

# Innovations for Sustainable Growth





## Sustainable Growth

22	Good Corporate Governance
26	Business Ethics and Integrity
29	Human Rights in Our Business
32	Risk Management

## Technovation

37	Innovation for Sustainable Power
40	Operational Excellence

# Table of Contents

03	About This Report
04	President and CEO Statement
07	Key Performance
12	Stakeholder Engagement
14	Stakeholder's voice
16	Materiality Assessment

## Inclusive Citizenship

45	Valuable Employees
49	Occupational Health and Safety
52	Supply Chain Management
56	Customer Relationship Management
58	Sustainable Community Engagement

## Environmental Responsibility

64	Climate Change Risks and Adaptations
70	Environmental Management
75	Biodiversity Preservation

77	Sustainability Performance Data
89	GRI Content Index
95	The Principles of United Nations Global Compact (UNGC) Progress Status
97	Assurance Statement







## ABOUT THIS REPORT

Global Power Synergy Public Company Limited (the “Company” or “GPSC”) publishes its Sustainability Report annually to disclose information relating to economic, social and environmental performance from January 1 to December 31, 2017. The scope of this report encompasses all companies in the Global Power Synergy Group for which GPSC holds more than 50% of the shares and has operational control. There is no change in the list of companies included from the previous report. This report has been written in accordance with the Global Reporting Initiative Standards (GRI Standards) which are internationally accepted guidelines for sustainability reporting with additional indicators for companies in the electric utilities industry. Moreover, the report also provides preliminary information of the company’s operations aligned with the United Nations Sustainable Development Goals (SDGs).

This Sustainability Report has been verified for data accuracy at the limited assurance level by Lloyd’s Register Quality Assurance Limited. Additional details on data verification can be found in the Assurance Statement on page 97-98.

GPSC is committed to improving the quality of its sustainable report and to raising the standards of information disclosure. Therefore, all suggestions are welcome and will be incorporated into the company’s operational process to promote sustainable development with all stakeholders. GPSC can be reached via the following channels:

### Contact Information



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## PRESIDENT AND CHIEF EXECUTIVE OFFICER STATEMENT



In 2017, the world faced economic, social and environmental challenges characterized by Volatility, Uncertainty, Complexity and Ambiguity (VUCA), including rapid pace of technological progress. These challenges have greatly affected the power and utilities business such as increase in electricity consumption, behavioral change of energy use and the advent of renewable energy and energy storage system

that will play an increasing role in the future. GPSC is cognizant of this situation and has created short-term and long-term plans to manage potential risks from the business operations. The plans include ongoing monitoring and risk management assessment which has enabled the company to consistently maintain profit growth and gain stakeholders' trust.

In terms of sustainability practices in 2017, GPSC has conducted its business by striking a balance between economic, social and environmental benefits to satisfy all groups of stakeholders and to drive the power management business forward responsibly. GPSC has focused on implementing strategies to enhance stability and efficiency of the power and steam production, which is currently the company's core business, in conjunction with developing energy innovations, such as power production from renewable energy sources, energy storage system and microgrid. These strategies underscore the necessity to continually build the skills and knowledge on power innovation for employees to raise their current and future potentials of the business operations, as well as creating appropriate, safe and happy work environment to nurture employees' productivity, pride and mutual growth alongside the company. Furthermore, GPSC has launched a variety of CSR initiatives with the goal of raising living standards in local communities, such as Mor Fai Fah (Electric Doctor) project. The project leverages the company's expertise in electrical safety by supporting volunteer employees to fix and improve damaged electrical systems and appliances in various communities in order to increase safety, reduce fire hazard and promote energy conservation in the communities.

Last year is another year that GPSC has successfully proven its commitment to conducting business sustainably with progress and achievement in sustainability performance. GPSC received the 2017 Thailand Sustainability Investment (THSI) Award from the Stock Exchange of Thailand, reflecting good governance and business practices that balance consideration for shareholders with social and environmental development. Moreover, GPSC has been selected as one of the top 100 publicly listed companies with outstanding environmental,

social and governance performance (ESG 100) and has received a Recognition Award from the 2017 Sustainability Report Award program, another marker of success in sustainability management. In addition, GPSC was the only Thai company in the power and utilities business that received Asia's Best CEO Award (Investor Relations), Best Investor Relations Company and Best Environmental Responsibility from the Corporate Governance Asia magazine. This demonstrates the professionalism in management, governance and concerns for the society, community and environment at the level that has earned global recognition.

For the direction from 2018-2022, GPSC will continue to develop the power and utility production to accommodate industrial expansion in the Eastern Economic Corridor (EEC). The company will also be developing an energy storage system in parallel with renewable energy deployment by 2019 to ensure reliable and stable green energy management toward national energy security.

