in our Fortune's Global 500 ranking from 95<sup>th</sup> to 81<sup>st</sup>, making us the only Thai company in the world's top 100 companies with largest revenue. These are achievements that signify that we are on our path to become the Thai Premier Multinational Energy Company with a vision for business, society, and environmental sustainability.

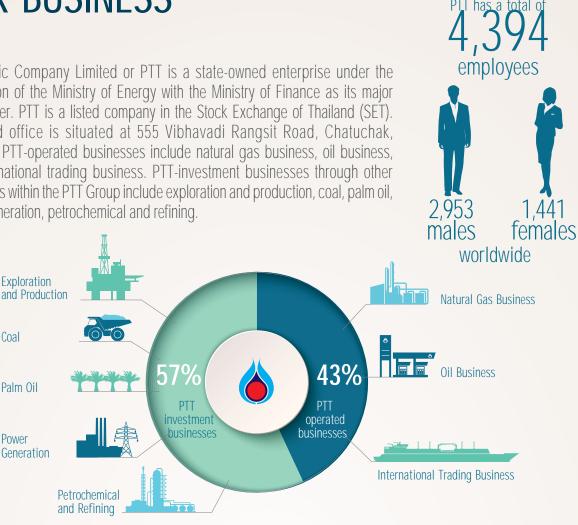
I take this opportunity to thank all our stakeholders including: the communities near our operations, our suppliers, customers, investors, employees, and involved parties who are integral to our success in achieving business objectives, as well as in creating shared values. Thank you for your continued support, so that together we can create sustainable and prosperous future for the society and the country.

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Mr. Pailin Chuchottaworn Chief Executive Officer & President

## **OUR BUSINESS**

PTT Public Company Limited or PTT is a state-owned enterprise under the supervision of the Ministry of Energy with the Ministry of Finance as its major shareholder. PTT is a listed company in the Stock Exchange of Thailand (SET). The head office is situated at 555 Vibhavadi Rangsit Road, Chatuchak, Bangkok. PTT-operated businesses include natural gas business, oil business, and international trading business. PTT-investment businesses through other companies within the PTT Group include exploration and production, coal, palm oil, power generation, petrochemical and refining.



## **Business Principles**

PTT's vision is to become a Thai Premier Multinational Energy Company. As Thailand's national oil company, PTT's missions are to build energy security and strengthen Thailand's economy while considering the interests of all stakeholders including: the country, community and society, customers, business partners, investors, and employees. PTT fulfills its mission through oil and gas exploration and production, reserve buildup, refining and distributing activities. By committing to the core value "SPIRIT", the management, employee and the PTT Group are bound to commitment in creating a common path and direction to reach the common goal together with creating environmental and social responsibility awareness to the wider society.

PTT pursues the business on the basis of the sustainable growth strategy by balancing being a High Performance Organization (HPO), which involves continuous improvement of technology, innovation and knowledge management in work process, production, sales of products and services; having robust Corporate Governance (CG), where actions taken must be transparent, fair, and compliant with code of ethics, laws and regulations; and taking into account environmental considerations and society development through Care, Share and Respect (CSR) and by Creating Shared Values (CSV).

As of December 31, 2013.

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## Sustainable Business

2013 progress:

PTT is ranked 81<sup>st</sup> among the world's largest 500 companies up from 95<sup>th</sup>. PTT is the only Thai company to maintain the top 100 position with the highest revenue in Fortune's Global 500 based on the 2012 performance with the revenue of 2,793,833 million Baht, an increase of 365,707 million Baht (15%) from 2011.

PTT is the only organization in Thailand to be listed as Member 2013 in the Dow Jones Sustainability World Index (DJSI World) - Oil and Gas Industry (OIX). The DJSI World Member is given to the top 15 companies out of the total 123 companies that were assessed by RobecoSAM's Corporate Sustainability Assessment (CSA) in economic, social, and environmental aspects.

PTT Group's average Return on Invested Capital (ROIC) is currently 9 percent. To achieve target, PTT has plans in place to continuously improve the efficiency in each operational area; namely, project investment management, operation system, marketing and sales, business development, corporate strategy and investment, corporate finance, human resource and organizational management, stakeholder management, corporate citizenship and R&D.



## **Strategic Direction**

Today, running an energy business is increasingly challenging due to increase demands for energy, rising population and dynamic economic development worldwide, while energy is and remains a scarce resource. In addition, climate change issues are becoming a greater concern. All of these affect PTT's ability to sustain long-term value creation. Therefore, to ensure Thailand energy security in the coming years, PTT needs to acquire the new reserves by innovating new processes and technologies, as well as investing in new sources of energy to reduce the dependence on natural resources and environmental impacts. To achieve this, PTT rolled out TAGNOC (Technologically Advanced and Green National Oil Company) as the core strategic direction.

(Technologically Advanced) Operate the business based on internally acquired knowledge and technology development in the move from being a resource-based organization.

**G** (Green) Invest in environmentally-friendly energy and petrochemical businesses. **NOC** (National Oil Company) Ensure Thailand's energy security and economic prosperity.

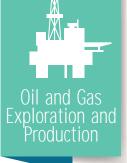
## PTT Group New Initiatives in 2013

To ensure energy security and economic prosperity for the country, PTT has implemented PTT Group New Initiatives covering:

- Manage PTT Group Portfolio for Upstream Business and Downstream Business to achieve success in four dimensions including: growth, energy security, credit rating, and Return on Invested Capital (ROIC).
- Move people to globalize and improve organizational health index.
- Create shared value through the PTT Group Creating Shared Values (PTT Group CSV)

## **Business Units** Upstream Petroleum and Gas Business Group

#### Goal



Increase production to 600,000 barrels of crude oil equivalent per day by 2020. Achieve greater than 10 years of proved reserves per production (R/P Ratio) with Return on Capital Employed (ROCE) higher than the industry's average. Maintain credit rating at the same level as Thailand's.

#### 2013

Invested in PTT Exploration and Production Public Company Limited (PTTEP) which has 42 exploration and production projects in 10 countries with 329,471 barrels of crude oil equivalent per day production capacity and 250 million barrels of crude oil equivalent of total proved reserves.

### Goal

Become Top 3 gas players in Asia with 1 trillion Baht revenues by 2020.

Natural Gas Supply: Domestic and International

Natural Gas





#### 2013

Supplied, transported, and distributed natural gas and products derived from gas separation plants, retailed gas for vehicles, and invested in other related businesses by sourcing natural gas from both domestic and international sources. In 2012, PTT imported over 1,021 million cubic feet of LNG per day, operated six gas separation plants, and produced over 6.2 million tons of related products. The supply of natural gas increased 1 percent from 2012 to 4,602 million cubic feet per day with the ratio of 78:22 for domestic supply to imported supply.

Domestic SupplyImported SupplyDemand

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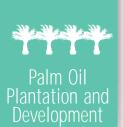
Goal

Increase production capability to 38 million tons per annum based on equity basis and achieve top quartile return on invested capital by 2020.

#### 2013

Invested in PTT International Company Limited (PTTI) and its subsidiaries. Current investments include mines in Indonesia and Madagascar, as well as a potential project in Brunei. In 2013, PTT increased the production capacity (on equity basis) by 10.5 million tons and estimated reserve to 1,574 million tons. Investment in Madagascar has an estimated (Joint Ore Reserves Committee Reserves) of 117 million tons (for open pit mining). The project is being discussed for joint venture and is awaiting a permit from the government.

#### Goal



Increase crude palm oil (CPO) to 300,000 tons per year to use as raw material in biofuel production by 2020.

#### 2013

Developed 177,600 rai of palm plantation (equity basis) through PTT Green Energy Company Limited (PTTGE) which has a control over 1.2 million rai of development land in Indonesia, a country with climate most suitable for palm plantation. Production capacity of fresh fruit bunch (FFB) is around 90,000 tons per year.

Power

#### Goal

Become an Operational Excellence international power player with 6,000 MW installed capacity by 2022 with at least 5 percent investment in renewable energy.

#### 2013

Invested in Global Power Synergy Company Limited (GPSC), a PTT Group's power generation company with 1,552 MW installed capacity 1,596.8 tons per hour steam production capacity, and deionized water production in both domestic and international markets.

### Downstream Petroleum Business Group

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#### Goal

Become a Regional Top Brand with measurable results from customer engagement score in domestic market and from brand awareness and throughput per station in international markets.

#### 2013

Met customers' demands by offering quality petroleum products including: gasoline, liquefied petroleum gas, lubricants, and other products through various commercial channels (e.g. international markets, retail, and service stations). Maintained the largest market share (38.7%) with 17,648 million liters in sales of gasoline (including PTT Retail Management Company Limited), as well as the largest market share for lubricant products (38.3%) with 144 million liters in sales.

38.7%

#### International Trading

#### Goal

Become a premier multinational trading house with 100 billion USD in revenue by 2020, in which the 10 percent of the revenue will come from other commodities and a net profit margin of 0.5 percent.

#### 2013

Operated an integrated international trading business under a strategic framework to secure Thailand energy supply and add value to the business by importing over 45,500 million liters of crude oil, condensate, and fuel which was a 2 percent increase over 2012. LPG import increased over 1,959 million tons or 163,258 tons per month which was a 13 percent increase over 2012.

# Others 22.8%

Thailand's Gasoline Market Share, 2013





#### Goal

Achieve Top Quartile Performance in Asia Pacific with Return on Invested Capital (ROIC) above 14 percent and the revenue growth rate exceeding 5.5 percent per annum by 2020.

#### 2013

Invested in 9 companies within the PTT Group to add value to domestic natural gas and products from other PTT Group's businesses. Supported Thailand's petrochemical industry by producing products domestically to substitute imports, as well as supported other major industries such as automotive industry, construction industry, and packaging industry that rely on petrochemical products for raw materials.

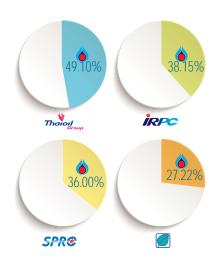
#### 2013

Invested in 4 companies within the PTT Group to reduce the reliant on energy imports by providing crude oil and purchasing fuel oil, including petrochemical products, from Refinery companies for domestic market and international export.

For Refinery Business Unit in 2013, PTT's equity share is 36 percent of the country's total refinery capacity at 1,239 kbd, including PTTGC's condensate splitter capacity at 135 kbd and Rayong Purifier's capacity at 17 kbd which has stopped operating since 7 February 2012.



#### PTT's Equity Share in Refineries



Please refer to the Annual Report for additional details and information on our businesses.

## ABOUT THIS REPORT

This 6<sup>th</sup> Corporate Sustainability Report covers PTT's performance, activities, and significant changes in economic, environmental and social aspects during January 1<sup>st</sup>, 2013 to December 31<sup>st</sup>, 2013. Information on policies, strategies, targets, and management approach are disclosed partly in this report and on the company website. The in-depth financial information is disclosed in the Financial Report and information on the Board of Director's governance activities is disclosed in the Annual Report.

## **Reporting Approach**

The Report is developed in compliance with the Global Reporting Initiative (GRI)'s Sustainability Reporting Guidelines and Oil and Gas Sector Supplement (OGSS) version 3.1. PTT has declared a GRI Application Level A+. In addition, the progress on implementation of United Nations Global Compact (UNGC)'s 10 principles is updated in this report. PTT plans to adopt the GRI G4 OGSS for the Corporate Sustainability Report 2014.



PTT Group Sustainability Management Project PTT Public Company Limited 555 Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900 Tel: 0-2537-1636 Email: sustainability@pttplc.com



## Scope of Reporting

Scope of reporting is determined by level of management control over PTT's affiliates. The scope covers only businesses in Thailand under PTT's own operation; namely, natural gas business unit, oil business unit and international trading business unit; for PTT investment business only PTT Exploration and Production Public Company Limited (PTTEP) is covered. The scope excludes joint-venture companies, co-venture companies, other related companies, partners and contractors unless otherwise stated that it is under PTT's direct management or operations which could cause significant impacts to PTT.

PTT continues to expand the scope of reporting to cover more affiliates. PTT considers this part of a governance approach in supporting the disclosure of information in accordance to the international guideline in order to respond to stakeholder's expectations. PTT incorporates stakeholders' opinions and feedbacks in the development of this report.

## Materiality

PTT sets the Group's materiality assessment process in alignment with the Sustainability Reporting Guidelines of the Global Reporting Initiative version 4 (GRI G4) to reflect issues that have potential impacts on the organization's business operations in economic, environmental and social aspects, as well as on stakeholders' interests by considering the issues that are important to the business operations and have the potential to significantly impact stakeholders' decision making. PTT undertakes materiality assessment for the Group's sustainability report every year in order to review any changes in the issues that are important to the organization and stakeholders.

## **Clarity and Accessibility**

The report is aimed to provide information for all stakeholder groups to consider making an informed opinion; therefore, specific technical terms are used when needed only. GRI indicators and UNGC information are presented at the back of the report. The report is available in both Thai and English and published in hardcopy, CD and on PTT's website. This report and the previous reports can be downloaded from PTT website (www.pttplc.com).



## Materiality Assessment Process

#### Identifying Issues

PTT considers GRI Aspects when identifying issues that are related to the profile of the organization and to the business context in terms of reflecting the stakeholders' expectations. Consideration is given to the strategies and activities of the organization, the conclusions taken from engagement with different groups of stakeholders, society's expectations, international standards, and voluntary or involuntary agreements. In defining the reporting boundaries, PTT considers the relevance of the identified issues to different groups of stakeholders. The involved departments are responsible for defining the boundaries for the purpose of managing and reporting related issues, covering internal factors such as PTT, PTT's affiliates, subsidiaries, and joint ventures, as well as external groups, such as suppliers, contractors, communities, and consumers.

**Defining Reporting** 

Boundaries

#### Materiality Assessment

The identified issues are screened to assess their level of significance by considering the corporate risks, business strategies and targets, sustainability strategies, and PTT Group Sustainability Management Framework. In addition, the materiality assessment also takes into account two variables which are impacts to the organization and the stakeholders' interests.



## Materiality Assessment Results 2013



#### Verification

PTT Group Sustainability Committee (GSC) verifies the materiality assessment in terms of its completeness, balance and coverage of important issues of the organization, and provides comments or makes suggestions on specific issues that should be reported depending on the interest of the stakeholders, the current situation, and global reporting trends. In addition, processes for verifying the accuracy, completeness and transparency of the disclosed information are conducted annually by an external party.

#### Continuous Development

In order to ensure continuous improvements to the disclosure of information in the report, PTT incorporates additional information into the report's content based on comments and suggestions from the external parties which have verified the sustainability reports in previous years, as well as the opinions, interests and expectations of different groups of stakeholders as determined through various engagement activities such as interviews, investors' suggestions, a corporate reputation survey, a revision of stakeholder relations, website visitors, and GSC's suggestions.

۴ 🙇 😫	Sustainable Governance	Governance, Transparency and Sustainability Sustainability Partnerships
<b>* * *</b>	Fair Operating Practice	Enhancing Employees' Understanding Promoting Code of Business Ethics to PTT Networks
t 2 iiii 2	Risk and Crisis Management	Business Continuity Management Ensuring Reliable Supply
<b>2</b> 🐨	Supply Chain Management	Supply Chain Risk Management Supply Chain Optimization
2 2	Product Stewardship	Product and Service Development Customer Relations
🏌 👬 🐨 😫	Operational Excellence	Operational Eco-efficiency Safety
	Human Capital Development	Human Resources Management Knowledge Organization
🤁 🚨 👬	Capital Project Management	Project Execution Community and Environmental Impacts Management
t iiii	Corporate Citizenship	Educational Development Development of Society and Communities Environmental Conservation

#### Stakeholder's Opinions on the Report

#### Content

Showcase social and environmental activities emphasizing Thai way of development that values co-existence and commitment in giving back to the society and environment.

#### Quality

Consider readers who are not familiar with the technical terms by using language that is easy to understand. Illustrate targets, key performance indicators, success, impacts and benefits through pictures, graphs and tables to make the report more interesting.



#### Issues with Special Attention

- Employee's engagement
- Crisis management and preventative measures
- Social investment plans and benefits
- Environmental targets and performance that reflect eco-efficiency and sustainable development
- Sustainability leadership



## SUSTAINABLE GOVERNANCE

## Material Aspects

PTT Group governance policy and management systems create sustainable foundation that emphasizes organizational culture and value, while PTT Group Sustainability Management Framework drives sustainability into every level to enhance organizational effectiveness and promote sustainability.

#### Management Approach

- Instill stakeholder's confidence through fair, effective, and transparent governance.
- Promote sustainability partnerships at national and international levels.



## 2013 Highlights

### Governance

### Corporate Governance Excellence

PTT Board of Directors is the representatives of the shareholders and the public. As such, they are subjected to independent assessments by the Ministry of Finance State Enterprise Policy Office (SEPO) and the Thai Institute of Directors. In addition, PTT discloses the Board of Directors' and management's activities and performance through various media such as website, Annual Report and Corporate Governance Report. As a result of transparent and effective governance, PTT was awarded the Top Corporate Governance Report Awards in 2013 by the Stock Exchange of Thailand (SET) and the Best Investor Relations in ASEAN Award by the Alpha Southeast Asia Magazine, an institutional investment magazine focusing on the Region. This award is given to companies with excellent performance in financial management, adherence to corporate governance, investor relations, transparency and disclosure. This award recognizes investors' confidence in PTT and sets benchmark for other registered companies in the region.



### Integrating Sustainability

The PTT Group Sustainability Committee (GSC) is integral in embedding sustainability practices into every level of the organization and ensuring compliance with the PTT Group Sustainability Management Framework. The GSC provides recommendations, monitors performance, and evaluates progress through its quarterly meetings. In 2013, the GSC's agenda included: Sustainability Management Compliance Assurance Process, PTT Group environmental self-declaration scheme, PTT Group Community Development and Community Relations Manual, PTT Group indirect procurement sustainable supply chain management, sustainability aspects under the PTT Group Operational Excellence (OpEx) program, and sustainability disclosure in accordance with GRI G4 OGSS requirements. GSC activities and sustainability progress are reported to the Management Committee and PTT Board of Directors on a regular basis. As a result of top management involvement in driving sustainability performance, the SET awarded PTT with the SET Award of Honor for the 3<sup>rd</sup> year in a row (2011 - 2013). In addition, PTT also received the CSRI Recognition Award from the Corporate Social Responsibility Institute (CSRI) in 2013.

### State Enterprise Performance Appraisal

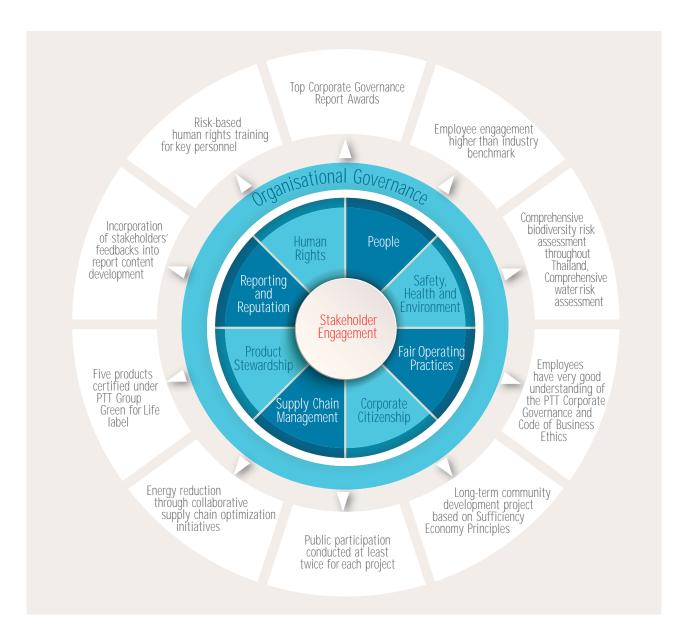
PTT has implemented the criteria from State Enterprise Performance Agreement (SEPA) for performance appraisal. The SEPA appraisal is based on a widely recognized global management system. In 2012, PTT received the score of 332 which was higher than other State Enterprises, but below the target score of 335. The 2013 target score has been set at 347. The 2013 appraisal will be conducted by the Institute of Research and Development for Public Enterprises (IRDP).

## Sustainability Partnerships

#### Promoting Business Sustainability through International Benchmarking

PTT is the first organization in Thailand to be listed as Member 2013 in the Dow Jones Sustainability World Index (DJSI World) - Oil and Gas Industry (OIX) for the second consecutive year. The DJSI is a global sustainability benchmark that assesses performance of the world's leading companies on economic, environmental and social criteria to help investors integrate sustainability considerations into their portfolios. Companies listed as DJSI members are those that have better sustainability performance than the majority of their peers.

Keys to PTT's success are the emphasis placed on continuous development of management and work practices with internal stakeholders at every level and the development of goals which are in line with corporate vision and strategies.



As a leader in sustainability, PTT encourages other businesses within the PTT Group to participate in the DJSI benchmarking through the RobecoSAM's Corporate Sustainability Assessment (CSA). PTT provided support and guidance by sharing best practices and driving the implementation of the PTT Group Sustainability Management Framework. As a result of corporation within the PTT Group, PTTGC was listed as a Member 2013 in the DJSI World - Chemicals Industry (CHM) and both TOP and IRPC were listed as Sustainability Yearbook Members 2014 - Oil and Gas Industry (OIX). PTT also promotes business sustainability to the wider network by sharing experiences from the benchmarking process with other leading Thai companies during a DJSI Coaching Workshop organized by the CSRI.

## Promoting Sustainability Performance Disclosure

Today, stakeholders do not measure company success solely on its financial performance, but are increasingly interested in performance in the environmental, social, and corporate governance aspects as well. Recognizing the importance of sustainability disclosure, PTT encourages companies within the PTT Group to adopt the GRI Sustainability Reporting Guidelines which is also in line with the push by the SET for listed companies to adopt GRI standards. The PTT Group plans to report performance in conformance with GRI G4 which will be beneficial for all stakeholders.

In addition, PTT took part in the Sustainability Report Award organized by the Thai Listed Companies Association with support from The Securities and Exchange Commission and the Thaipat Institute. The Award aims to elevate reporting standards of listed companies under the SET to be at par with companies in international exchanges, thereby becoming more recognized and accepted at the international level. PTT has received the Outstanding Award based on completeness, credibility and communication of its Corporate Sustainability Report.

### Promoting Regional Cooperation

PTT was honored by the member companies ASEAN Council on Petroleum (ASCOPE) to host a workshop to develop the Health, Safety, Security, and Environment Management System Guideline (HSSE MS). The HSSE MS Guideline has been adopted by ASCOPE and is used as best practice guideline by its members. It is a way of offering a vision. This is one example of how PTT is able to project its vision and strengthen cooperation at regional level.



## FAIR OPERATING PRACTICE

## Material Aspects

Corporate Governance, Ethical Standards, and Code of Business Ethics Handbook (CG Handbook) form the basis for the committees, management and all employees to adhere to. The CG Handbook comprises fourteen elements of good corporate governance practices such as business ethics and code of conduct, anti-corruption, anti-monopoly, compliance to law and international human rights principles.

#### Management Approach

- Operates business with ethics and transparency in accordance with the CG Handbook and in conjunction with promotion of the employees' understanding on code of business ethics.
- Develop organizational network and encourage PTT and its affiliates to adopt relevant international principles.



## 2013 Highlights

### Enhancing Employees' Understanding

#### Handbook Preparation

PTT issued the 3<sup>rd</sup> revision of Corporate Governance, Ethical Standards, and Code of Business Ethics Handbook in 2013 to align with the Good Governance Principle for Listed Companies 2012 of the Stock Exchange of Thailand (SET). The revision also took into account comments and recommendations from the Thai Institute of Directors (IOD) regarding elaboration of ethical standards in compliance with ASEAN Corporate Governance Scorecard. In this way, PTT CG Handbook can be regarded as code of ethics according to the Thai Constitution law. In addition, this revision added the duties and responsibilities of Corporate Governance Committee to encompass the implementation on sustainability management and anti-corruption.



PTT received Asia's Icon on Corporate Governance 2013 award from Corporate Governance Asia Magazine. This award is given to Asian companies with outstanding corporate governance development.

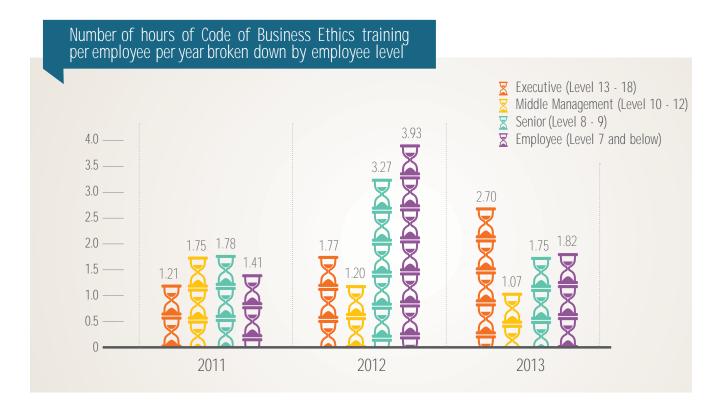


Good corporate governance is part of the PTT Strategic Framework; with the balance of high performance organization and corporate social responsibility aspects. Beyond our organizational policy, it is also my personal motto, which I constantly communicate to our employees for strict adherence. Similarly, people living within a society need to conform to a set of rules ormoral principles; in Buddhism, the Buddhists follow the Five Precepts. At PTT, our good corporate governance is our etnic principles. A behavior based on ethical and moral principles that is expected of employee to treat another employee or to customers, suppliers, shareholders. Everything else will form naturally including transparency, fairness, equality, disclosure and vision in driving PTT to a bright future together.

> Mr. Pailin Chuchottaworn Chief Executive Officer & President

### Training via E-learning System

PTT develops CG E-learning system as a channel for employees to educate themselves on the principles of good corporate governance and code of business ethics through a range of simulations. An evaluation of employees' understanding is applied in order to raise their awareness regarding corporate governance and stimulate them to properly apply the respective knowledge in the real situations. In 2013, there were 975 employees accessing the CG E-learning system. From the evaluation of employees who had gone through the training, 90% achieved very good understanding of the context, 77.8% rated the training at a good to very good level.



### Human Rights Training

PTT respects the human rights of our stakeholders. To put this into action, during 2012 - 2013, PTT has been focusing on the establishment of human rights training modules for specific functions such as human resources function and security. PTT intends to expand the communication and training to cover other functions.

The human rights training, developed for the corporate human resource (HR) personnel, is designed to provide knowledge of HR practices which is in line with international human rights principles. In addition, it provides a channel to exchange experiences on labor relation management and dealing with labor conflicts. This training has been implemented since 2012.

The human rights training developed for security is designed to provide practical security practices without violating human rights. In 2013, 800 security-related employees attended the training called "Khun\_Khem\_Kheng" (ethics, strictness and strength), including heads of security guards, security guards and security officers.

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#### Anti-corruption

As a member of the Private Sector Collective Action Coalition against Corruption since 2010, PTT has implemented self-assessment to identify opportunities for improvement and prepare for certification process. PTT has designated Corporate Governance Committee and a working team to establish the corporate anti-corruption policy, and drive the implementation in accordance with the designated guideline. Additional communication channels have been put in place to receive questions and complaints regarding corporate governance and code of business ethics through CG Hotline (cghelpdesk@pttplc. com). In 2013, there was no case of reporting on violation of code of business ethics, anti-corruption, bribery, or non-transparency of financial status disclosure.

## Energy Price Adjustment following the Government Policy

PTT strictly operates its business in compliance with relevant law and regulations. This also applies for energy pricing in which the Ministry of Energy sets energy policies and pricing structure, as well as assuring fair competition of the energy market and energy prices.

This year the Ministry of Energy announced the adjustment of LPG price for household sector starting on September 1<sup>st</sup>, 2013. For Thailand's LPG price structure, the government sector controls the costs of LPG for household, industry and transport sectors, leaving that for petrochemical sector to freely float according to the global prices of downstream petrochemical products. Unlike the petrochemical sector which requires LPG as a raw material, the LPG that is used as a fuel by the other sectors, under Thai law, is subject to be levied of excise tax, oil fund, and others.

## Promoting Code of Business Ethics to PTT Networks

### PTT Group

PTT encourages its affiliates to establish good corporate governance, ethical standard and code of business ethics and become members of the United Nations Global Compact (UNGC). This way, together PTT and its affiliates, which make up PTT Group, demonstrate the firm's commitment to adopt the international principles of human rights, labor rights, environmental conservation and anti-corruption. Currently, all publicly listed affiliates of the group including PTT, PTTEP, PTTGC, IRPC, TOP and BCP are official members of UNGC.

### Suppliers and Contractors

PTT's footprint in the society is determined in large by the actions of its suppliers and contractors; therefore, PTT encourages the suppliers and contractors to share the same ethical principles by adopting the PTT Supplier Sustainable Code of Conduct.



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## RISK AND CRISIS MANAGEMENT

## Material Aspect

PTT's risk and crisis management systems analyze and manage known risks and uncertainties to ensure business continuity, protect financial performance and create growth opportunities.

Management Approach

- Maintain business continuity to safeguard personnel, protect capital and assets as well as instill stakeholders' confidence in PTT's operations.
- Support energy security by ensuring reliable supply during emergencies and business disruptions.

## **2013 Highlights** Business Continuity Management

#### PTT Group Business Continuity Management System Upgrade

PTT has completed the transition of its Business Continuity Management System (BCMS) from BS 25999 standard to ISO 22301, in line with current international standard and best practices. The Gas Separation Plant Unit (GSP) has been ISO 22301 certified by United Registrar of Systems Ltd. PTT Head Office and Natural Gas Pipeline units have been certified by Management System Certification Institute (Thailand).

## Political Protest and Occupation of Government Buildings

On November 25<sup>th</sup> 2013, PTT's President and Chief Executive Officer (CEO) opened the Emergency Management Center (EMC) to monitor the Thailand's political protest which started on November 1<sup>st</sup> and has escalated to the occupation of government building and complexes. On November 27<sup>th</sup>, protesters surrounded the Ministry of Energy, located in the same complex as PTT's Head Office, and cut off electricity and water to the buildings. In response, PTT executed the Business Continuity Management plan so that critical personnel could work from an assigned alternate location. PTT has setup communication channels for non-critical personnel, allowing them to work from home. As a result of advanced planning and close monitoring by the EMC, PTT was able to continue operating with minimal disruptions, while ensuring employee safety. Once the protesters vacated the area, the EMC was shut down and PTT personnel returned to normal operations on December 11<sup>th</sup>, 2013.



## Support for Oil Spill Incident in Samet Island

The oil spill incident caused by PTTGC, a PTT subsidiary has affected the shoreline from Map Ta Phut to Prao Bay, Samet Island and nearby areas. PTT's commitments for ongoing assistance to PTTGC are briefly summarized below:

- PTT will continue to support and cooperate with PTTGC in every way in dealing with the incident. It will also assist PTTGC in a sustainable recovery process for the affected areas both on and offshore.
- PTT will support and cooperate with PTTGC in every way in dealing with the incident according to the Security, Safety, Health and Environment Management System (SSHE MS).
- PTT and PTTGC have disclosed and will always disclose all the facts relating to the incident. Both PTT and PTTGC welcome any inquiries to ensure transparency to the public.
- PTT is open to comments and involvement from the public in order to manage the situation and reach the most effective and efficient recovery.
- PTT offers PTTGC its full support in compensating for any damages caused to any stakeholders.

PTT and PTTGC have received cooperative support from government agencies, private entities, and local residents. Comments from the public, academics, and independent experts have been integrated into the recovery plans, ensuring that lives of affected residents and local businesses return to normal in the shortest time possible.

## Ensuring Reliable Supply Myanmar Supply Disruption

In April 2013, the Yadana gas field in Myanmar underwent a planned annual maintenance which resulted in a supply reduction of 1,100 million cubic feet per day affecting Thailand's power generation sector. PTT's response measures included: establishing a monitoring center and communication channel with natural gas pipelines network and gas separation plants across the country, coordinating with other producers, the Electricity Generating Authority of Thailand (EGAT) and agencies involved, preparing other sources so that they are able to produce at full capacity, executing oil delivery plan accordingly to EGAT process, and postponing or suspending maintenance or work plans that could disrupt natural gas supply. In addition, PTT also communicate with external agencies and the media throughout the maintenance period. As a result of wellplanned coordination, PTT was able to ensure adequate natural gas supply for the country.





## Gas Separation Plant Unit 5 Operation Disruption

On August 14<sup>th</sup>, 2013, lightning struck the stack of Gas Separation Plant unit 5 damaging the Waste Heat Recovery Unit (WHRU) of the plant resulted in an unplanned shutdown. Initial inspection estimated that the repair and restart would take approximately 3 - 5 months. In response to the shortfall in production capacity, PTT implemented plans and measures to ensure supply continuity. PTT curtailed liquefied petroleum gas (LPG) shipment to petrochemical industry and increased LPG

import to ensure that household, transportation and power generation sectors were not affected. In addition, PTT maintained open and constant communication channels during the shutdown, as well as arranged compensation plan for those who were affected. PTT was able to bring GSP unit 5 back to normal operations earlier than planned and has since implemented preventative measures to prevent repeated occurrence. The measures include: installing lightning rod and grounding system, revising procedures to regularly maintain and monitor stack exhaust, as well as sharing lessons learned from the incident through knowledge management program.

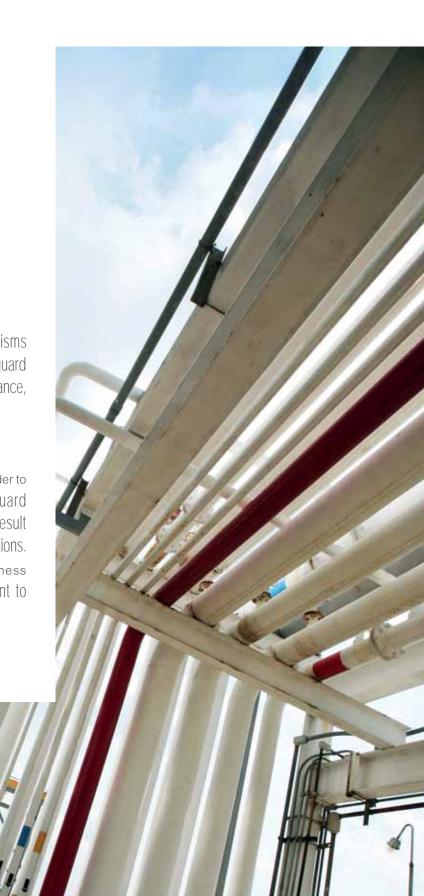
## SUPPLY CHAIN MANAGEMENT

## **Material Aspects**

PTT's supply chain management mechanisms are in place to ensure business continuity, guard against reputational impacts, improve performance, and capture new business opportunities.

#### Management Approach

- Manage risks along the supply chain in order to minimize business interruption and guard against reputational impacts that may result from suppliers' or business partners' operations.
- Collaborate with suppliers and business partners and support local procurement to optimize supply chain management.



## 2013 Highlights

## Sustainability in Supply Chain

	Raw Materials Supply	Raw Materials Transportation	Production Facilities	Product Transportation	Products and Services Use
Material Aspects	Availability and Reliability of Supplies	Safe, Re	eliable, and Compliant Op	erations	Risks from Suppliers' ESG Performance
Management Approach	Thailand Integrated Gas Supply - to analyze and manage risks in natural gas and LNG supply	Ship Vetting Process	PTT Group Operational Excellence PTT Group Integration Supply Chain Management and Optimization (GISMO)	Zero Logistic Accident	Suppliers ESG Risk Assessment Suppliers Audits
Performance Highlights	Procured 4,602 MMSCFD of natural gas, a 1% increase from 2012	No accidents related to marine transportation resulting in supply disruption	Created over 400 million Baht in added value to the PTT Group; exceeding the target	Achieved 0.12 times per 1,000,000 km	Conducted on-site audits on 36 suppliers

## Supply Chain Risk Management

### Suppliers Assessment

PTT conducts supplier assessment and random product inspection on a regular basis. Evaluation criteria include: product quality, transportation, labor practices, operation safety, and environmental management. New suppliers are evaluated prior to being included in the PTT Approved Vendor List. The initial evaluation includes site visit by PTT's audit team who assesses the vendor's capacity in terms of product and service quality, financial stability, safety health and environmental performance, as well as the ability to comply with the PTT Supplier Code of Conduct.

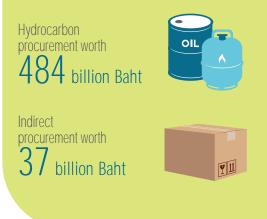
Hydrocarbon products are procured for use as input in the production process. As these are large and critical transactions, PTT required all hydrocarbon suppliers to complete a self-assessment questionnaire. In addition, PTT conducts on-site audits and supplier interviews. For indirect suppliers, PTT conducts supplier evaluation through on-site audits prior to and after procurement, as well as provides suppliers with support to improve performance and capabilities.

## Supply Chain Optimization

### Zero Unplanned Shutdown

PTT has leveraged and expanded the preventive maintenance program used in the Gas Separation Plants and Oil Terminals to refineries and petrochemical plants within the PTT Group. The Zero Unplanned Shutdown project was initiated for businesses within the PTT Group to share best practices in preventive maintenance and maintenance schedule in order to prevent operational interruption that result in unplanned shutdown. In addition, PTT Group businesses have also joined together to share experience and to develop the Operational Excellence Management System (OEMS) under the PTT Group Operational Excellence (OpEx) program.

## Total Procurement Value



Supplier Environmental Social and Governance (ESG) Risk Assessment



Supplier Environmental Social and Governance (ESG) Performance Assessment



Hydrocarbon Suppliers

100 percent conducted self-assessment 11 percent percent received on-site audit received follow-up

25 percent received on-site audit 1 percent evaluation

Indirect Procurement

Suppliers

#### PTT Group Integration Supply Chain Management and Optimization (GISMO)

The PTT Group Integration Supply Chain Management and Optimization (GISMO) is jointly developed by businesses in the PTT Group to elevate supply chain management to international standards, improve efficiencies, and add value along the supply chain. Last year's progress includes:

- PTT and IRPC worked together in the Optimization Collaboration program to improve the lubricant oil production efficiency by increasing utilization rate and reducing costs associated with energy usage and cleaning of the blending tank. In addition, single point production waste management system was introduced which helped improve environmental monitoring process.
- PTTGC and Thai Paraxylene Company Limited (TPX) jointly conducted a Liquid Chemical Co-sales/Swap to collect and exchange paraxylene for export, resulting in reduction of transportation using small vessels, as well as reducing energy use and air pollution from transportation.

### Zero Logistic Accident

To raise safety awareness of drivers and reduce transportation accident, PTT Group and its truck logistics contractors are jointly participating in the Zero Logistics Accident initiative. The 2013 target for the initiative was to reduce the number of major accidents from product transportation to be less than 0.3 times per 1,000,000 km. The target was communicated to the relevant functions overseeing logistics and transportation. In addition, PTT Group organized events and activities to build contractors' safety awareness and capabilities such as jointly preparing a checklist to assess safety preparedness and sharing transportation management practices among suppliers. This initiative helped to reduce major accidents from product transportation to 0.12 times per 1,000,000 km. In addition, on the environmental side, PTT Group requires contractors to have in place preventive and mitigation measures for spills during the transportation of products such as oil, gas, chemicals and plastic resins, and encourages the use of renewable fuels. The vehicles currently in use have switched to biofuel or natural gas for vehicles (NGV) to help reduce environmental impacts.

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## Progress Against Plan

Plan	2013 Accomplishments	Next Steps
On-site audits	Conducted on-site audits on 3 hydrocarbon suppliers and 25 indirect suppliers	Conduct 11 audits of hydrocarbon suppliers and 25 audits of indirect suppliers
Major accidents from transportation to zero by 2020	Achieved 0.12 times per 1,000,000 km, lower than the target of 0.3 times per 1,000,000 km	Less than 0.1 cases per 1,000,000 km in 2014
Value creation through supply chain management	Created over 400 million Baht in added value to the PTT Group; exceeding the target	Manage supply chain to add value, increase customer satisfaction and reduce environmental impacts
Supplier satisfaction in working with the procurement functions	Achieved 83.24 percent satisfaction (higher than the target of 70 percent)	Achieve 80 percent satisfaction in 2014
Local Procurement	Procured a total of 31,237 million Baht from 3,167 suppliers.	Procure more than 90 percent of products and services locally in 2014



## PRODUCT STEWARDSHIP

## Material Aspects

PTT's TAGNOC strategy and Green Roadmap guide environmentally-focused investment and innovation efforts to gain access to new market, increase consumers' satisfactions, and create shared values between business and society.

#### Management Approach

- Promote and meet consumer demands for safe and environmentally friendly products and services.
- Increase customer satisfaction and brand loyalty through quality products and services that meet international standards.



## **2013 Highlights** Product and Service Development

### PTT HyForce Premium Diesel

The PTT HyForce Premium Diesel is PTT's proprietary formulation that was developed using the same technology as the latest synthetic jet fuel. The PTT HyForce Premium Diesel is the first and only fuel in Thailand that meets the standards of the European Union Level 5 (Euro 5). It is designed for rapid acceleration and to reduce particulate emissions. It was launched in 61 stations in Bangkok and suburban areas on October 9<sup>th</sup>, 2013, which has become popular with steadily increasing sale.

### PTT Composite Plus LPG Cylinders

The PTT Composite Plus LPG cylinder is an innovative product that uses filament winding technology which combines polymers and fiberglass, resulting in a tank that weighs less than half of the original model, resistant to hot and cold temperature, corrosion proof, and can last up to 20 years. Life Cycle Analysis shows that the PTT Composite Plus has less environmental impacts than the conventional LPG cylinder tank. The PTT Composite Plus has also been certified under TISI 1898 - 2009 standard. It has been introduced in the southern region of the country along coastal areas where conventional cylinders have short life span due to corrosion. The introduction of PTT Composite Plus in the three southern provinces is consistent with the Ministry of Energy's policy to promote the use of composite cylinders. Consumers can bring their old PTT 15 kg LPG cylinder in exchange for the PTT Composite Plus. PTT plans to roll-out the PTT Composite Plus across the country in 2014.



We spent three to four years in development using the best available technology. The PTT Composite Plus has three distinctive features: first, it meets global standards; second, it has the highest safety standard and has been performance tested by the Thai Industrial Standards Institute (TISI) under the Ministry of Industry; third, it requires less energy during transportation, as well as reduces carbon emissions during the manufacturing process compared to the old design. Consumers can be assured that they are playing a part in environmental conservation. In addition, the exterior design of the cylinder has a modern quality, is compact, robust, and will fit into the decoration of every house style.

> Mr. Chavalit Punthong Senior Vice President, Oil Business Unit



#### Green Station

The Crystal PTT on Chaiyaphruek Road in Bangkok is PTT's pilot Green Station. It is the first all-inclusive Green Station that offers alternative fuels and has operations that are environmentally friendly such as using solar panels and providing electric vehicle charging stations.

### PTT Smart Fuel-up Technology

PTT collaborated with Kasikorn Bank to develop a smart fuel-up system that uses wireless technology (Radio Frequency Identification: RFID) to identify vehicles that come in for refuel at PTT Service Stations. The system improves service by reducing errors from fueling with an incorrect fuel type through a system that is safe and effective in controlling costs for PTT's corporate customers with large vehicle fleets. Customers can use information collected from their Fleet Card to analyze fuel costs. In 2014, PTT plans to expand the number of PTT Service Station with PTT Smart Fuel-up Technology system to 200.

#### Low Carbon Products

PTT reduced indirect greenhouse gas emissions (Scope 3) by 1,250,000 tons of carbon dioxide equivalents through low carbon product offerings. This reduction has already exceeded the target to reduce 1,022,000 tons of carbon dioxide equivalents by 2015. PTT is now reviewing the target for 2014.



Biofuel in Thailand (million liter)	2011 Sales	2012 Sales	2013 Sales	2014 Sales Projection
Total fuel sale	15,038	15,741	16,411	16,546
Bio gasoline (Gasohol)	1,404	1,569	2,540	2,615
Bio diesel (B2-B5)	6,163	6,161	6,639	6,757

## **Customer Relations**

PTT launched the PTT Blue Card in order to better meet customer needs.

Objective: Manage customer relations to respond to consumers' demands via the PTT Blue Card in order to foster brand loyalty. Performance Indicator: Membership in the first year targeted at 600,000 customers. Implementation: Launched on March 1<sup>st</sup>, 2013, with 620,029 customers as of December 31<sup>st</sup>, 2013, exceeding the target. Benefit to Customers: Customers who enroll in the PTT Blue Card can accumulate reward points that can be exchanged for gifts or discounts on products and services. Other benefits include discounts at selected retail stores, restaurants and hotels, and the opportunity to attend special customer relation events.

Benefit to the Organization: PTT is able to more effectively outline a marketing strategy plans and business promotion activities. The program also creates direct communication channel with members resulting in increased consumer confidence and spending.



#### **Customer Satisfaction**

PTT's business direction and product and services developments are guided by customer demands and expectations.

Satisfaction Survey	Oil Customer/ Consumer	Natural Gas Customer	International Trading Customer
Target for 2013	90.0 percent	> 89.0 percent	90.0 percent
2013 Satisfaction Level	89.5 percent	91.5 percent	90.4 percent
Target for 2014	89.5 percent	> 89.0 percent	90.0 percent



PTT reinforced consumer confidence in the PTT brand as having quality products that meet international standards by winning 3 popular automotive awards for Fuel, Service Station, and Lubricants for the 4<sup>th</sup> consecutive years. These awards were given at the Thailand Automotive Quality Awards 2013 to businesses with outstanding customer satisfaction track records in terms of quality, service, vehicle performance, after sales service, and associated products. In addition, PTT Service Stations also won the Trusted Brand Award 2013 which was voted by readers of Reader's Digest magazine for the 13<sup>th</sup> consecutive year and it is the 5<sup>th</sup> consecutive year for the highest level or Platinum Award.



**Progress Against Plan** 

Six Service Stations have been certified with Green Label including: Head Office, The 1st Infantry of the 1st Regiment, Sutthisan, Sukhapibal 3, Bangna (outbound) and Bang Pa-in.

PTT's products that have received the Carbon Footprint Label include: ULG 91, ULG 95, Gasohol 91, Gasohol 95, Gasohol E20 and PTT Performa Super Synthetic lubricant (1 liter and 4 liters).



Signed 11 new natural gas contracts, exceeding the goal of 9 contracts, with 7 new contracts expected to be added in 2014.

Plan	2013 Accomplishments	Next Steps
Promotion of environmentally friendly services	Developed a pilot Green Station; installed electric vehicle charging station at the Laem Chabang outbound Service Station; generated electricity from solar at the Sikhiu branch; and initiated the zero waste program at the Saraburi branch	Conduct feasibility using data from pilot stations to further develop more environmentally-friendly services.
PTT Group Self-declared Eco-label	Completed criteria for environmental friendly assessment for products and services. Certified 5 products and services under the PTT Group Green for Life label including: packaging paper coated with polybutylene succinate (PBS), wood plastic composite, Green ABS (acrylonitrile butadiene styrene), Blue Gasohol E20, PTT HyForce Premium Diesel and staff identification cards that are made from PLA (polylactic acid); exceeding the target to certify 2 products.	Expand certification to include at least two services.

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# Operational Excellence

### Material Aspects

PTT Group's Quality, Security, Safety, Health and Environment (QSHE) Policy is implemented through Security, Safety, Health and Environment (SSHE) targets, strategy, plans, and clearly defined performance indicators in order to drive improvement in Operational Eco-Efficiency, create safe work environment, and reduce social and environmental impacts.

Management Approach

- Manage environmental impacts through operational eco-efficiency.
- Ensure safe and effective operations at the same level as international leading companies of similar industry.



## **2013 Highlights** Operational Eco-Efficiency

### Progress against Targets

2020 Strategic Target	Indicators
Increase in absolute air pollutant emission rate to zero	Volatile Organic Compounds (VOCs) emission
	Nitrogen Oxides (NOx) emission
	Sulphur Dioxide (SO <sub>2</sub> ) emission
Amount of hazardous waste to secure landfills to zero	Hazardous waste to secure landfills amount
Reduce the amount of greenhouse gas (Scope 1 and 2) by 15%, compared to business as usual (BAU) from base year 2010 <sup>3</sup>	Carbon intensity <sup>4</sup> Reduce the amount of greenhouse gas from business operational activities by 600,000 tCO <sub>2</sub> e by 2015
Reduce energy intensity by at least 11.4 percent by 2017 compared to business as usual, equivalent to 1.9 percent annual reduction (2011 baseline)	Energy intensity (GJ/ton)
Reduce water usage in high risk areas and maintain water usage in area with high water usage	Water withdrawal

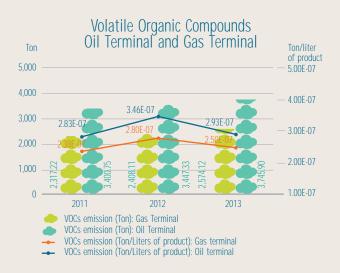
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2013 Target	2013 Performance <sup>1</sup>	2014 Target <sup>2</sup>
VOCs intensity based on total revenue from products not to exceed 2012 value	Gas Terminal: 0.25 tons of VOCs per 1 million liters of products Oil Terminal: 0.29 tons of VOCs per 1 million liters of products	Not to exceed 2013 value
No defined target	969.46 tons per year	Not to exceed 1,977.13 tons per year
No defined target	110.82 tons per year	Not to exceed 467.67 tons per year
No defined target	611.40 tons per year	Not to exceed 480 tons per year
Not to exceed 380.5 kg CO <sub>2</sub> /BOE	379.42 kg CO <sub>2</sub> /BOE	381 kg CO <sub>2</sub> /BOE
	318,000 (tCO <sub>2</sub> e)	-
Reduce energy intensity from operations by 3.8% from 2011 baseline	Reduced energy intensity from operations by 3.8% from 2011 baseline	Reduce energy intensity from operations by 5.7% from 2011 baseline (1.9% annual reduction)
No defined target	0.27 cubic meter per ton of product	Not to exceed 0.31 cubic meter per ton of product

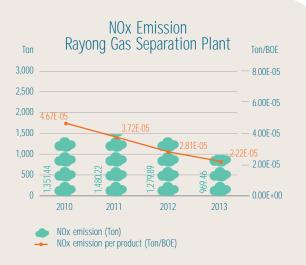
#### Remark:

Target and performance cover PTT operations only. Scope of targets is defined as follows:

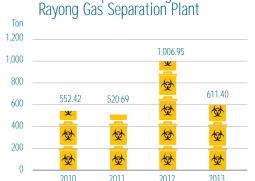
- 2013 scope for VOCs emission includes petroleum terminal, gas terminal, and oil terminal. 2014 scope will include Gas Separation Plant.
- NOx and SO, emission, hazardous waste, and water withdrawal scope include only Rayong Gas Separation Plants.
   NOx and SO, emission targets are the maximum values approved by the Office of Natural Resources and Environmental Policy and Planning when operating at full capacity.
   Greenhouse gas targets are defined through various PTT's Scope 1 GHG reduction initiatives and PTT Group's GHG reduction projects under the Climate Change Roadmap strategy and policy.
- Hazardous waste reported does not include waste from capital construction project and from emergency and crisis management. <sup>3</sup> 2014 Scope 1 and 2 GHG target: GHG emissions not to exceed 33.9 million tons of carbon dioxide equivalents under operational control.
- <sup>4</sup> Carbon intensity is an agreed indicator based on PTT's performance assessment, which covers on PTT operations.

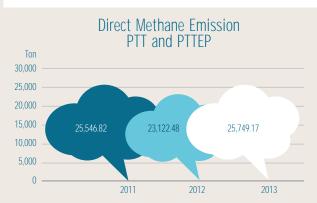


Absolute VOCs emissions were higher due to the increase in receiving-storing-distributing activities. However, VOCs emissions per product sales declined.



NOx emission has decreased due to the installation on additional Dry Low Emissions (DLE) system, at GSP unit 2 and Onshore Gas Compressor 2.

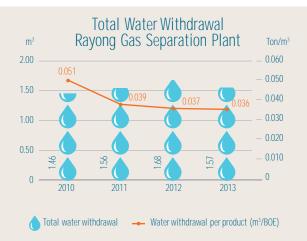




In 2013, methane released from leakage, venting, and flaring increased slightly, but the overall trend is stable. To address this situation, PTT and PTTEP made efforts to reduce methane emission by launching the Natural Gas STAR Program under the Global Methane Initiative (GMI) in order to drive a new management approach.

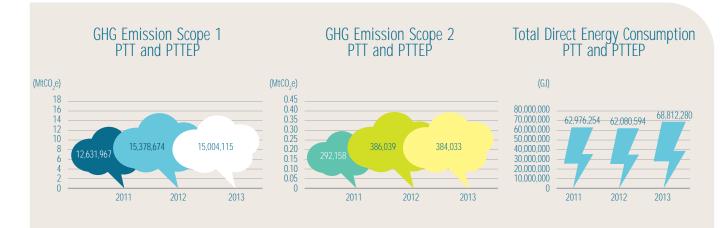
In 2013, volume of hazardous waste disposal has decreased from 2012 due to Rayong Gas Separation Plant's turnaround activity and from waste reduction activities based on 3R principles such as the Green turnaround project/Waste to worth project, which is a process for reusing solid waste.

Volume of hazardous waste disposal excludes hazardous waste generated from major construction activity and emergency management.



Water withdrawal has decreased due to the implementation of water conservation and process water treatment for recycling projects at the Rayong Gas Separation Plant.

#### Hazardous Waste Disposal through Safe Landfill



In 2013, direct energy usage has increased slightly, compared to 2012. GHG emission from PTT and PTTEP operations continued the downward trend and started to plateau, reflecting operational effectiveness. Projects to reduce GHG emission include: the PTT Group Energy Management System, Gas Seperation Plants Operation Improvement Project, Solar Panel Installation at PTT Service Stations, Flash Gas Recovery Project, and PTTEP's Green Office Initiative.

#### Reduction of VOCs Emissions

In 2013, PTT met the VOCs emission per product ton target for all 6 key emission sources, not exceeding 2012 emission. PTT continuously finds ways to reduce and control VOCs emissions from the sources to prevent VOCs leakage. For example, the top load modify approach was implemented in the receiving-distributing truck loading processes for petroleum products which resulted in a 30% reduction in product losses, a saving of 1.1 million Baht per year. Understanding the importance of VOCs measurement and tracking at point of emission in reducing and preventing emission, PTT installed a Smart Lead Detection and Repair (Smart LDAR) - a long-distance infrared imaging system to continuously monitor fugitive emissions from equipment. The tracking results indicated that emission was below the statutory limits.

#### Waste to Worth Project

The Waste to Worth Project is a process for reusing solid waste from turnaround instead of sending waste to landfill. In 2013, PTT was able to save 100,000 Baht by diverting 25 tons of waste from landfill. The project also generated 25,000 Baht in revenue from the sale of processed waste.

#### EPA's NGSI Project

PTT supports policies to address climate change by signing a Memorandum of Understanding with the U.S. Environmental Protection Agency (EPA) to participate in the EPA's Natural Gas STAR International (NGSI) Project. The NGSI project focuses on the effective reduction of methane gas emissions, which has an adverse impact on climate change. PTT and PTTEP, in conjunction with the U.S. EPA, surveyed NGV station areas, the S1 and S1 Satellite Facility in order to study and analyze approaches for a more effective reduction in the release of methane gas from equipment and machines.

### Water Risk Management

Fifty-eight drought risk areas at PTT Group's operations throughout Thailand were assessed based on the AQUEDUCT Global Water Risk International Standard. Based on the assessment findings, PTT generated a map to indicate the areas with water risks for use in risk management and strategic planning. The assessment on water usage impact on community and the environment found that Thailand's risk level is between Medium and High. PTT monitors and tracks water risk issues through the War Room Committee in the Eastern Region.

### Evaluation of Compliance with National SSHE Regulations

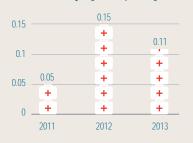
PTT is committed to compliance with National Security, Safety, Health, and Environmental (SSHE) Regulations. PTT evaluates of compliance at each location at least once a year. If any areas fail to comply with the regulations, corrective actions are immediately implemented. For example, when the effluent quality of some PTT service stations were found to be out of compliance with the regulations, the oil business unit established waste water quality management committees to resolve the issues, as well as defining procedures in order to prevent reoccurrence. Additionally, follow-up evaluations were conducted and indicated that effluent quality was in compliance with regulations.

## Safety

Indicator	2020 Strategic Target	2013 Target	2013 Performance	2014 Target
Loss Time Accident (LTA) Total Recordable Incidence Rate (TRIR)	LTA equal to zero every year 0.066 per 200,000 hours	0	5 Employees 5 Contractors 0.16	0 0.08
of employee Total Recordable Incidence Rate (TRIR) of contractor	0.086 per 200,000 hours	0.172	0.09	0.15
Total Recording of Illness Frequency (TROIF) of employee per 200,000 hours	-	0.16	0.02	0.16
Number of severe car accidents caused by PTT employee	-	Not more than 12	19	<ul> <li>Severe car accidents caused by PTT employees, resulting in loss time accident equal to 0.</li> <li>Severe car accidents caused by PTT employees, resulting in loss of assets to be fewer than 12.</li> </ul>
Number and volume of oil or chemical spills or leakages to be reduced each year, starting in 2014.	Zero spills and leakages	Number and volume of spills or leakage resulting in more than 1 barrel of oil or chemical spilled into the environment in the operational areas equal to zero. Number of significant spills equal to zero.	One incident of spill resulting in more than one barrel of oil spilled in the operational areas. For this incident, PTT followed the procedure to control the leakage and immediately limit the impact on the environment.	Number and volume of spills or leakage resulting in more than 1 barrel of oil or chemical spilled into the environment in the operational areas equal to zero. Number of significant spills equal to zero.

#### Progress Against Targets

#### Lost Time Injury Frequency Rate: LTIFR (Employee)



Employee LTIFR in 2013 has decreased by 26.67% from 2012. PTT has been promoting safety culture, where management serves as role models, within the organization.

#### Lost Time Injury Frequency Rate: LTIFR (Contractor)

0.15		0.10	
		0.13	
0.1		+	
	0.07	+	
0.05	+	+	0.05
0.00	+	+	+
0	+	+	+
	2011	2012	2013

Contractor LTIFR in 2013 has decreased by 61.54% from 2012 due to PTT's emphasis on safety. PTT continues to expand the scope of contractor management under the PTT Group SSHE Management Standards. SSHE criteria are specified in the contract and considered during the selection process. Contractors are required to submit a monthly SSHE report and be subjected to SSHE audit once the job is completed.

#### Personnel Safety

Focusing on building a strong safety culture, PTT adopted a management role model plan. For instance, the senior management of any unit where a severe accident occurred is required to participate in the investigation process, determine a corrective action plan, and report the progress of the plan to the PTT's management, as well as follow the corrective actions to completion. Safety behavior is also a key performance indicator for management at the vice president level and above.

In addition, PTT continually creates safety awareness for all employees. For example, the Happy Workplace and Safety Behavior Project at Wang Noi Research and Technology Institution provides several guidelines and training modules, including safety knowledge courses, basic health and environment in the workplace, SSHE for all employees, and basic SSHE for Operations with an emphasis on operations employees.

Regarding work-related illness, PTT launched the Fitness to Work Projects in order to determine the risk factors in each position. Employees throughout the organization and from all business units receive recommendations regarding risk factors from physicians specializing in Occupational Health. The physicians also handle additional health requirements covering health checkup prior to employment, annual checkup, health check before job change, and checkup before the employee leaves PTT employment. The main purpose of these requirements is to be able to assign the right person to the right position to one's and co-workers' safety.

In addition, PTT expanded the management scope based on the PTT Group SSHE Management Standards to include high risks work activities undertaken by contractors by implementing the contractor selection process to pre-screen NGV logistics contractors.

Road and traffic safety is another important safety issue for PTT. Analysis of traffic accident causes found that driving behavior is still the key factor for preventing accidents. Based on these findings, PTT continues to implement the corporate fleet accident reduction project. The project provides defensive driving training for all employees who need to drive for work. Since 2010, PTT has studied other approaches to improving driving behavior by installing the "in vehicle monitoring system" to collect information. The collected information on driving behaviors will be used to improve safety system and encourage safe driving behavior.

#### Process Safety Management

In 2013, there was 1 process safety incident at Tier 1 level, which was the lightning incident at the Gas Separation Plant Unit 5 which led to the explosion of the plant's waste heat recovery unit. The incident damaged the plant, but caused no casualties. More specific details and PTT's handling of the incident can be found in the Risk and Crisis Management section.

# Oil, Chemical and Gasoline Spill and Leakage Management

Oil, chemical, gasoline spill and leakage management is one of the most important missions for the petroleum industry. Therefore, PTT Group emphasizes the importance of engineering design, tracking and monitoring practices, and strict preventive measures in its operation and management strategy. In order to achieve this, the organization ensures the readiness of its human resources and equipment, as well as an effective management system that includes gas detectors, Supervisory Control and Data Acquisition (SCADA), emergency plan for leakage to air and water resources, and training in and conducting drills of the emergency plan. PTT conducts drill at provincial and national levels on a regular basis within the organization and in conjunction with the relevant governmental entities, including the Water Transport and Merchant Marine Department, Civilian Defense Division, Royal Thai Navy (3rd Regiment), as well as other private organizations. Additionally, PTT emphasizes the importance of regional and national participation through its membership in several oil removal organizations, such as the Oil Industry Environmental Safety Group (IESG) and Oil Spill Response & East Asia Response Limited (OSRL).

In addition to tracking and preventive procedures, PTT Group also developed the PTT Group Emergency and

Crisis Management Plan in order to handle emergency situations effectively and with the standardized cooperation of the entire organization. Cooperation among PTT Group's affiliates in handling spills was evident in the PTTGC, a PTT Group's affiliate, oil spill incident on July 27th, 2013 which released approximately 54,000 liters of crude oil into the Gulf of Thailand. Immediately after the occurrence, PTT Group implemented a complete solution in conjunction with relevant governmental departments by immediately stopping the oil transfer which prevented additional spills. The response involved cooperation from PTT Group's internal and external resources, organizations in Rayong and surrounding provinces, as well as experts and specialized equipment from the OSRL - an international expert. However, due to high winds and strong current, the chemical treatments were not able to work to their full capacity resulting in crude oil washing up on Prao Bay on Samet Island. PTT established an emergency and crisis operational center (PTTGC) to monitor the situation and conduct operations throughout the incident. Working closely with the Ministry of Energy and other involved organizations, PTT President & CEO tracked, monitored, and supported PTT Group's operations at all levels in terms of situation control, impact management, communication and social responsibility until the issue was resolved.

PTT Group is fully aware of the importance of natural resources and the environment. With this in mind, PTT Group conducts beach clean-ups and water quality checks regularly at Prao Bay to ensure that the quality of the seawater in the area meets the recreation standard of the Natural Resources and Environment Ministry. Along with these activities, PTT Group works with the Pollution Control Department to test the quality of the environment and monitor the health of cleaning crew, employees, contractors, navy and army service members, and volunteers from the Civilian Defense Division. The results from the health and physical checks show that there were no reports of any health issues from this operation.

## Progress Against Plan

Plan	2013 Accomplishments	Next Steps
Implementation of PTT Security, Safety, Health, and Environment Standard	Expanded the adoption of the standard to PTT Group's Flagship Companies via the Operational Excellence Management System (OEMS). Implemented the standard in Natural Gas Processing Unit, NGV Unit, and Strategic Procurement & Administration Department.	Expand adoption of the standard to every PTT's function and to Non-Flagship Companies through the SSHE section of PTT Way of Conduct.
PTT Group SSHE MS Audit by the Internal Audit Function at least once every 3 years, based on the risk of each area/company.	Completed the development of audit protocol and operational procedures; Internal audit function audited all 6 locations, including Khanom Gas Separation Plant, NGV Lumlookga Mother Station, NGV Rungsit Mother Station, PTT Tank Terminal Company Limited, PTT Polymer Logistics Company Limited, and also excludes contractors who are not involved in the main business, such as convenient stores in the stations.	Analyze findings from the audit and develop a corrective action plan. Drive functions and PTT Group's affiliates to conduct self-assessment and internal audits and prepare for future official evaluation from the corporate internal audit team.
Compliance of SHE database with PTT Group SSHE Measurement and Reporting Standard	<ul> <li>Completed the improvement of standards and reporting tools via Web Application Phase II</li> <li>Expanded additional information collection to 180 locations or 87.38% of the operational area nationwide.</li> </ul>	Expand information collection to all PTT Group, and continuously improve the reporting tools via Web-Application.
GHG database's compliance with International Standards	Upgraded the standard and tools to the GHG & Energy Calculation Program which can be implemented in international operations and are in compliance with international standards.	Expand data collection to PTT Group's affiliates located overseas.
Participation in Carbon Disclosure Project (CDP)	Participated in the Investor CDP 2013, in which PTT evaluation and analysis results were disclosed in the Global 500 sector.	Continue to participate in the Investor CDP to enhance the effectiveness of reporting and climate change management.

# HUMAN CAPITAL DEVELOPMENT

### Material Aspects

PTT's human resources management incorporates a concept of learning organization to enhance organizational capability and transform PTT from a resource-based organization to a knowledge-based organization.

Management Approach

- Continuously enhance the competency for professional growth and enrich the well-being of employees comparative to other leading companies in order to foster the employees' trust and the pride of belonging to the company.
- Develop organizational capability and knowledge through the strategy 'Learning Triad for Sustainability'.



## 2013 Highlights Human Resources Management

### Capacity Building

PTT plans and manages human resources according to the need of a business in order to maintain its leadership. In this context, the career management needs to tie in with knowledge enhancement. With this aim in mind, one of the main milestones this year was the improvement of training programs to improve the productivity and prepare all levels of employees in responding to the business's continuous growth. Other focal points of actions implemented within the capacity building area were individual development plan (IDP), specific courses for talent pool, and on-the-job training through career path alignment such as a 'Young People to Globalize' program to prepare employees prior to be designated overseas.

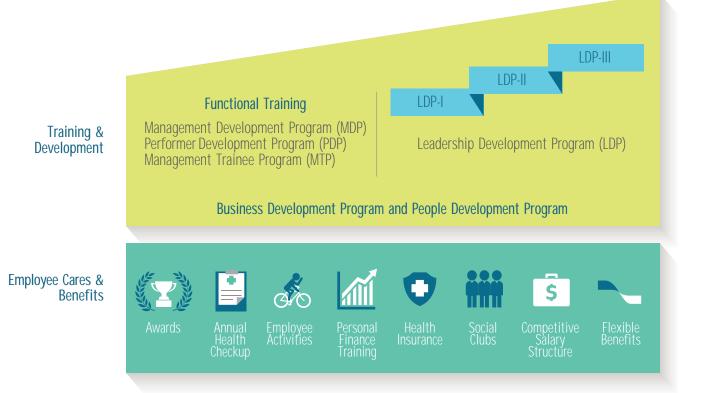
### Comparison of PTT's employee engagement score 2013 with other leading companies



3,692 employees (85%) of total employees participated in the engagement survey

#### Remarks:

- \*\*
- Tier 2 companies consists of companies from China, Japan and Korea Oil and Gas Industry consists of companies from United States \*13 Companies participated in Employee Engagement Survey in Thailand from sector Oil and Gas, Logistics, Utilities, Services, and Food Score 4.11 based on 5 Mercer Standard



### Training



"The orientation program let me know the history of PTT from the very beginning through a hard time and until its successful era like present. This made me love and feel engaged to this company, and would like it to continue for the sake of the next generations."



"The People Development Program let me know my strength and my weak points, and understand how to deal with different types of people to help me work with others more efficiently."



"The retirement preparedness program that was organized 5 years before my retirement is a very good program. It helps me to prepare my financial plan for retirement including my well-being physically and mentally such as eating and exercising and how to take care of mind and emotion after the retirement."





Training hour per employee 41 hours/employee



Training cost per employee 47,000 Baht/employee



 Human capital performance indicator
 Return on HR investment (revenue/HR investment)

340 TimesNet income per head

14,500,000 Baht

47

#### Compensation and Benefits

PTT conducts benchmarking study on employees' compensation and benefits against leading domestic and international companies annually. In Thailand, PTT is considered one of the leading employers in term of compensation and benefit. In 2013, PTT adjusted the salary structure in order to attract talents in the energy sector and from other leading companies. In addition, the adjustment also increases employees' satisfaction which is reflected in employee engagement score under reward practice. Flexible benefit offering were also updated based on employees' feedbacks. In addition, rewards and compliments are extended to encourage employees to strive for excellent performances; examples of awards given include: the Knowledge Management Award, the Innovation Award, the PTT SPIRIT Award, the Quality, Security, Safety, Health and Environment (QSHE) Award.

## Knowledge Organization

#### PTT Group Knowledge Management

The vision of PTT Group Knowledge Management is to ensure that the company has captured the knowledge needed to ensure the future of organization and a key lever to boost the transformation of the company into the knowledge-based organization, therefore creating a competitive advantage to the organization. PTT targets to promote knowledge management as a fundamental for capacity development of the PTT Group by means of PTT Group KM Portal (Bright), which is as a platform to promote the sharing, exchanging and learning of expertise, experiences and practices.





#### Learning Triad for Sustainability

Learning Triad for Sustainability is a strategy aimed to drive PTT towards a knowledge-based organization. This strategy is configured to prepare human capability from the very start of education life in line with the growth direction of the country, to aid the development of leadership profiles and responsible professionals back to the society.

#### RAyong Institute of Science and Technology (RAIST) and RAyong Science Academy (RASA)

The academic institutes at both levels focus on curriculums that promote advanced scientific and technological research, which are regarded as the linkage between academic and industrial sectors. The institutes can obtain expertise, analysis method and specialized skills from the industry sector. On the other hand, the industrial sector also benefits from the innovations derived from research and development of both the researchers and professors.



## RAIST&RASA

#### PTT Leadership and Learning Institute (PLLI)

PTT initiated the PLLI project in 2013 in order to improve capacities, knowledge and ability of the personnel at all levels to support PTT to become a Thai Multinational Energy Company. In addition, PTT has cooperated with Harvard Business School, a world-class leadership development institute, in designing and developing a training course for the high management level personnel.

#### Thailand Energy Academy (TEA)

PTT in association with the Ministry of Energy established 'Thailand Energy Academy', developing dedicated training programs to boost public understanding, particularly the opinion leaders, on energy issues such as energy consumption trends, national energy policy, and other key energy related issues. This program focuses on opinion leaders from various organizations (such as government sector, private firms, press & media, professors and public) to be informed and understand.

## **Progress Against Plans**

Plan	2013 Accomplishments	Next steps
Personnel recruitment	Recruited 358 new employees, accounting for 83% of the target of 433 employees.	<ul> <li>Continue to recruit to meet 2013 recruitment target.</li> <li>Recruit new employees as per the approved 2014 target such as business growth, substituting those resigning or retiring.</li> </ul>
Capacity development to enrich professional growth	Developed standard /framework for different job functions in order to support each professional growth, as part of functional academy development.	Prepare resource, based on demand and supply needs in a 5-year term (taking into account of the number of retiring staff plus new demand arisen from business needs). The overall ratio demand/supply is 1:3.
Knowledge sharing within PTT Group	<ul> <li>Achieved 112 Community of Practices (CoPs), 490 experts, 268 learners, 1,738 practices and 154 best practices. As the number of CoPs increased, this also resulted in the surge of knowledge comprising of experts and learners.</li> <li>Increased number of users accessing PTT Group KM Portal by 226% from the year 2012, and achieved higher access than the target.</li> </ul>	Increase bodies of knowledge and skilled personnel, particularly by exchanging knowledge on similar practices among the companies in PTT Group, registering CoPs in the form of Across PTT Group and storing them at PTT Group KM Portal to be able to utilize further.
Complaint and grievance	<ul> <li>Resolved 1 complaint received through employee grievance system</li> <li>Resolved 2 out of 4 grievances received through PTT Joint Consultant Committee (JCC), and the pending two issues are in the process.</li> </ul>	<ul> <li>Continue to complete the resolution of the remaining 2 grievances.</li> <li>Fully resolve complaints and grievances in 2014 (if any).</li> </ul>
Supporting State Enterprise Employees Union of PTT (Employees Union)	<ul> <li>Added introductory to Employees Union details and benefits for the members during staff orientation.</li> <li>Increased the number of Employee Union's members to 2,492 persons, accounting for 59.8% of total staff.</li> </ul>	Support the Employees Union's activities in order to foster good relationship among management, employees and the Union Committee.

# CAPITAL PROJECT MANAGEMENT

## Material Aspects

Capital project management is embedded in every phase of a project to manage social, environmental and health impacts (non-technical risks) and ensure PTT's license-to-operate, preventing net-presentvalue erosion for all capital projects.

Management Approach

- Comply with relevant law and regulations; effectively manage cost control and project schedule as planned.
- Define preventive and mitigation measures to manage social, environmental and health impacts with involvement from community and regular engagement to reduce concerns arisen from the operation.



## 2013 Highlights

### Project Execution

#### Critical Path

The ultimate goal of a project operation is to complete it within the designated timeframe and budget with quality and conforming to related laws and regulations. PTT, therefore, focuses on the critical path to reduce the risk of project development within control as much as possible.

#### Social, Environmental and Health Impact Assessment

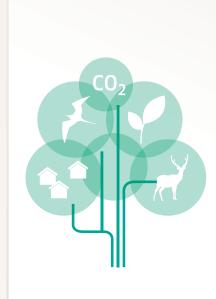


Every project is required to conduct social, environmental and/or health impact assessment (ESHIA). Every project is required to conduct public consultation at least 2 times per project site. Every project is required to implement environmental monitoring program.

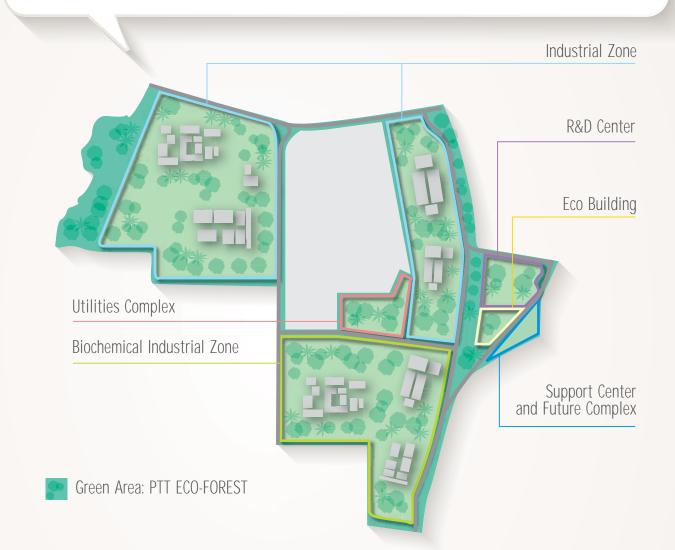
#### PTT Eco-industrial Zone Development

PTT Eco-industrial Zone (PTT Eco IZ) is a project to develop PTT's land of approximately 1,500 rai in Asia Industrial Estate into an Eco-industry that focuses on operating environmental-friendly businesses. The Ecoindustry project will become a prototype of industry that promotes sustainable coexistence of industrial factories, communities and the environment. The project focuses on development in 5 dimensions and 22 aspects according to standard characteristics and indicators of an Eco-industry by Industrial Estate Authority of Thailand (IEAT).

In addition, PTT Eco-forest project has been undertaken since 2012 to create protection strips, green areas and green fences. To date, the Eco-forest has expanded to cover an area of approximately 91 rai. The Miyawaki method was adopted in the plantation of seedlings native to the region of over 550,000 trees. Besides compliance with requirements defined in EIA mitigation measure of Asia Industrial Estate, the Eco-forest yields many benefits:



- Help absorb greenhouse gases (GHG), which are known to cause global warming, accounting for approximately 950 tons of carbon dioxide equivalent per year.
- Product approximately 760 tons of oxygen per year.
- Increase green areas that contribute to vegetation and animals as habitats and sustainably support biodiversity and ecosystem.
- Support local income for communities through a community project to educate communities in preparation of seedlings in accordance with Eco-forest method. Communities can adopt the skills and make a living from this knowledge.
- Act as a natural barrier to help curb dispersions of air, noise and odor pollution to the surrounding communities.
- Engage communities and youths in the Eco-forest plantation and help to raise their awareness on environmental conservation.



### Community and Environmental Impacts Management

#### Community Impact Management

PTT is open for receiving opinions and complaints of stakeholders and communities that are potentially affected by its operation. PTT accepts and handles all sorts of issues raised such as environmental impacts from dust, or noise; social and community impacts such as damage from construction, occupational loss, etc. A dedicated grievance mechanism is in place to ensure the complaints are dealt without delay and followed up continuously. With this in mind, PTT strives to ease the concerns and tensions among those affected with confidence that their problems will be solved.

#### Biodiversity Management

PTT completed the assessment of all operational sites and its affiliates in Thailand to determine the likely risk that they pose to biodiversity and issued a corporate Biodiversity Statement to provide an overarching framework for managing biodiversity implementation. A training workshop on preparation of Biodiversity Action Plan (BAP) was undertaken focusing on high risk areas. Two pilot areas were selected for the implementation of BAP comprising Khanom Gas Separation Plant in Nakhon Si Thammarat Province and S1 Project of PTTEP in Sukhothai, Phitsanulok and Kamphaengpet Provinces. The BAP is expected to be finalized and completed in 2014.

Plan	2013 Accomplishments	Next steps
Information dissemination and confidence on the project	Achieved acknowledgement and project acceptance more than 60% of the respondents surveyed during the EIA study. This was higher than the target.	Achieve at least 60% of acknowledgement and project acceptance from the respondents surveyed during the EIA study.
Biodiversity risk assessment	Completed biodiversity risk assessment covering PTT and its Thailand-based affiliates, totaling 108 areas.	Prepare PTT Group's overall strategic plan and prepare Biodiversity Action Plan for high risk projects.

## Progress Against Plan

# CORPORATE CITIZENSHIP

## Material Aspects

PTT balances the needs of all stakeholders by engaging in the development and support to raise a better standard of living in society and local communities along with generating awareness of the Sufficiency Economy Principles.

#### Management Approach

- Support education to develop individuals' competence in order to enhance the quality of life in local communities and in society, as well as to advocate business growth.
- Become a part of the community through organizational and industrial development together with the long-term enhancement of the community.
- Support the conservation and restoration of green areas to become educational centers and create a network of natural and environmental preservation and sustainability.





# **2013 Highlights** Educational Development

#### RAIST and RASA

PTT invited Princess Maha Chakri Sirindhorn to visit the Republic of Korea from April 16th - 19th, 2013 to observe the operations of leading science and technology universities in the Republic of Korea. The findings from this trip will be used as a case study to support the establishment of the RAyong Institute of Science and Technology (RAIST) and RAyong Science Academy (RASA) located in Rayong Province. PTT Group is committed to developing RAIST and RASA into leading institutions of science and technology conducting guality researches to improve the quality of education, enhance the competence of individuals, and create the body of knowledge that will prepare industries in Thailand to compete on the world stage. PTT has provided an initial budget of 5.2 billion Baht, which is mainly being used for acquiring properties, designing and building the facilities, purchasing modern equipment and tools for research, and establishing the necessary utilities and infrastructure systems. The remainder of the budget will be used for operational capital. The institutions are expected to be ready to accept enrollments in the first semester of 2015.

### The Palang Thai School Project

PTT launched the Palang Thai School Project in order to raise educational standards in all dimensions, including the creation of educational opportunities by providing 2,000 youth scholarships with a total value of 6.6 million Baht for students of all ages to attend nearby schools; to develop educational resources and foundations; to build 2 school buildings and 2 Palang Thai for Thai PTT libraries for schools in the PTT network; and to enhance the innovative capacity of youths through the 5<sup>th</sup> PTT Youth Camp under the title "Innovation creates the next".

#### Increasing Awareness in Public Safety

PTT and the Department of Land Transport arranged the "Safe Driving, Traffic Discipline with PTT Group" Project to provide knowledge of car maintenance and driving safety. Information and advice were presented to the public by speakers with specialties in areas such as the Land Traffic Act, safe driving techniques and driving behaviors, and choosing the proper type of gasoline for car engines. Attended by 426 participants, the project gave out more than 32,000 traffic cones to police stations throughout Thailand.



In addition, PTT sent staff to check household propane gas tanks in order to ensure safety in local communities. Knowledge about the safe use of propane gas and

basic fire protection techniques were also provided for more than 1,700 households in 11 areas throughout the country.



## Development of Society and Communities

### Sufficient Path Project

Objective	PTT conducts its business under the Principles of Sufficiency Economy and expands the philosophy to communities.
Operation	<ul> <li>Continuous expansion to communities through all 24 Sufficiency Economy District Learning Centers throughout the country. Based on regular follow-ups, communities have applied the philosophy to develop and support themselves.</li> <li>Evaluate the 2012 economy and energy usage compared to 2011 of sufficiency household volunteers in a total of 4,943 households in 23 centres throughout the country.</li> <li>Join with communities to adopt knowledge from local researches into community development plans in a wide range of areas such as the development of quality rice seeds in Piman District, Nakhon Phanom Province. This development expanded the area of experimental fields from 83 rai to 450 rai. In addition, knowledge from researches shaped the strategy of developing organic rice for Ban Num Pu District community, Sukhothai Province.</li> </ul>
Benefit for societies and communities	Communities adopt sufficiency economy knowledge as the principle means of developing their communities and increasing revenue by an average of 47,000 Baht per household per year, or more than 393.17 million Baht for all communities.
Benefit for the organization	PTT has been able to expand the community network and educational institution network through a knowledge exchange process and by cooperating with villagers to conduct 84 researches.

# Promoting sufficiency economy principles and practices to the wider society





Expand the learning results to more than 66,000 interested individuals within the communities as well as to outsiders via the processes of district sufficiency economy learning centers.

# 396 🏫

Create 2,575 new sufficiency economic volunteer households in order to drive forward the sufficiency economy principles.

# 226

Develop 396 knowledgeable individuals to become sufficiency economy role models and serve as teachers in order to expand the knowledge and learning processes to the target group.

Increase the number of learning centers to 226 and adapt them to the condition and resources of each area such as biogas production from manure, biogas production from arrangement of community health system, organic agriculture, household accounts, and garbage bank.



"Making people adjust their thought and behavior trends as well as creating a network of self-support is a great achievement."

Mr. Prayong Ronnarong Community Leader Nakorn Srithammarath Consulting Chairman 84 Tambons on a Sufficient Path Project

57

### Community Energy Development Project

Objective	Distribute energy knowledge and expertise to communities to create the competence and ability they require to physically support themselves in terms of their energy requirements.
Operation	<ul> <li>Establish alternative energy demonstration points showcasing a total of 26 technologies in 16 community areas based on the resources and adaptability of each location, including building biogas wells in Ban Nearn District, Petchaboon Province; building a 200 liter charcoal burning stove in Kham Khaen Sub-district, Khon Kaen Province; installing a water pump bicycle for agriculture in Tha Manao Sub-district, Lopburi Province; and installing solar cells in Khlong Pia Sub-district, Songkhla Province, among others.</li> <li>Launch sufficiency economy communities for energy sustainment along with 3<sup>rd</sup> executive courses at the Thai Energy Academy to encourage the development of biogas from pig farms for use in households by installing gas pumps, pipes, and biogas stoves in Tha Manao Sub-district, Lopburi Province, and biogas stoves in Tha Manao Sub-district, Lopburi Province, and biogas stoves in Tha Manao Sub-district, Lopburi Province, and biogas stoves in Tha Manao Sub-district, Lopburi Province, and biogas stoves in Tha Manao Sub-district, Lopburi Province for 150 households.</li> </ul>
Benefit for societies and communities	Communities have learned about various types of alternative energy and are able to extend the acquired knowledge to physically develop alternative energy based on local resources, such as biogas development from pig farms to households in the Tha Manao Sub-district, Lopburi Province, which helps to reduce energy expenses by 659,384 Baht per year.
Benefit for the organization	Employees take part in exchanging knowledge about energy technologies and innovations with the communities.

#### Livable City Project

The development of city communities to become a livable city focuses on the improvement of the standard of living, a healthy environment, and the safety of communities in the areas where PTT operates throughout the country. Developments are based on comments received from communities, such as the aesthetic development of communities surrounding the PTT Head Office in order to improve traffic routes, drainage system, and public areas in the communities, and the development of more than 8 rai of green areas and public parks in the Happiness Center for communities around Lampang Petroleum Terminal in Lampang Province.

Objective	Participation in maintaining and developing the quality of life for communities surrounding our operational facilities in order to maintain good corporate citizenship for society in certain communities, especially in Rayong, which is an important production center in the value chain.
Operation	<ul> <li>Improve quality of life, environmental health, and safety, such as by launching the Pan Nam Jai Clinic to provide complimentary medical services for the public living near PTT operational facilities in Rayong. The clinic has served 15,823 patients and provided vocational training via the organizational project for drinking water business of Ban Chang municipal community. This project will be further developed and continued in the future.</li> <li>Improve the environment in order to enhance environmental health by cooperating with the public to plant trees in undeveloped areas via 1 Community 1 Company 1 Green Area activities under the Green Rayong Project, as well as maintaining the Princess Maha Chakri Sirindhorn Herbal Garden as a green public park with which had 379,156 visitors.</li> </ul>
Benefit for societies and communities	The communities have a better environment with green areas and public parks serving as the lungs of the communities. The Herbal Garden also creates revenue for the communities through the sale of local products amounting to more than 23.6 million Baht.
Benefit for the organization	The communities and society in Rayong Province have a good attitude toward PTT Group, which leads to acceptance and a supportive relationship.

### Pan Nam Jai Clinic

PTT still continues to operate Pan Nam Jai Clinic in 4 PTT Group operational facilities. Local residents and employees can receive medical services and treatments free of charge.

This includes a mobile medical team that sent out to provide knowledge and basic services for communities surrounding PTT's facilities throughout the country. The mobile team has served 9,225 patients.



### **Environmental Conservation**

#### Sustainable Ecosystem Forest Conservation

Objective	Conservation of original forest by developing community networks to protect the forests and conduct research on how to sustain them.
Operation	<ul> <li>Brought the principles of Ecosystem Forest Conservation to support the creation of green areas in schools via Ecosystem Forest Conservation activities in Ban Chang Kanchanakun Witthaya School and Rayongwittayakom School, resulting in both locations being able to absorb approximately 8 tons of carbon dioxide equivalent of greenhouse gas per year and release 6 tons of oxygen per year.</li> <li>PTT Forestry Institute planted 60,351 rai of new forest and continued to cooperate with local communities to maintain the original 1 million rai of forests planted under the Reforestation Project to celebrate HM the King's Golden Jubilee via activities with local communities in the area.</li> <li>Initiated the Jit Arsa Sustainable Forest 1 Team 1 Rai Project where PTT executive and employees planted 5 rai of forest with the plan to continuously monitor the area.</li> </ul>
Benefit for societies and communities	Increased the green areas to provide habitat for plants and animals; supported the completion and diversity of the ecosystem; and encouraged surrounding communities to participate and generate additional revenue from selling trees for the project.
Benefit for the organization	All PTT's forest restoration and expansion initiatives enable PTT to capture 1.5 million tons of carbon dioxide equivalent in greenhouse gas, meeting the target.

"PTT went out to meet local communities and create activities for regular development. We wanted to ensure that the communities would feel confident in the safety of PTT operations. The communities also agreed to cooperate in leveraging the growth of society and stepping forward together"

Mrs. Pikul Sujjamark Chairman of Na Kuam Tai Community surrounding Lampang Petroleum Terminal



"I provided a policy that we provide sincerity and smiles. What we can and what we cannot do must be clearly communicated; we must explain why we can't do some things. Under the principles of understanding and access, the communities do not need to worry. We must engage with the communities, communicate, listen to problems directly, and respond quickly to create communities' confidence."

Mr. Surat Jiamlertwiwat Vice President Eastern Petroleum Terminal Department



"I am committed to the core of the policy and combine it with personal thoughts. PTT and communities are like relatives; they must be able to rely on each other and grow together. Therefore, it is important to be sincere and communicate information correctly in order to create understanding. Then the communities will help spread the information by word of mouth. In the end, we become good neighbors."

Mr. Arrin Malihom Safety Officer Lampang Petroleum Terminal



# Bringing Knowledge from Research to Community Learning

PTT partnered up with the National Science and Technology Development Agency (NSTDA) to share knowledge from researches conducted under the Biodiversity Research and Training Program (BRT) with residents in the local communities. The program created natural and environmental protection awareness to more than 4,000 local residents in Huai Kayeng Sub-district, Thong Pha Phum District, Kanchanaburi Province and Khanom District, Nakhon Si Thammarat Province. In addition, the program developed local educational courses to encourage the youths in the communities to learn about and protect their local ecosystem.

#### Development of Ecosystem Learning Resources

PTT cooperated with local communities to manage learning resources and ecotourism in their areas, such as improving walking paths to promote learning about the nature of Pu Nong Ling in Thong Pha Phum District, Kanchanaburi Province and running the Sirinart Rajini Ecosystem Learning Center in Prachuap Khiri Khan Province. PTT also cooperated with the Committee to operate the Centre, which had more than 65,000 visitors in 2013. PTT also supported various researches evaluating the completion of mangrove forests and social mechanisms for developing the ecosystem in mangrove forest learning centers in the area as well.

# Creating a Soil and Water Preservation Network

PTT cooperated with local communities and scholars to combine the benefits of vetiver grass with engineering processes based on correct principles in order to prevent the risk of landslide in 13 areas. Examples of this cooperation included the manufacturing of wooden boxes to plant vetiver grass in order to prevent erosion from the effects of sea waves; engineering structure enhancement in high slope mountains near to local communities to prevent landslides; and using bamboo nets to cover the vetiver grass planting grounds. PTT also encouraged knowledge exchanges on vetiver grass soil and water preservation properties by arranging an inaugural Vetiver Grass Lovers Network Exhibition with 2,210 participants joining from all over the country.

## Progress Against Plan

Operation	2013 Accomplishments	Next Steps
Budget and participation in social development	Contributed 1,958.4 million Baht	Support in terms of budget and continuous participation in social development via 3 principles including educational improvement, community and society development, and nature and environment preservation
Creation of Jit Arsa Culture in the organization	Received 98% participation from employees through volunteer activities for a total of 24,686 hours, of which 23,878 were working hours and 808 non- working hours.	Continue to encourage employees to participate in volunteer activities for the benefit of the public
Survey of opinions from stakeholders in relation to the participation in developing and improving society, local communities, and the environment	Engaged with 14 groups of stakeholders at the organizational level in. Engagement results showed that communities and society still expect PTT to pay attention to forest restoration and natural resources conservation.	Continue to survey stakeholders for opinions in relation to participating in developing and improving society and conducting research to determine the effectiveness of each social project
Educational support	Designed courses and registered for a license to establish RAIST & RASA	Start construction projects for RAIST & RASA and create awareness and readiness for new enrollments in 2015
Society and community development	Created a main strategy of developing 23 sufficiency economy learning centers, which resulted in increasing the number of learning points, courses, scholars, and sufficiency economy households as well as transferring knowledge from research to physical practice	Continue the development of Sufficiency Economy District Learning Centers to become regional learning and sharing hubs
Natural and environmental resources support	Took care of 1 million rai of original forest, created 60,351 rai of new forest, and trained 1,004 trainees on the process of forestry maintenance	Continue to cooperate with communities on following up with maintaining the original forest and conduct research to gather more knowledge on forest sustainability

# Performance Summary



# Financial Performance

GRI	Required Data	Unit	2008 PTT	2009 PTT	2010 PTT	2011 PTT	2012 PTT	2013 PTT
Econ	omics							
EC1	Sale revenues	Million Baht	2,000,816	1,586,174	1,898,682	2,428,126	2,793,833	2,842,688
	Operating costs	Million Baht	1,829,821	1,438,464	1,724,780	2,208,363	2,561,135 <sup>[1]</sup>	2,618,298
	Employee wages and benefits <sup>[2]</sup> Dividend payments for	Million Baht	5,684	5,865	6,337	6,880	7,615	8,086
	Dividend payments for	Million Baht	22,592	24,074	29,167	37,111	37,123[1]	37,130
	the performance of the year							
	Payments to government	Million Baht	9,923	11,329	12,669	4,328 <sup>[4]</sup>	3,516 <sup>[4]</sup>	864
EC4	Tax privileges from the Board	Million Baht	3,294	0	2,086	10,691	7,384[1]	5,492
	of Investment, Thailand							

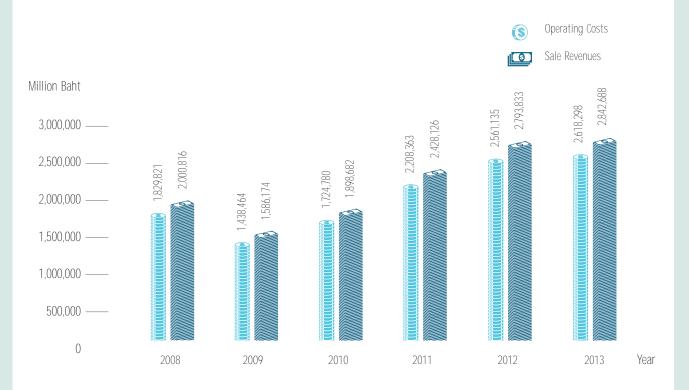
#### Remarks:

[1] Revised.

 [2] Scope of employees managed under PTT includes PTT's employees, PTT's secondment and employees in subsidiaries under PTT financial management. The scope does not include chief executive officers and top executives.

3] Employee wage and benefit include total salary, bonuses, contributions to the provident funds, etc. (if applicable).

[4] Tax base changed from 30 percent to 23 percent.



Corporate Sustainability Report 2013 PTT Public Company Limited

People

GRI	Required Da	ita	Unit		2009		2010		2011		2012		2013
				Male	Female	Male I	Female	Male I	emale	Male	Female	Male	Female
Empl	oyee												
LA1	Total employ	ee Mar	power		3,681		5,292		5,732		6,083		6,468
	PTT			2,555	1,126	2,607	1,183	2,745	1,299	2,851	1,376	2,953	1,441
	PTTEP	malayos[]] Mar		NA	NA	972	530	1,099	589	1,191	665	1,320	754
	Permanent er PTT	npioyee <sup>in</sup> Mar	power	2,555	3,681 1,126	2,607	5,292 1,183	2,745	5,732 1,299	2,851	6,083 1,376	2,953	6,468 1,441
	PTTEP		-	2,555 NA	1,120 NA	972	530	1,099	589	1,191	665	1,320	754
LA13		ee by area		147.1	147.4	712	000	1,077	007	1,171	000	1,020	701
	Bangkok	Total Mar	power		2,446		4,011		4,370		4,618		4,902
		PTT		1,438	1,008	1,451	1,058	1,524	1,158	1,550	1,212	1,563	1,265
	Othere <sup>[2]</sup>	PTTEP Total Mar	nowor	NA	NA	972	530 1,281	1,099	589	1,191	665	1,320	754
	Others <sup>[2]</sup>	Total Mar PTT	power	1,117	1,235 118	1,156	1,281	1,221	1,362 141	1,301	1,465 164	1,390	1,566 176
		PTTEP	-	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	Total employ												
	Executive	Total Mar	power [		167		214		240		243		237
		PTT (Level 13-18)	-	130	37	130	40	143	45	136	46	146	56
	Middle	PTTEP (Level 18 up) Total Mar	power	NA	NA 433	38	6 705	44	8 761	52	9 820	28	7 642
	management	PTT (Level 10-12)	ipowei	295	138	307	164	313	190	319	213	334	220
	management	PTTEP (Level 16-17*)	-	NA	NA	180	54	191	67	209	79	65	23
	Senior	Total Mar	power		1,168		1,681		1,803		1,904		1,802
		PTT (Level 8-9)		681	487	693	478	720	475	738	464	761	475
	Emanalation	PTTEP (Level 13-15*)		NA	NA	329	181	384	224	440	262	386	180
	Employee	Total Mar PTT (Level 7 and belo	power	1,449	1,913 464	1,477	2,692 501	1,569	2,928 589	1,658	3,116 653	1,712	3,787 690
		PTTEP (Level 12 and b		1,449 NA	A04	425	289	480	290	490	31	841	544
	Employee by			10.4	1473	120	207	100	270	170	01	011	011
	Over 50		power		1,013		1,252		1,365		1,250		1,182
	years old	PTT		708	305	715	329	791	376	717	343	651	317
	20 50	PTTEP		NA	NA	156	52	148	50	141	49	153	61
	30-50	Total Mar PTT	power	1 070	1,921 651	1 011	2,983 648	1 / 20	3,252 712	1 //0	3,358 729	1 501	3,716 810
	years old	PTTEP	-	1,270 NA	NA	1,311 649	375	1,428 710	402	1,440 753	436	1,591 814	501
	Below 30		power	11/1	747	017	1,057	710	1,115	100	1,475	011	1,570
	years old	PTT	'	577	170	581	206	526	211	694	304	711	314
		PTTEP		NA	NA	167	103	241	137	297	180	353	192
LA2	TURNOVER	Tatal	in our or		115		1501		1/0		204		001
	Total turnover	Total Mar PTT	power	63	115 52	95	158 34	90	162 40	109	204 63	94	231 63
	luniovei	PTTEP	-	NA	NA	95	10	16	16	26	6	43	31
	Turnover rate		%	2.47	4.62	3.64	2.87	3.28	3.08	3.82	4.58	3.18	4.37
		PTTEP		NA	NA	1.95	1.89	1.46	2.72	2.18	0.90	3.26	4.11
	Turnover by a												
	Bangkok		power		95	70	138	/ 0 .	137	7/ -	166	10	195
		PTT PTTEP	-	45 NA	50 NA	78 19	31	68 16	37 16	76 26	58	62 43	59 31
		PTT	%	1.76	4.44	2.99	2.62	2.48	2.85	2.67	6 4.22	2.10	4.09
		PTTEP	/0	NA	4.44 NA	1.95	1.89	1.46	2.03	2.07	0.90	3.26	4.09
				1 17 1	1.17.1		,		2.12	2.10	0170	0120	

RI	Required	Data	Unit		2009		2010		2011		2012		2013
				Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	Others <sup>[2]</sup>	Total	Manpower		20		20		25		38		36
	UNELS: 1	PTT	Ivianpower	18	20	17	20	22	3	33	5	32	4
		PTTEP	-	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
		PTT	%	0.70	0.18	0.65	0.25	0.80	0.23	1.16	0.36	1.08	0.28
		PTTEP		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	Turnover b						0.0		100		100		4.4.4
	Over 50	Total	Manpower	47	77	/7	99	/ -	103	70	120	70	111
	years old	PTT PTTEP	-	46 NA	31 NA	67	22 3	65 10	25 3	79	32	72 10	28
		PTTEP	%	1.80	2.75	2.57	1.86	2.37	1.92	2.77	2.33	2.44	1.94
		PTTEP	70	NA	NA NA	0.72	0.57	0.91	0.51	0.67	0.15	0.76	0.13
	30-50	Total	Manpower		27	0.72	33	0.71	36	0.07	40	0.10	70
	years old	PTT		13	14	10	7	12	11	11	14	11	15
	5	PTTEP	-	NA	NA	11	5	4	9	11	4	26	18
		PTT	%	0.51	1.24	0.38	0.59	0.44	0.85	0.39	1.02	0.37	1.04
		PTTEP		NA	NA	1.13	0.94	0.36	1.53	0.92	0.60	1.97	2.39
	Below 30	Total	Manpower	4	11	10	27	10	23	10	44	11	50
	years old	PTT PTTEP	_	4 NA	/ NA	19	5	13	4	19	17	11	20
		PTTEP	%	0.16	0.62	0.73	0.42	2 0.47	0.31	0.67	1.24	0.37	1.39
		PTTEP	/0	NA	NA	0.10	0.42	0.47	0.51	0.07	0.15	0.57	1.46
	NEW EMP			11/1	147 1	0.10	0.00	0.10	0.00	0.07	0.10	0.01	1.10
	New	Total	Manpower		161		372		601		553		599
	employee	PTT	'	110	51	149	92	230	157	217	140	196	121
		PTTEP		NA	NA	79	52	142	72	114	82	166	116
	New hire ra		%	4.31	4.53	5.72	7.78	8.38	12.09	7.61	10.17	6.64	8.40
	Noucomple	PTTEP		NA	NA	8.13	9.81	12.92	12.22	9.57	12.33	12.58	15.38
	Bangkok	oyee by area Total	Manpower		116		296		482		418		512
	Daliykok	PTT	Indipower	67	49	85	80	131	137	106	116	120	110
		PTTEP	-	NA	NA	79	52	142	72	114	82	166	116
		PTT	%	2.62	4.35	3.26	6.76	4.77	10.55	3.72	8.43	4.06	7.63
		PTTEP	-	NA	NA	8.13	9.81	12.92	12.22	9.57	12.33	12.58	15.38
	Others <sup>[2]</sup>	Total	Manpower		45		76		119		135		87
		PTT		43	2	64	12	99	20	111	24	76	11
		PTTEP	0/	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
		PTT	%	1.68	0.18	2.45	1.01	3.61	1.54	3.89	1.74	2.57	0.76
	Now omply	PTTEP		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	Over 50	oyee by age Total	Manpower		3		2		7		11		2
	years old	PTT	Maripower	3	0	2	0	2	2	0	0	2	0
	Jours ord	PTTEP	_	NĂ	NĂ	0	0	2	1	1	0	0	0
		PTT	%	0.12	0	0.08	0	0.07	0.15	0	0	0.07	0
		PTTEP		NA	NA	0	0	0.18	0.17	0.08	0	0	0
	30-50	Total	Manpower		5		64		138		121		174
	years old	PTT		4	1	10	8	15	23	15	16	29	18
		PTTEP	0/	NA	NA	22	24	66	34	52	38	64	63
		PTT PTTEP	%	0.16 NA	0.09 NA	0.38	0.68	0.55 6.01	1.77	0.53	1.16 5.71	0.98	1.25
		FIIEM		INA	NA	2.26	4.53	0.01	0.77	4.37	0.71	4.85	8.36

GRI Required Data	Unit		2009		2010		2011		2012		2013
	ľ	Male I	emale	Male	Female	Male	Female	Male	Female	Male	Female
Below 30 Total	Manpower		153		306		456		431		423
years old PTT	· · ·	103	50	137	84	213	132	202	124	165	103
PTTEP		NA	NA	57	28	74	37	61	44	102	53
PTT	%	4.03	4.44	5.26	7.10	7.76	10.16	7.09	9.01	5.59	7.15
PTTEP		NA	NA	5.86	5.28	6.73	6.28	5.12	6.62	7.73	7.03
Parental Leave											
LA15 Number of employee Total	Manpower		1,126		1,183		1,299		1,376		3,515
entitle to parental PTT		0	1,126	0	1,183	0	1,299	0	1,376	0	1,441
leave PTTEP	-	NA	NA	0	530	0	589	0	665	1,320	754
Number of employee Total	Manpower		25		41		63		50		43
taken parental leave PTT		0	25	0	13	0	21	0	21	0	23
PTTEP		NA	NA	18	10	23	19	15	14	0	20
Number of employee Total	Manpower		25		41	0	63		48	0	43
returned to work PTT	-	0	25	0	13	0	21	0	19	0	23
after parental leave PTTEP	0/	NA	NA	18	10	23	19	15	14	0	20
Return to work rate PTT	%	0	100	0	100	0	100	0	90.48	0	100
PTTEP	Mannauuar	NA	NA	100	100	100	100	100	100	100	100
Number of employee Total	Manpower	0	24	0	11	0	21 21	0	19	0	23 23
returned to work after PTT	-	0	24	0 NA	11 NA	0 NA	NA	0 NA	19 NA	0 NA	NA
parental leave who PTTEP		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
is still employed for the next 12 months											
Retention rate PTT	%	0	96	0	84.62	0	100	0	90.48	0	100
PTTEP	70	NA	90 NA	NA	04.02 NA	NA	NA	NA	90.40 NA	NA	NA
		1 1/71	11/7	11/7	11/4	11/71	11/71	1 1/71	11/7	11/71	11/7

#### **Employee Training**

LA10 Average hours of	PTT	Hour per	38.26	32.72	33.27	21.68		38.50	55.16	67.92	37.52	47.87
training per year per employee	PTTEP	Person	NA	NA	43.95	80.71	38.28	62.30	58.28	55.09	57.75	60.72
per employee												

Remarks:

 PTT and PTTEP do not have contract employees.
 PTTEP defines "others" as operation overseas. However, this report encompasses only the businesses located in Thailand. Therefore, PTTEP's oversea employees are not within the scope of this report. NA Not available

NR Not relevant





PTI Building         PTI Building<										PTT												PT	TEP						
Near miss report         Employee & Contractor 2013         ·				PT	ΤB	uildi	ng			Te	rmir	nal																	
Near miss report         Employee & Contractor 2013         ·					ice	echnology Institute		ant	(GT							stations										G			e (%)
Employee & Contractor 2012         i </th <th>Reporting Scope</th> <th></th> <th>Year</th> <th>ad</th> <th>Prakanong Of</th> <th>Research &amp; Te</th> <th></th> <th>Gas Separatic</th> <th>Gas Transmis</th> <th>Gas Deposit</th> <th>Oil Terminal</th> <th>Aviation</th> <th>Retail</th> <th>Lubrication</th> <th>Transportation</th> <th></th> <th>S1</th> <th>Arthit</th> <th>PTTEP1</th> <th>Arthit North</th> <th>Bongkot North</th> <th>Bongkot South</th> <th>Andaman</th> <th>Songkla PSB</th> <th>Nang Nuan</th> <th>Bangkok Offic</th> <th>L22/43</th> <th>Ranong PSB</th> <th>2013 Coverag</th>	Reporting Scope		Year	ad	Prakanong Of	Research & Te		Gas Separatic	Gas Transmis	Gas Deposit	Oil Terminal	Aviation	Retail	Lubrication	Transportation		S1	Arthit	PTTEP1	Arthit North	Bongkot North	Bongkot South	Andaman	Songkla PSB	Nang Nuan	Bangkok Offic	L22/43	Ranong PSB	2013 Coverag
Employee & Contractor 2011         • </td <td>Near miss report</td> <td>Employee &amp; Contractor</td> <td>2013</td> <td>•</td> <td>NR</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>NR</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>97.96</td>	Near miss report	Employee & Contractor	2013	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	NR	•	•	•	•	•	•	•	•	97.96
Employee & Contractor         2010         i <td></td> <td>Employee &amp; Contractor</td> <td>2012</td> <td>•</td> <td>NR</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>NR</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>NR</td> <td>-</td>		Employee & Contractor	2012	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	NR	•	•	•	•	•	•	•	NR	-
Occupational liness frequency contractor         Employee contractor         2013 contractor         .			2011	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	•	•	•	NR	•	•	•	•	NR	-
Illness frequency       Contractor       ·				•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	•	•	NR	NR	•	•	•	NR	NR	-
rate (OFR)       Employee Contractor       2012       I			2013	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	97.96
Contractor         ·        ·         ·         ·			0010	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	NR	•	•	•	•	•	•	•	•	
Employee Contractor         2010         -         -         -         -         N         N         -         N	rate (OIFR)		2012	•	•	•	•	•	•	•	•	•	•	•			•	•	•		•	•	•	•	•	•	•		-
Contractor         -         -         -         -         -         -         -         N			0011	•	•	•			•			•	•	•			•	•	•	NR		•		•			•		
Employee Contractor         2010 Contractor         -         N        <			2011	•								•		•				•				•							
Contractor         ·			2010	•								•		•				•				•							-
Fatalities       Employee       2013       ·			2010	•																									-
Contractor         .	Fatalities		2013									•		•								NA		•					07.06
Employee         2012         · <th< td=""><td>T dtdiitie5</td><td></td><td>2013</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>//./0</td></th<>	T dtdiitie5		2013																										//./0
Contractor         ·       ·         ·         ·<			2012	•										•				•	•					•					-
Employee         2011         ·        ·         ·				•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•		•	•	•	•	•	•	•		-
Contractor         ·        ·         ·         ·			2011	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•		•	•	NR	•	•	•	•		-
Contractor         ·           Contractor <td></td> <td></td> <td></td> <td>•</td> <td>NR</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>NR</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>NR</td> <td>-</td>				•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	•	•	•	NR	•	•	•	•	NR	-
Absentee rate (AR)       Employee       2013       . <td< td=""><td></td><td></td><td>2010</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>NR</td><td>NR</td><td>•</td><td>•</td><td>•</td><td>NR</td><td>NR</td><td>-</td></td<>			2010	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	NR	•	•	•	NR	NR	-
(AR)       Contractor       NR       NR <td></td> <td></td> <td></td> <td>•</td> <td>NR</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>•</td> <td>NR</td> <td>NR</td> <td>•</td> <td>•</td> <td>•</td> <td>NR</td> <td>NR</td> <td>-</td>				•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	•	•	NR	NR	•	•	•	NR	NR	-
Employee         2012         ·       ·         ·         ·			2013	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	97.96
Contractor         NR	(AR)			NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Employee       2011       NA			2012	•	•	•	•		•	•	•	•			•	•	•	•						•	•	•	•		-
Contractor       NR			0011																										-
Employee       2010       NA		Employee	2011																										-
Contractor       NR			2010																										-
Lost workday case (LWC)       Employee       2013       ·    <			2010																										-
case (LWC)       Contractor       .	Lost workday		2013		TVIX.		1111		TVIX.	1111	•	TVIX.	•		•	•	•	11/1/	•			1111	•	1111	•	•			97.96
Employee       2012       · <th< td=""><td>J</td><td></td><td>2010</td><td></td><td></td><td></td><td></td><td>•</td><td></td><td></td><td>•</td><td></td><td>•</td><td>•</td><td>NR</td><td></td><td>•</td><td>•</td><td>•</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td></td><td></td><td>-</td></th<>	J		2010					•			•		•	•	NR		•	•	•		•	•	•	•	•	•			-
Contractor       ·	5400 (200)		2012	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•			-
Employee       2011       · <th< td=""><td></td><td></td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>NR</td><td>NA</td><td>•</td><td>•</td><td>•</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td></td><td>-</td></th<>				•	•	•	•	•	•	•	•	•	•	•	NR	NA	•	•	•		•	•	•	•	•	•	•		-
Contractor       ·			2011	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		-
Employee 2010 • • • • • • • • • • • • • • • • • •				•	•	•	•	•	•	•	•	•	NA	•	NR	NA	•	•	•	•	•	•	•	•	•	•	•		-
Contractor		Employee	2010	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	NR	NR	-
		Contractor		•	•	•	•	•	•	•	•	•	NA	•	NR	NA	•	•	•	•	•	NR	•	•	•	•	NR	NR	

									PTT												PT	ΓΕΡ						
			PT	T Bi	uildi	ng			Te	rmir	nal																	
Reporting Scope		Year	Head Office	Prakanong Office	Research & Technology Institute	Rayong Office	Gas Separation Plant (GSP)	Gas Transmission (GTM)	Gas Deposit	Oil Terminal	Aviation	Retail	Lubrication	Transportation	NGV Service Stations	S1	Arthit	PTTEP1	Arthit North	Bongkot North	Bongkot South	Andaman	Songkla PSB	Nang Nuan	Bangkok Office	L22/43	Ranong PSB	2013 Coverage (%)
Lost day rate	Employee	2013	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	•	•	•	•	97.96
(LDR)	Contractor		•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	NR	•	•	•	•	•	•	•	•	
	Employee	2012	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	•	•	•	NR	-
	Contractor		•	•	•	•	•	•	•	•	•	•	•	NR	NA	•	•	•	NR	•	•	•	•	•	•	•	NR	-
	Employee	2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NR	NA	NA	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NR	-
	Contractor		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NR	NA	NA	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NR	-
	Employee	2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NR	NA	NA	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NR	-
	Contractor		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NR	NA	NA	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NR	-
Total recordable	Employee	2013	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	•	•	•	•	97.96
injuries case	Contractor		•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	NR	•	•	•	•	•	•	•	•	
	Employee	2012	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	•	•	•	NR	-
	Contractor		•	•	•	•	•	•	•	•	•	•	•	NR	NA	•	•	•	NR	•	•	•	•	•	•	•	NR	-
	Employee	2011	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	NR	-
	Contractor		•	•	•	•	•	•	•	•	•	NA	•	NR	NA	•	•	•	•	•	•	NR	•	•	•	•	NR	-
	Employee	2010	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	NR	•	•	•	NR	NR	-
	Contractor		•	•	•	•	•	•	•	•	•	NA	•	NR	NA	•	•	•	•	•	NR	NR	•	•	•	NR	NR	-
Total recordable	Employee	2013	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	•	•	•	•	97.96
injuries rate (TRIR)	Contractor		•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	NR	•	•	•	•	•	•	•	•	
	Employee	2012	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	•	•	•	NR	-
	Contractor		•	•	•	•	•	•	•	•	•	•	•	NR	NA	•	•	•	NR	•	•	•	•	•	•	•	NR	-
	Employee	2011	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	NR	-
	Contractor		•	•	•	•	•	•	•	•	•	NA	•	NR	NA	•	•	•	•	•	•	NR	•	•	•	•	NR	-
	Employee	2010	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	NR	•	•	•	NR	NR	-
	Contractor		•	•	•	•	•	•	•	•	•	NA	•	NR	NA	•	•	•	•	•	NR	NR	•	•	•	NR	NR	-
Lost time injury	Employee	2013	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	•	•	•	•	97.96
frequency rate	Contractor		•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	NR	•	•	•	•	•	•	•	•	
(LTIFR)	Employee	2012	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	•	•	•	NR	-
	Contractor		•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	NR	•	•	•	•	•	•	•	NR	-
	Employee	2011	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NR	•	•	•	•	NR	-
	Contractor		•	•	•	•	•	•	•	•	•	NA	•	NR	NA	•	•	•	•	•	•	NR	•	•	•	•	NR	-
	Employee	2010	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		NR	•	•	•	NR	NR	-
	Contractor		•	•	•	•	•	•	•	•	•	NA	•	NR	NA	•	•	•	•	•	NR	NR	•	•	•	NR	NR	-

Remarks: NA Not available NR Not relevant - AR and LDR reporting since 2012

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GRI	Required Data	Unit		2010		2011		2012		2013
			PTT	PTTEP	PTT	PTTEP	PTT	PTTEP	PTT	PTTEP
				1		ľ				
LA7	Lost workday case (LWC)	Person	2	2	2	3	12	3	3	0
	Employee									
	Lost workday case (LWC) • Contractor	Person	6	5	3	3	13	2	4	3
	Total recordable injuries case • Employee	Person	2	10	6	12	7	8	7	4
	Total recordable injuries case • Contractor	Person	9	24	5	25	19	25	10	23
	Total recordable injuries rate (TRIR) • Employee	Person per 200,000 hours worked	0.06	0.56	0.16	0.75	0.17	0.26	0.16	0.12
	Total recordable injuries rate (TRIR) • Contractor	Person per 200,000 hours worked	0.51	0.36	0.12	0.28	0.19	0.28	0.09	0.24
	Lost day rate (LDR) • Employee	Lost days per 200,000 hours worked	-	-	-	-	4.52	2.08	1.46	0
	Lost day rate (LDR) • Contractor	Lost days per 200,000 hours worked	-	-	-	-	2.90	1.45	0.63	1.47
	Absentee rate (AR)	200,000 Hours worked	-	-	-	-	1.26	0.92	1.54	0.91
	Employee     Absentee rate (AR)     Contractor	%	-	-	-	-	-	-	-	0
	Lost time injury frequency rate (LTIFR) • Employee	Person per 200,000 hours worked	0.06	0.11	0.05	0.19	0.15	0.06	0.11	0
	Lost time injury frequency rate (LTIFR) • Contractor	Person per 200,000 hours worked	0.34	0.09	0.07	0.03	0.13	0.02	0.05	0.02
	Occupational illness frequency rate (OIFR) • Employee		0	0	0	0.06	0.40	0.07	0.02	0
	Occupational illness frequency rate (OIFR) • Contractor		0	0.02	0	0.03	0	0	0	0.04
	Fatalities	Person	1	0	0	0	0	0	2	0
	Employee     Fatalities	Person	2	1	0	0	0	0	1	0
	Contractor	1 013011	-	'	-		0	0	"	0
	Near Misses • Employee & contractor	Case	601	211	590	97	418	85	134	106

Remarks: - TRIR, TROIR, LDR, Absentee Rate are not broken down by provinces or Thailand's regional level because PTT's reporting boundary covers domestic operation only. OH & S data is not broken down by gender because PTT gives equal importance to the safety of all employees in accordance with PTT's the safety of all employees in accordance with PTT's code of business ethics.

2012 Absentee Rate Normalization factor was changed from 200,000 hours to percentage (100). TRIC, TRIR, OIFR, LTIF data do not include first aid case. LWC data are tracked based on calendar day. Record begins the next day. Working hours of contractors at service stations include only stations in which PTT owns and operates. The information also excludes contractors who are not involved in the main business, such as convenient stores in the stations. Working hours of NGV Service Station covers NGV Mother Station and PTT's own and operate only. PTT's OH & S reporting scope does not include the operation of contractors in project during the period prior to delivering the area back to PTT.

PTT's OH & S reporting scope does not include the operation of contractors in project during the period prior to delivering the area back to PTT. In 2013, recording and reporting requirements for contractors' hours were expanded to increase the coverage. • For PTTEP: Employee includes Employee & Supervised Contractor (PTTEP & PTTEP Services Ltd.). Contractor includes Independent Contractor only.

• For PTT: Contractors include Supervised Contractor and Independent Contractor. For the next report cycle, OH & S data will be reported by Total workforce and Independent contractors

In 2013, there were 3 fatalities all of which occurred outside of operational areas. All incidents were travel related which included a plane crash during a flight to the Lao People's Democratic Republic which resulted in 2 fatalities (1 employee, 1 contractor) and a car accident which resulted in 1 employee fatality. Although the plane crash incident was beyond PTT's control, PTT supports employee's right to refuse work when conditions are deemed unsafe; for example, when flying under unfavorable weather condition such as this incident. In addition, all PTT employees have the authority to stop work if he or she determines that the work could result in a severe accident or injury. To reduce vehicle accident, PTT has installed safety control device in its vehicle fleet.

Mercury exposure risk from turnaround activities at the Rayong Gas Seperation Plant are tested using the total inorganic mercury in urine method after the turnaround.

\*

Environment

							PTT									PT	ГЕР				
		F	PTT Building Terminal																		
Reporting Scope	Year	Head Office	Prakanong Office	Research & Technology Institute	Rayong Distribution Services Office	Gas Separation Plant (GSP)	Gas Transmission (GTM)	Gas Terminal	Oil Terminal	Aviation	Retail	Lubrication	Transportation	NGV Service Stations	Arthit	Bongkot North	Bongkot South	PTTEP1	S1	Transportation	2013 Coverage (%)
Direct GHG	2013 2012 2011 2010	•	•	•	NA NA NA NA	•	•	•	•	•	• • •	•	• NR NR	•	• • •	• • •	• NR NR	•	• • •	•	99.00
Indirect GHG	2013 2012 2011 2010	•	•	•	NA NA NA NA	•	•	•	•	•	•	•	NR NR NR NR	•	NR NR NR NR	NR NR NR NR	NR NR NR NR	•	•	NR NR NR NR	99.00
Direct energy consumption	2013 2012 2011 2010	•	•	•	NA NA NA NA	•	•	•	•	•	• • •	•	NR NR NR NR	•	• • •	• • •	• NR NR	•	•	• • •	99.00
Electricity purchased	2013 2012 2011 2010	•	•	•	NA NA NA NA	•	•	•	•	•	• • •	•	NR NR NR NR	•	NR NR NR NR	NR NR NR NR	NR NR NR NR	•	•	NR NR NR NR	99.00
Water withdrawal	2013 2012 2011 2010	•	•	• • •	• • NA	•	•	• NA NA	• NA NA	• NA NA	• NA NA NA	• NA NA	NR NR NR NR	• NA NA NA	• • •	• • •	• NR NR	•	•	NR NR NR NR	94.94
Effluent	2013 2012 2011 2010	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	•	NR NR NR NR	• NA NA	• NA NA	• NA NA	• NA NA	• NA NA	NR NR NR NR	• NA NA NA	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	91.55
Produced water	2013 2012 2011 2010	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	• • •	• • •	• NR NR	NA	• • •	NR NR NR NR	100.00
Waste	2013 2012 2011 2010	•	•	• • NA	• • NA	•	•	•	•	•	• NA NA NA	• NA NA NA	NR NR NR NR	NA NA NA NA	• • •	• • •	• NR NR	•	•	NR NR NR NR	85.44
Oil spills	2013 2012 2011 2010	•	•	•	•	•	•	•	•	•	• • •	•	• • •	•	• • •	• • •	• NR NR	•	•	•	96.86
Nitrogen oxide (NOx)	2013 2012 2011 2010	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	•	• • NA	NR NR NR NR	• • NA	• • NA	• NR NR	• • NA	• • •	NR NR NR NR	69.23						
Sulphur dioxide (SO <sub>2</sub> )	2013 2012 2011 2010	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	•	• NA NA	NR NR NR NR	• • NA	• • NA	• NR NR	NA	•	NR NR NR NR	66.67						
Volatile organic compounds (VOCs)	2013 2012 2011 2010	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	NA NA NA NA	• NR NR NR	• • NA	NA	NA NA NA NA	NR NR NR NR	NR NR NR NR	NR NR NR NR	NR NR NR NR	NA	• NA	• NR NR	NA	•	NR NR NR NR	55.56
Volume of methane $(CH_4)$ emitted	2013 2012 2011 2010	•	•	•	NA NA NA NA	•	•	•	•	•	• • •	•	• • •	•	• • •	• • •	• NR NR	•	•	• • •	99.00
Direct methane $(CH_4)$ emission	2013 2012 2011 2010	•	•	•	NA NA NA NA	•	•	•	•	•	• • •	•	• • •	•	• • •	•	• NR NR	•	•	•	99.00

Remarks: NA Not available NR Not relevant



GRI	Required Data	Unit	2010 PTT and PTTEP	2011 PTT and PTTEP	2012 PTT and PTTEP	2013 PTT and PTTEP
EN8	Total water withdrawal	Million m <sup>3</sup>	67.575	66.169	72.365	69.957
	Surface water	Million m <sup>3</sup>	0.004	0.018	0.009	0.008
	<ul> <li>Seawater</li> </ul>	Million m <sup>3</sup>	0.812	0.808	1.512	1.517
	Once through cooling water	Million m <sup>3</sup>	64.664	63.137	68.215	65.005
	Water supply	Million m <sup>3</sup>	1.798	1.901	2.376	2.846
	Groundwater	Million m <sup>3</sup>	0.297	0.305	0.252	0.582
	Total salt/brackish water	Million m <sup>3</sup>	65.476	63.945	69.727	66.521
	(Seawater + Once through cod	bling)				
	Water from all other sources	Million m <sup>3</sup>	0.301	0.323	0.261	0.590
	(Surface water + Groundwater	)				
EN10	Recycle & Reuse water	Percentage of	0.067	0.059	0.039	0.042
		water withdrawal				
		Million m <sup>3</sup>	0.045	0.039	0.029	0.029
EN8	Water intensity	Million m <sup>3</sup> /mboe	0.217	0.191	0.160	0.184

#### Remarks:

- In 2013, volume of water withdrawal decreased due to:

• Reduction in seawater: once through cooling - in 2012 the volume of water withdrawal from the Arthit project was higher than normal due to seawater filter maintenance. In 2013, the maintenance was completed and water withdrawal volume of seawater: once through cooling returned to normal.

- In 2013, groundwater increased due to:

Collection and reporting scope was expanded to include 76 service stations in the PTT own and operate and 15 PTT owned NGV stations.
Collection and reporting scope for S1 Project was expanded to include water withdrawal from well locations.

- In 2013, water supply increased due to:

· Collection and reporting scope was expanded to include 76 service stations in the PTT own and operate and 15 PTT owned NGV stations.

# Effluent

GRI	Required Data	Unit	2010 PTT and PTTEP	2011 PTT and PTTEP	2012 PTT and PTTEP	2013 PTT and PTTEP
EN21	Total water discharge	Million m <sup>3</sup>	0.216	0.427	0.832	1.200
	Chemical oxygen demand (COD)	Ton	7.775	16.275	12.610	105.280
	Biochemical oxygen demand (BOD)	Ton	1.022	1.989	1.318	3.820
0G5	Produced water	Million m <sup>3</sup>	4.444	6.254	5.560	6.640
	Total volume and percentage of					
	produced water					
	Treatment & discharge overboard	Million m <sup>3</sup>	0	0	0	0
		%	0	0	0	0
	Re-injected	Million m <sup>3</sup>	4.444	6.254	5.560	6.640
		%	100	100	100	100
	Others	Million m <sup>3</sup>	0	0	0	0
		%	0	0	0	0
	Total volume of hydrocarbon	Million m <sup>3</sup>	No	discharged produced	water (Re-injected 10	0%)
	discharged within produced water					

Remarks: - In 2013, BOD and COD loading increased due to:

• Collection and reporting scope was expanded to include 18 Oil Terminals, 8 LPG Terminals, 10 Aviation Fuel Stations, 76 service stations in the PTT own and operate and 15 PTT owned NGV stations.

Modification of collection and reporting method to be more complete.
Details on destination of water discharge will be reported in 2014.
In 2013, produced water volume increased due to the increase in exploration and production activities at the S1 Project and production from well with high production water ratio.

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## 💦 Waste

GRI	Required Data	Unit	2010 PTT and PTTEP	2011 PTT and PTTEP	2012 PTT and PTTEP	2013
						PTT and PTTEP
		-			- / / 0 0 -	
EN22	Waste from routine operations	Tou	8,285.68	11,110.97	7,618.37	17,020.39
	Total hazardous waste disposal	lon	7,782.58	10,380.80	5,860.70	7,608.85
	Secure landfill	Ton	806.22	1,000.37	1,563.50	895.99
	Reuse	Ton	55.05	56.17	72.41	7.05
	Recycle	Ton	404.56	3,051.22	58.82	172.97
	Recover	Ton	6,163.02	5,751.54	3,346.95	5,493.22
	• Other: Incineration, Compositing, Deep well inject	Ton	353.73	521.51	819.03	1,039.62
	Total non-hazardous waste disposal	lon	503.10	730.17	1,757.66	9,411.53
	• Landfill	Ton	229.49	516.25	700.25	580.55
	• Reuse	Ton	5.18	5.01	2.07	2.41
	Recycle	Ton	107.90	208.45	798.45	2,624.64
	Recover	Ton	0	0	0	0
	• Other: Incineration, Compositing, Deep well inject	Ton	160.53	0.46	256.89	0
	Domestic waste     Wests from non-routing operation	Ton	NA	NA	NA	6,203.94
	Waste from non-routine operation (e.g. construction waste, spill clean-up waste)	lon	NA	NA	NA	2,503.81
	Total hazardous waste disposal	Ton	NA	NA	NA	37.18
	Secure landfill	Ton	NA	NA	NA	23.30
	Reuse	Ton	NA	NA	NA	(
	Recycle	Ton	NA	NA	NA	(
	Recover	Ton	NA	NA	NA	12.88
	• Other	Ton	NA	NA	NA	1.00
	Total non-hazardous waste disposal	lon	NA	NA	NA	2,466.63
	Landfill	Ton	NA	NA	NA	(
	Reuse	Ton	NA	NA	NA	2,450.00
	Recycle	Ton	NA	NA	NA	(
	Recover	Ton	NA	NA	NA	(
	• Other: Incineration, Compositing, Deep well inject	Ton	NA	NA	NA	(
	Domestic waste	Ton	NA	NA	NA	16.63
~	Waste on-site storage	lon	NA	NA	NA	819.40
)G7	Drilling waste (drill mud and cuttings)	Tou	16,796.00	16,999.00	31,946.00	150,588.75
	Non-aqueous drilling fluid	lon	NA	NA	NA	53,468.43
	Reinjection	Ton	NA	NA	NA	(
	Recycling	Ton	NA	NA	NA	28,285.15
	<ul> <li>Onshore disposal to controlled site</li> </ul>	Ton	NA	NA	NA	(
	Offshore disposal	Ton	NA	NA	NA	25,183.28
	Aqueous drilling fluid	Ton	NA	NA	NA	78,933.23
	Reinjection	Ton	NA	NA	NA	(
	Recycling	Ton	NA	NA	NA	13,609.13
	<ul> <li>Onshore disposal to controlled site</li> </ul>	Ton	NA	NA	NA	42,139.81
	Offshore disposal	Ton	NA	NA	NA	23,184.29
	Non-aqueous and aqueous drilling fluid	Ton	NA	NA	NA	18,187.09
	Reinjection	Ton	NA	NA	NA	(
	Recycling	Ton	NA	NA	NA	C
	<ul> <li>Onshore disposal to controlled site</li> </ul>	Ton	NA	NA	NA	0
	Offshore disposal	Ton	NA	NA	NA	18,187.09

#### Remark:

In 2013, volume of hazardous waste increased due to:

- Collection and reporting scope was expanded to include 76 service stations in the PTT own and operate and 15 PTT owned NGV stations. Turnaround activities at Oil Terminal.
- In 2013, volume of non-hazardous waste increased due to:
- Collection and reporting scope was expanded to include 76 service stations in the PTT own and operate and 15 PTT owned NGV stations.
- Gas Terminal disposing aging cooking gas tanks and related equipment that remained in the area from last year's operations.
- Collection and reporting boundary was expanded to include domestic waste from office waste and general waste that are sent to municipals.
   2013 was the first year to collect and report on waste on-site storage.
- waste from non-routine operation and drilling waste (drill mud and cuttings) seperated by disposing method to be in line with GRI 3.1 (OGSS).
- Waste from non-routine operation includes waste generated from capital project and during risk and crisis management. 2013 boundary includes Gas Separation Plant. Collection and reporting system is under development for a store accession. development for other operations.
- development for other operations. Waste on-site storage includes hazardous waste which remains in the operation area on 31 December, 2013. 2013 scope includes Gas Separation Plant and PTTEP project. Collection and reporting system is under development for other operations. In 2013 Drilling waste (drill mud and cuttings) volume due to collection and reporting scope expansion to include S1 Project, Arthit Project, Bongkot South Project, and Bongkot North Project. There is no minimum reporting threshold for hazardous waste. Every operation must report the entire volume of disposed hazardous waste
- operation must report the entire volume of disposed hazardous waste.



Required Data	Unit	2010 PTT and PTTEP	2011 PTT and PTTEP	2012 PTT and PTTEP	2013 PTT and PTTEP
123 Spill					
From PTT operational boundary					
Number of hydrocarbon spills	Number of spills	5	0	1	3
Volume of hydrocarbon spills	m <sup>3</sup>	21.22	-	1.52	29.00
Number of non-hydrocarbon spills	Number of spills	0	0	0	0
Volume of non-hydrocarbon spills			-	-	
From 3rd party (Transportation): Truck	transportation				
Number of hydrocarbon spills	Number of spills	0	1	8	8
Volume of hydrocarbon spills	m <sup>3</sup>	-	11.65	63.90	40.95
Number of non-hydrocarbon spills	Number of spills	0	0	0	(
Volume of non-hydrocarbon spills	m <sup>3</sup>	-	-	-	
From 3 <sup>rd</sup> party (Transportation): Ship a	nd barge transportat	ion			
Number of hydrocarbon spills	Number of spills	NA	NA	NA	(
Volume of hydrocarbon spills	m <sup>3</sup>	NA	NA	NA	
Number of non-hydrocarbon spills	Number of spills	NA	NA	NA	(
Volume of non-hydrocarbon spills	m <sup>3</sup>	NA	NA	NA	
Significant spill (Volume $\geq$ 100 barrels	;)		·		
From PTT operational boundary					
Number of hydrocarbon spills	Number of spills	0	0	0	
Volume of hydrocarbon spills	m <sup>3</sup>	-	-	-	21.94
Number of non-hydrocarbon spills	Number of spills	0	0	0	(
Volume of non-hydrocarbon spills	m <sup>3</sup>	-	-	-	
From 3 <sup>rd</sup> party (Transportation): Truck	transportation				
Number of hydrocarbon spills	Number of spills	2	3	1	
Volume of hydrocarbon spills	m <sup>3</sup>	76.00	73.00	41.00	90.80
Number of non-hydrocarbon spills	Number of spills	0	0	0	(
<ul> <li>Volume of non-hydrocarbon spills From 3<sup>rd</sup> party (Transportation): Ship a</li> </ul>	m <sup>3</sup> nd barge transportat	- ion	-	-	
Number of hydrocarbon spills	Number of Spills	NA	NA	NA	(
Volume of hydrocarbon spills	m <sup>3</sup>	NA	NA	NA	
Number of non-hydrocarbon spills	Number of Spills	NA	NA	NA	(
Volume of non-hydrocarbon spills		NA	NA	NA	

#### Remarks:

Volumes of hydrocarbon and non-hydrocarbon spill include spills which occurred from truck and marine transportation in operational areas that result in more than 1 barrel of spill released to the environment. PTT and PTTEP manage oil spills by executing spill response procedures to control the spills in the shortest time possible and to minimize the environmental impacts. For example, booms and scoops are used to minimize impact to the environment and to limit the spill area. Number and volume of hydrocarbon and non-hydrocarbon spill for 2011 - 2013 changed due to change in reporting methodology to be in line with

international standard.

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GRI Required Data	Unit	2010 PTT and PTTEP	2011 PTT and PTTEP	2012 PTT and PTTEP	2013 PTT and PTTEP
EN20 Volatile organic compounds (	(VOCs) Ton	NA	12,466.68	21,119.86	22,732.21
VOCs intensity	Ton per million barrel	NA	58.15	110.49	112.71
	oil equivalent				
Nitrogen oxides (NOx)	Ton	2,294.80	9,375.54	10,600.77	10,618.52
NOx intensity	Ton per million barrel	6.42	26.38	23.02	27.94
	oil equivalent				
Sulphur oxides (SOx)	Ton	67.74	589.85	646.22	697.38
SOx intensity	Ton per million barrel	0.19	1.69	1.40	1.83
	oil equivalent				

Remarks:

- VOCs emissions for 2012 were revised to include emissions from Oil Terminal and Gas Terminal. Gas Separation Plant's VOCs emission boundary will be expanded in 2014. - In 2013, VOCs emissions increased due to:

• Collection and reporting scope was expanded to include 2 additional Oil Terminals compared to 2012 data.

Bongkot South Project fully came online and had exploration and production activities throughout the entire year resulting in increase in VOCs emissions compared to 2012 when production and exploration activities were limited to the later half of the year.



GRI Required Data	2010 PTT and PTTEP	2011 PTT a nd PTTEP	2012 PTT and PTTEP	2013 PTT and PTTEP
EN16 Total GHG emissions	9,494,971	12,924,125	15,764,713	15,388,148
GHG scope 1	9,303,076	12,631,967	15,378,674	15,004,115
GHG scope 2	191,895	292,158	386,039	384,033
EN17 GHG scope 3	NA	NA	121,457,738	122,310,077
			·	
GRI Required Data	2010 PTT Group	2011 PTT Group	2012 PTT Group	2013 PTT Group
				10.005

EN16 GHG intensity	NA	NA	46,941	48,995
<ul> <li>Oil and gas production</li> </ul>				
GHG intensity	NA	NA	0.1395	0.1286
Refinery				
GHG intensity	NA	NA	0.6748	0.6817
Petrochemical				
GHG scope 1	22,638,896	25,275,008	32,424,531	31,822,632
PTT operational control				
GHG scope 1	14,920,603	18,368,841	21,553,568	21,002,012
PTT equity share				
GHG scope 2	1,156,640	937,023	1,938,993	2,356,345
PTT operational control				
GHG scope 2	636,559	615,460	1,164,257	1,375,305
PTT equity share				
EN17 GHG scope 3	NA	NA	NA	NA
PTT operational control				
GHG scope 3	NA	NA	NA	NA
PTT equity share				

#### Remarks:

Remarks: The organizational boundary of PTT based on operational control approach is complied with PTT Group SSHE Governance Policy. The organizational boundary of PTT based on equity share approach includes every domestic companies that PTT directly owns more than 20% shares or indirectly own 100% share. The percentage of shareholding was at 31 December for each calendar year. In 2013, PTT has revised base year from 2010 to 2012 as data quality was more accurate; therefore, GHG emission from such year was recalculated. Major recalculations under operational control approach include taking out companies such as PPCL and adding some companies such as IPT that was merged with PTTUT to become GPSC and are reported in this year's publication. After recalculation, an increase in GHG scope 2 since 2012 was mainly from the merger of PTTCH with PTTAR leading to the inclusion of several facilities that use electricity. GHG intensity of refinery business in 2012 was revised for more accuracy. The GHG intensity reporting boundary of Refinery includes TOP, IRPC, PTTGC, BCP. The GHG intensity reporting boundary of Petrochemical includes IRPC, HMC, PTTGC and PPCL (before merging to become one facility under PTTGC). If significant data changes occur after publication, they will be updated in next year's publication.

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# Direct Energy Consumption

GRI Required Data	Unit	2010 PTT and PTTEP	2011 PTT and PTTEP	2012 PTT and PTTEP	2013 PTT and PTTEP
EN3 Total direct energy consumption	GJ	49,555,573	62,976,254	62,080,594	68,812,280
	MWh	13,765,437	17,493,404	17,244,609	19,114,522

Required Data	Unit	2010 PTT Group	2011 PTT Group	2012 PTT Group	2013 PTT Group
Total direct energy consumption	GJ	NA	NA	329,831,237	281,660,693
Direct energy intensity	GJ/mboe	NA	NA	215,725	228,497
<ul> <li>Oil and gas production</li> </ul>					
Direct energy intensity	GJ/tonnes	NA	NA	1.85	1.53
<ul> <li>Refinery throughput</li> </ul>					
Direct energy intensity	GJ/tonnes	NA	NA	5.19	3.76
<ul> <li>Petrochemical throughput</li> </ul>					
	Total direct energy consumption • PTT operational control Direct energy intensity • Oil and gas production Direct energy intensity • Refinery throughput Direct energy intensity	Total direct energy consumptionGJ• PTT operational controlDirect energy intensityGJ/mboe• Oil and gas productionDirect energy intensityGJ/tonnes• Refinery throughputDirect energy intensityGJ/tonnes	PTT GroupTotal direct energy consumptionGJNAPTT operational controlDirect energy intensityGJ/mboeOil and gas productionNAOirect energy intensityGJ/tonnesDirect energy intensityGJ/tonnesNANAPerformer of the second	PTT GroupPTT GroupTotal direct energy consumptionGJNA• PTT operational controlNADirect energy intensityGJ/mboeNA• Oil and gas productionNADirect energy intensityGJ/tonnesNA• Refinery throughputGJ/tonnesNADirect energy intensityGJ/tonnesNA	PTT GroupPTT GroupPTT GroupTotal direct energy consumptionGJNANA.PTT operational control

Remarks:

Fuel oil, recycled by-product, and coke are not used by PTT and PTTEP.
PTT began reporting energy consumption based on boundary of operational control approach similar to GHG inventory in 2012. Therefore, the approach for calculating direct energy consumption of 2010 and 2011 was different comparing to 2012. PTT is undergoing the recalculation of past years' data and is expecting to report in next year's publication.
Reduction in direct energy consumption, as well as energy intensity, was partly due to the implementation PTT Group Energy Management System Direct in 2012.

Project in 2013.

Intensity of Oil & Gas Production, Refinery and Petrochemical follows GHG intensity reporting. 2013 boundary successfully includes Energy intensity of Refinery and Petrochemical plants of IRPC as planned.

2012 intensity was also recalculated.
If significant data changes occur after publication, they will be updated in next year's publication.

#### Indirect Energy Consumption ١

GRI	Required Data	Unit	2010 PTT and PTTEP	2011 PTT and PTTEP	2012 PTT and PTTEP	2013 PTT and PTTEP
EN4	Total indirect energy consumption	GJ	354,038	889,451	2,581,199	2,689,483
		MWh	98,344	247,070	717,000	747,079
	Electricity purchased	GJ	354,038	889,451	2,581,199	2,689,483
		MWh	98,344	247,070	717,000	747,079
GRI	Required Data	Unit	2010 PTT Group	2011 PTT Group	2012 PTT Group	2013 PTT and PTTEP

EN4	Total indirect energy consumption					
	PTT operational control	GJ	NA	NA	15,201,873	20,482,955

Remarks:

Steam is not used by PTT and PTTEP. Boundary of indirect energy consumption reported here is similar to PTT Group operational control approach. Significant increase of indirect energy consumption PTT Group under operational control was due to addition of several facilities under PTTGC after the merger of PTTCH and PTTAR.

PTT has begun data consolidation and reporting process of EN5 and is expected to report in 2015. If significant data changes occur after publication, they will be updated in next year's publication.

#### Methane (CH<sub>4</sub>) Emitted and CH<sub>4</sub> Emission CH,

GRI Required Data	Unit	2010 PTT and PTTEP	2011 PTT and PTTEP	2012 PTT and PTTEP	2013 PTT and PTTEP
EN20 Volume of methane emitted	Ton of methane	NA	25,521.87	NA	NA
(leakage, venting, and flaring)	Cubic meters (m <sup>3</sup> )	NA	NA	34,197,429.73	38,083,425
Direct CH <sub>4</sub> emissions (extracted fror	m GHG) Ton	NA	25,546.82	23,122.48	25,749.17
Remarks: - PTT carries out methane leakage analys - The volume of methane emitted include emission, and flaring.	sis from various cases. C des leakage (fugitive), v	Continuous reporting a venting from CO <sub>2</sub> se	and preventive measu paration process, me	ures of future leakage ethane emitted from	are also considered. process and vented

The direct CH, emissions include those from aforementioned sources, as well as direct CH, emitted from combustion sources.

GRI	Volume of flared and vented hyd	drocarbon	Unit	2010 PTT and PTTEP	2011 PTT and PTTEP	2012 PTT and PTTEP	2013 PTT and PTTEP
0G6	Volume of flared hydrocarbon Volume of vented hydrocarbon	Cubic mete	· · /	NA NA	NA NA	NA NA	1,726,518.16 45,092

Remarks:

In 2013, calculation methodology and reporting system for volume of flared and vented hydrocarbon were successfully set-up as planned. PTT is reviewing the data quality in 2014. If any significant changes occur, it will be recalculated and reported in next year's publication.

# AWARDS AND RECOGNITIONS

Thailand Quality Class - TQC 2012 Award

Given by the Office of Thailand Quality Award

3 Awards in the following categories; Natural Gas, Oil,

PTT received 52 awards from 29 institutions in 2013. Major awards in sustainability are as follows:



## National Awards



# Trusted Brand Awards 2013

16 25 Institutions Awards

> Platinum Winner in Service Station Given by Reader's Digest

#### Board of the Year Award

and International Trading

The Hall of Fame Board of the Year Announcement Project 2013.

The Award was a collaboration Of Thai Institute of Directors, The Stock Exchange of Thailand, Board of Trade of Thailand, Federation of Thai Industries, Thai Bankers Association, Thai Listed Companies Association, and Federation of Thai Capital Market Organizations. Best Service Station Award

Given by Department of Energy Business, Ministry of Energy

Honors of Outstanding Companies Promoting Environmental Conservation.

Given by Thailand Regional Newspapers Association

#### Thailand Energy Award 2013 for the promotion of energy conservation and renewable energy

Given by Ministry of Energy

#### Two SET Awards 2013

- Top Corporate Governance Report Award
- SET Award of Honor 2013 for Continuous Excellence in 2011-2013 in Corporate Social Responsibility

Given by the Stock Exchange of Thailand (SET) and the Money Banking Magazine



## Sustainability Report Award 2013

The award was a collaboration of CSR Club, Thai Listed Companies Association, The Securities and Exchange Commission, and Thaipat Institute.

#### State-Owned Enterprise Award

Innovation Awards in Technology to produce synthetic diesel fuel that PTT received for the fourth consecutive year.

Given by Ministry of Finance

#### CSRI Recognition 2013 Award

Given by Corporate Social Responsibility Institute, The Stock Exchange of Thailand



ดอาดหลักทรัพย์แห่งประเทศไทย The Stock Exchange of Thailand



Automotive Business Awards in the popular automotive manufacturers related to cars.

3 Awards in the following categories; Fuel, Petrol Station, and Lubricant

Given by Inter-Media Consultant Co., Ltd. with Custom Asia Co., Ltd. and Manager Newspaper

# International Awards

# 13 Awards

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#### 4 Asian Excellence Recognition Awards 2013

- Best Investor Relations Website/Promotion Award for the third consecutive year
- Best Investor Relations Companies: Thailand Award for the third consecutive year
- Best Environment Responsibility Award for the third consecutive year
- Best CSR Award

#### Given by Corporate Governance Asia Magazine

Corporate Governance Asia Recognition Awards 2013: Asia's Icon in Corporate Governance

for the eighth consecutive year

Given by Corporate Governance Asia Magazine

#### 2013 Member in Dow Jones Sustainability World Index (DJSI World) - Oil and Gas Industry (OIX)

Given by Dow Jones Sustainability Indices (DJSI)

### Dow Jones Sustainability Indices

In Collaboration with RobecoSAM 🐽

Outstanding Asia Pacific Entrepreneurship Awards 2013 - Oil and Gas, Mining and Energy Sector

for Mr. Pailin Chuchottaworn, CEO

Given by Enterprise Asia

Best Regional Jet Fuel Marketers 2013 – Asia Pacific Region

Given by Armbrust Aviation Group (AAG)

Further details of awards and recognitions are available in the Annual Report 2013



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# GRI and UNGC Content Index

#### Strategy and Analysis

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			continued support	
1.2	Description of key impacts, risks, and opportunities	2 - 3, 5		

#### **Organizational Profile**

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2.2	Primary brands, products, and/or services	6 - 9		
2.3	Operational structure of the organization	4		
2.4	Location of organization's headquarters	4		
2.5	Number of countries where the organization operates	6 - 9		
2.6	Nature of ownership and legal form	4		
2.7	Markets served	6 - 9		
2.8	Scale of the company	4 - 5		
2.9	Significant changes (size/structure/ownership) during the reporting period	-		No significant changes
0.4.0				
2.10	Awards	77 - 78		

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3.4	Contact point	10		
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3.9	Data measurement techniques and the bases of	10		
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3.10	Re-statements	61 - 76		
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	method) from previous reporting periods			
3.12	GRI content index	79 - 82		
3.13	External assurance policy and practice	83		

#### Governance, Commitments, and Engagement

Profile	GRI Description	Page	UNGC Principle	Comment
4.1	Governance structure	-	1 - 10	www.pttplc.com/EN/ www.pttplc.com/EN/
4.2	Whether the Chair of the highest governance body	-		www.pttplc.com/EN/
	is also an executive officer			
4.3	Number and gender of board members that are independent and non-executive	-		www.pttplc.com/EN/
	Independent and non-executive		1 10	
4.4	Mechanisms for providing recommendations	-	1 - 10	Corporate Governance Handbook
4.5	Linkage between compensation of seniors and executives and company's performance	15		
	and executives and company's performance			
4.6	Processes in place to ensure conflicts of interest are	-		Corporate Governance Handbook
17	avoided			Corporate Covernance Handheel
4.7	Process for determining the composition, qualifications, and expertise of the highest governance body	-		Corporate Governance Handbook
4.0	and expertise of the highest governance body	Г		
4.8	Developed statements of mission or values, codes of	5		
4.0	conduct and principles	1		
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	and management of economic, environmental and social performance			
110	and social performance	1		
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4.12	Principles or external initiatives on economic,	23, 40	1 - 10	
	environmental and social aspects			

Profile	GRI Description	Page	UNGC Principle	
4.13	Memberships in associations and national/ international advocacy organizations	-		PTT is a member of various associations and national/ international organizations such as UNGC, ASCOPE, WBCSD, TBCSD, PTIT, CSR Club, and CSR-DIW Network.
4.14 <sub>COMM</sub>	Stakeholder groups	12 - 13		
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#### Disclosures on Management Approach and Performance Indicators

#### Economic

Profile	GRI Description	Page	UNGC Principle	e Comment
DMA EC	Disclosure on Management Approach - Economic Direct economic value generated and distributed Implications of climate change Defined benefit plan obligations	4 - 9,16	1, 4, 6, 7	Refer to Annual Report for more information
EC1comm	Direct economic value generated and distributed	60 - 61		Financial Statement: www.pttplc.com/EN/IR/index.aspx
ЕС2сомм	Implications of climate change	5, 36 - 37	7	
EC3	Defined benefit plan obligations	45, 47		
EC4	Financial assistance	61		
EC5	Range of ratio of standard entry level wage by gender compared to minimum local wage Locally based suppliers	47	1	
	compared to minimum local wage			
ЕС6сомм	Locally based suppliers	29		
ЕС7сомм	Local hiring	-	6	The reporting scope covers only operations in Thailand and all of employees are Thai.
EC8comm	Indirect economic impact	55 - 60		
EC9 <sub>COMM</sub>	Describe significant indirect economic impacts	55 - 60		
OG1	Describe significant indirect economic impacts Volume and type of estimated proved reserves and production	6		

#### Environment

DMA EN       Disclosure on Management Approach - Environment       16, 35, 40       7 - 9       www.pttplc.com/EN/Sustainability         EN1comm       Materials used by weight or volume       -       8       Performance indicator is not material beca         EN2comm       Percentage of recycled materials used       -       8, 9       is the dominant input in our business.         EN3       Direct energy consumption       39, 75       8       -       8         OG2       Renewable energy consumption       7, 32       -       -       -         OG3       Renewable energy generation       7, 32       -       -       -       -         COG3       Renewable energy generation       7, 32       -<	
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<ul> <li>EN3 Direct energy consumption 39, 75 8</li> <li>EN4 Indirect energy consumption 76 8</li> <li>OG2 Renewable energy investment 7, 32</li> <li>OG3 Renewable energy generation 7, 32</li> <li>EN8comm Water withdrawal 38, 69 8</li> <li>EN9comm Water sources affected by water withdrawal 40 8</li> <li>EN10 Water recycled and reused 69 8, 9</li> <li>EN11 Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas</li> <li>EN12 Description of significant impacts on biodiversity - 8</li> <li>EN13 Habitats protected or restored 8</li> <li>EN14comm Strategies and plans for managing impacts on biodiversity - 8</li> <li>OG4 Operating sites with biodiversity risk assessment 53</li> <li>EN15 IUCN Red List species - 8</li> <li>Www.pttplc.com/EN/Sustainability</li> <li>EN16comm Direct GHG 39, 74 8</li> </ul>	
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<ul> <li>Control of adjacent to, protected areas and areas of high biodiversity value outside protected areas and areas of high biodiversity value outside protected areas</li> <li>EN12 Description of significant impacts on biodiversity -</li> <li>EN13 Habitats protected or restored.</li> <li>EN14 common Strategies and plans for managing impacts on biodiversity</li> <li>OG4 Operating sites with biodiversity risk assessment 53</li> <li>EN15 IUCN Red List species -</li> <li>Buntocommon Direct and indirect GHG</li> <li>Strategies andirect andirect GHG</li> <li>Strategies a</li></ul>	adjacont to
EN14comm       Strategies and plans for managing impacts on biodiversity       53       8         OG4       Operating sites with biodiversity risk assessment       53       8         EN15       IUCN Red List species       -       8       www.pttplc.com/EN/Sustainability         ★       EN16comm       Direct and indirect GHG       39, 74       8         EN17comm       Other relevant indirect GHG       36 - 37, 74       8	
EN14comm       Strategies and plans for managing impacts on biodiversity       53       8         OG4       Operating sites with biodiversity risk assessment       53       8         EN15       IUCN Red List species       -       8       www.pttplc.com/EN/Sustainability         ★       EN16comm       Direct and indirect GHG       39, 74       8         EN17comm       Other relevant indirect GHG       36 - 37, 74       8	Sily Value III
EN14comm       Strategies and plans for managing impacts on biodiversity       53       8         OG4       Operating sites with biodiversity risk assessment       53       8         EN15       IUCN Red List species       -       8       www.pttplc.com/EN/Sustainability         ★       EN16comm       Direct and indirect GHG       39, 74       8         EN17comm       Other relevant indirect GHG       36 - 37, 74       8	ated areas
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OG4       Operating sites with biodiversity risk assessment       53         EN15       IUCN Red List species       -       8       www.pttplc.com/EN/Sustainability         ★       EN16comm       Direct and indirect GHG       39, 74       8         EN17comm       Other relevant indirect GHG       36 - 37, 74       8	
<ul> <li>► EN15 IUCN Red List species</li> <li>► EN16comm Direct and indirect GHG</li> <li>► EN17comm Other relevant indirect GHG</li> <li>► 39, 74</li> <li>► EN17comm Other relevant indirect GHG</li> <li>► 36 - 37, 74</li> <li>► 8</li> </ul>	
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EN17comm Other relevant indirect GHG 36 - 37, 74 8	
EN18comm Initiative to reduce GHG 32, 39, 58 7 - 9	
EN19 Emission of ODS - 8 PTT is in the process of phasing the ozone- substances (ODS) by substituting ODS with	depleting
refrigerants.	1011-003
★ EN20comm NOx, SOx, and other emissions 36 - 38, 8	
73, 76	
★ EN21 Water discharge 70 8	
★ EN22comm Waste	
OG5 Volume of formation or produced water. 70	
★ EN23comm Spills 42,72 8	
OG6 Volume of flared and vented hydrocarbon 76	
OG7 Amount of drilling waste 71	

Profile	GRI Description		UNGC Principle	comment
EN26comm	Initiatives to mitigate environmental impacts of products	31 - 32, 34	7-9	
	and services			
EN27	Percentage of products sold and their packaging	-	8, 9	Performance indicator is not material because our main
	materials that are reclaimed by category.			product is energy.
OG8	Benzene, Lead and Sulfur content in fuels.	31		
EN28	Environmental fines and sanctions	-	8	No significant fine and non-monetary sanction for
				non-compliance with environmental law and regulations
				in 2013.

#### Labor Practices and Decent Work

Profile	GRI Description	Page	UNGC Principle	e Comment
DMA LA	Disclosure on Management Approach - Labor Practice	16, 18	1, 3, 6	www.pttplc.com/EN/ Sustainability
		41, 44		
LA1	Total workforce	4, 62		
LA2	Rate of new employee hires and employee turnover Benefits for employees	63 - 64	6	
LA3	Benefits for employees	45, 47		
LA4	Employees covered by collective bargaining agreements	49	1, 3	
LA5	Notice period regarding operational changes	-	3	PTT keeps employees informed of operational changes through a variety of channels including direct communication by management. PTT communicates changes in a timely and effective manner and guard against potential insider trading. While there is no minimum time frame for notification of significant operational changes, PTT makes every effort to give a reasonable amount of notice to all employees.
LA7comm	Rates of injury, occupational diseases, lost days, absenteeism, fatality	40 - 41	1	/ · · · · · · · · · · · · · · · ·
	absenteeism, fatality	66 - 67		
LA8	Training regarding serious diseases.	58	1	
LA10	Training hours	46, 64		
LA11	Programs for skills management and lifelong learning	46 - 47		
LA12	Employee performance review	45		
LA13	Composition of governance bodies and breakdown of employees	62	1,6	Data on minority employees (i.e. disabled employees) are not aggregated at group level as this depends on individual wish for declaration.
LA14	Basic salary and remuneration	47	1,6	
LA15	Return to work after parental leave	64		

#### Human Rights

Profile	GRI Description	Page	UNGC Principle	Comment
DMA HR	Disclosure on Management Approach - Human Rights	16, 18, 20	1-6	www.pttplc.com/EN/Sustainability
HR1	Significant investment agreements and contracts undergone human rights screening	-	1-6	All business partners and contractors shall comply with the Thai labor law.
HR2	Significant suppliers and contractors undergone human rights screening	-	1-6	All business partners and contractors shall comply with the Thai labor law.
HR3	Employee training concerning aspects of human rights	20	1-6	
HR4	Non-discrimination	-	1, 2, 6	No case of employee discrimination was reported in 2013.
HR5	Freedom of association and collective bargaining	49	1 - 3	No case of employee dismissal or obstruction against the assembling of employees for negotiation purpose was reported in 2013.
HR6	Child labor	-	1, 2, 5	No case of child labor was reported in 2013.
HR7	Forced and compulsory labor	-	1, 2, 4	No case of forced and compulsory labor was reported in 2013.
HR8comm	Security practices	20	1,2	
HR9 <sub>COMM</sub>	Security practices Violation involving rights of indigenous people	-	1,2	Performance indicators not applicable because PTT
OG9	present or affected by activities	-		does not have any operation located in or near the vicinity of indigenous communities. Human rights and indigenous rights are addressed in the PTT Group Sustainability Management Framework.
HR11	Grievances related to human rights	-		No hŭman rights related grievances were reported in 2013.

#### Society

Profile	GRI Description	Page	UNGC Principle	Comment
	Disclosure on Management Approach - Society	16, 50 53 - 54	10	www.pttplc.com/EN/Sustainability
SO1 SO2	Impacts of operations on communities	53		
SO2	Impacts of operations on communities Business units analyzed for risks related to corruption	21	10	
SO3 SO4 SO5сомм	Anti-corruption training	20	10	
SO4	Response to corruption incidents	21	10	
SO5comm	Participation in public policy development and lobbying	21	1 - 10	
SO6	Political contribution	-	10	Political contribution is prohibited.
S07	Actions for anti-competitive behavior	21		
SO8comm	Fines and non-monetary sanctions for	21		
	non-compliance with laws			
SO9comm	Operations with potential/actual impacts Preventions and mitigations measures	51		
SO10comm	Preventions and mitigations measures	51 - 53		
OG10	Number and description of significant disputes with local communities and indigenous peoples	-		Performance indicator is not applicable because PTT does not have any operation located in or near the vicinity of indigenous communities. No significant disputes with local communities occurred in 2013.
0G11	Numbers of sites that have been decommissioned and sites that is in the process of being decommissioned	-		No sites were decommissioned in 2013.
OG12	Operations where involuntary resettlement took place, the number of households resettled in each and how their livelihoods were affected in the process	-		None of our projects required relocation.
OG13	Number of process safety events, by business activity	42		PTT is in the process of developing process safety collection database. For more information, please visit www.pttplc.com/EN/Sustainability

#### Product Stewardship

Profile	GRI Description	Page	UNGC Principle	Comment
DMA PR	Responsibility	16, 30	1, 8	www.pttplc.com/EN/Sustainability
PR1	Health and safety impacts of products and services	31	1	
PR2	Incidents of non-compliance concerning health and safety impacts of products	-	1	No incidents of non-compliance concerning product health and safety impacts in 2013.
PR3	Product information requirements	34	8	All products and services comply with the PTT labelling procedures which are developed in accordance with the product information laws. No significant fine and non-monetary sanction for
PR4	Incidents of non-compliance concerning products and service information and labeling	-	8	No significant fine and non-monetary sanction for non-compliance with laws, regulations and voluntary codes concerning products and service information and labeling was reported in 2013.
PR5	Customer satisfaction	33		
PR6	Programs for adherence to laws related to marketing communications	-		www.pttplc.com/EN/Sustainability
PR7	Incidents of non-compliance with regulations concerning marketing communications	-		No significant fine for non-compliance with laws, regulations and voluntary codes concerning marketing communications was reported in 2013.
PR8	Complaints regarding breaches of customer privacy and losses of customer data.	-	1	No substantiated complaint regarding breach of customer privacy and losses of customer data was reported in 2013.
PR9	Fines for non-compliance with laws and regulations concerning the provision and use of products and services.	-		No significant fine for non-compliance with laws and regulations concerning products and services was reported in 2013.
OG14	Volume of biofuels produced and purchased meeting sustainability criteria.	32		

#### Remark:

Orange text means additional indicators. Subscript COMM means indicators with added commentary in GRI Oil and Gas Sector Supplement. ★ means indicator was verified by external assurer



#### **LRQA Assurance Statement**

#### Relating to PTT Public Company Limited's Sustainability Report for the

#### calendar year 2013

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 Sustainability Report 2013 ("the Report") against the assurance criteria below to a limited level of assurance using LRQA's verification procedure. LRQA's verification procedure is based on current best practise and uses the principles of AA1000AS (2008) - Inclusivity, Materiality, Responsiveness and Reliability of performance data and processes defined in ISAE3000.

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

- Confirming that the Report is in accordance with:
- GRI G3.1's Reporting Guidelines and application level A
- GRI Oil and Gas Sector Supplement (OGSS 3.1)
- Evaluating the reliability of data and information only for the following specified Indicators: Energy consumption within the organization (EN3), Direct and Indirect GHG emission (EN16), NOx, SOx, and other significant air emission (VOC) (EN20), Water withdrawal (EN8), Water discharge (EN21), Waste disposal (EN22), Spill (EN23) and Occupational health and safety (LA7).

Our assurance engagement excluded data and information of PTT's operations and activities outside of Thailand and PTT's suppliers 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 performance data and information for the eight 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 limited level of assurance and at the materiality of the professional judgement of the Verifier.

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

#### LRQA's Approach

LRQA's assurance engagements are carried out in accordance with LRQA's verification procedure. 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 reviewing documents and 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 misstatements 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 for the eight specified indicators from a representative facility
  of each of PTT's business operations at:
  - their Head Office at 555 Vibhavadi Rangsit Road, Chatuchak, Bangkok, Thailand 10900
  - Oil Terminal in Saraburi
  - Petroleum Exploration Support Base in Songkla, and the
  - Gas Separation Plant in Rayong.
- Checking that the Indexes allow stakeholders to access sustainability performance indicators for both the GRI G3.1 and the OGSS 3.1 final version.

#### **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, we believe that future Reports should further explain how PTT engages with its different stakeholder groups; for example with independent contractors and local communities where PTT has its operation.
- Materiality: We are not aware of any material issues concerning PTT's sustainability performance that have been excluded from the Report. It should be noted that PTT has established extensive criteria for determining which aspects are material and that these criteria are not biased to the company's management. We believe that future Reports should describe how different business operation units contribute to the extent of the material issues; for example domestic waste from the Gas Separation Operation accounts only for a minor portion of the total waste generated, domestic waste from the Retails (nationwide) accounts for a significantly greater portion. This also allows PTT to describe in detail those issues material to one business operation unit that are not material to PTT as a whole. Likewise PTT should consider using accepted international practices to improve their disclosure of occupational health issues.
- Responsiveness: PTT has processes for responding to various stakeholder groups with no material issue not being addressed in the Report.
- Reliability: PTT uses a well-defined, centralized, system to collect and calculate its data and information associated with the selected specific standard disclosures listed above. PTT also carries out its own internal data verification process to ensure the quality of its reported 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.

LRQA provides no consultancy but we have delivered a range of training services related to sustainability and data verification to PTT. The training services are the only work undertaken by LRQA for PTT and as such it does not compromise our independence or impartiality.

Dated: 19 February 2014

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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: BGK6019322

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Statement

# **GRI Application Level Check**

GRI hereby states that **PTT Public Company Limited (PTT)** has presented its report "Corporate Sustainability Report 2013" to GRI's Report Services which have concluded that the report fulfills the requirement of Application Level A+.

GRI Application Levels communicate the extent to which the content of the G3.1 Guidelines has been used in the submitted sustainability reporting. The Check confirms that the required set and number of disclosures for that Application Level have been addressed in the reporting and that the GRI Content Index demonstrates a valid representation of the required disclosures, as described in the GRI G3.1 Guidelines. For methodology, see www.globalreporting.org/SiteCollectionDocuments/ALC-

# Methodology.pdf

Application Levels do not provide an opinion on the sustainability performance of the reporter nor the quality of the information in the report.

# Amsterdam, 26 March 2014

Ash. Gultato

Ásthildur Hjaltadóttir Director Services Global Reporting Initiative



The "+" has been added to this Application Level because PTT Public Company Limited (PTT) has submitted (part of) this report for external assurance. GRI accepts the reporter's own criteria for choosing the relevant assurance provider.

The Global Reporting Initiative (GRI) is a network-based organization that has pioneered the development of the world's most widely used sustainability reporting framework and is committed to its continuous improvement and application worldwide. The GRI Guidelines set out the principles and indicators that organizations can use to measure and report their economic, environmental, and social performance. www.globalreporting.org

**Disclaimer:** Where the relevant sustainability reporting includes external links, including to audio visual material, this statement only concerns material submitted to GRI at the time of the Check on 18 March 2014. GRI explicitly excludes the statement being applied to any later changes to such material.



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