Lastly, GPSC, as the innovative power flagship of PTT Group, is committed to conducting business with strict adherence to corporate governance principles. The company will not only create shared value with all groups of stakeholders but also maintain its social and environmental responsibilities for the maximum benefits of all parties to become the global leading innovative and sustainable power company.



**Mr. Toemchai Bunnag**

President and Chief Executive Officer

SUPPLY CHAIN MANAGEMENT

COMMUNITY ENGAGEMENT

CUSTOMER RELATIONSHIP MANAGEMENT

TRISK MANAGEMENT

CORPORATE GOVERNANCE

INNOVATION

HUMAN RIGHTS

OCCUPATIONAL HEALTH AND SAFETY

BIODIVERSITY

ETHICS AND INTEGRITY

ENVIRONMENTAL MANAGEMENT

CLIMATE CHANGE

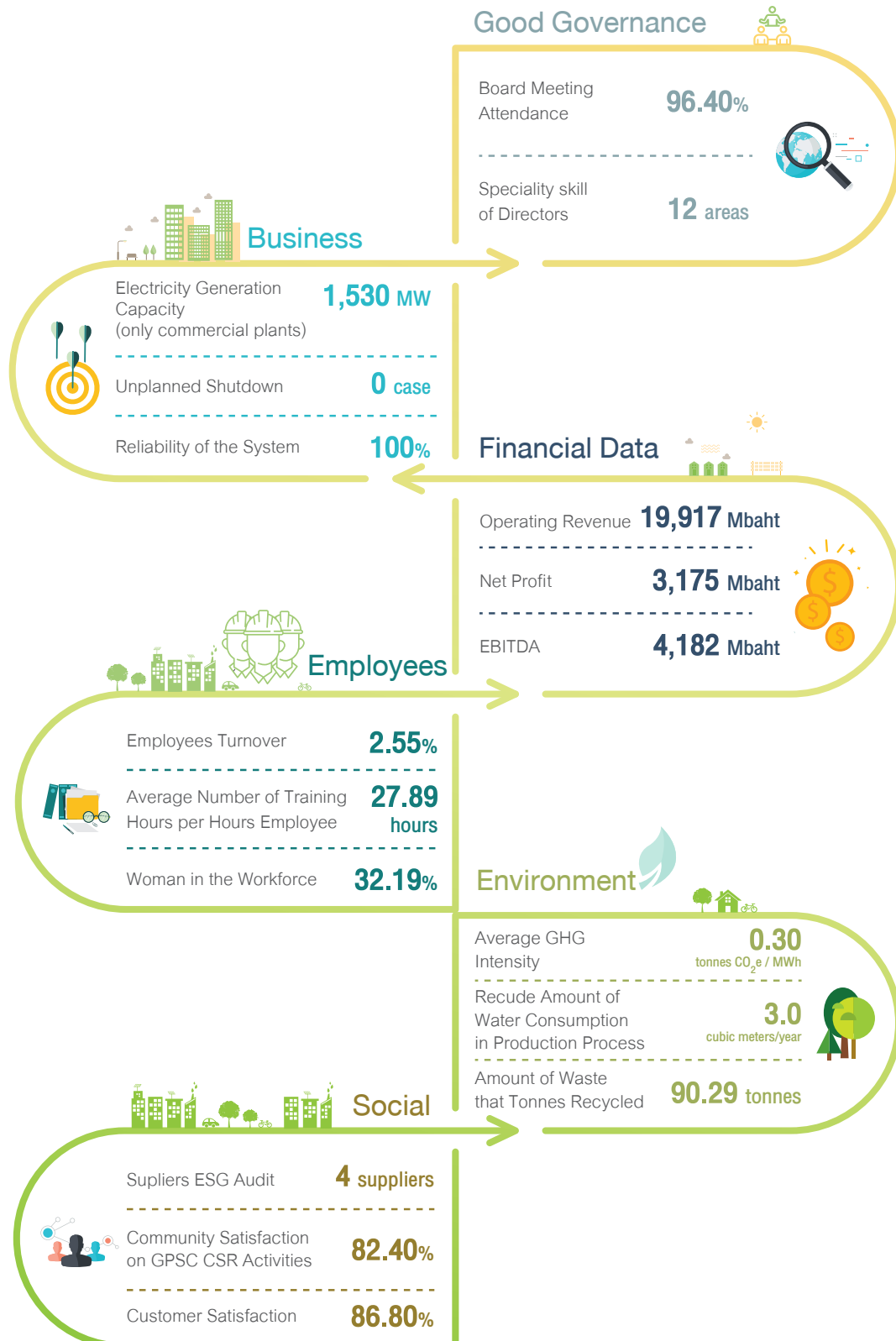
SAFE OPERATION

EMPLOYEE



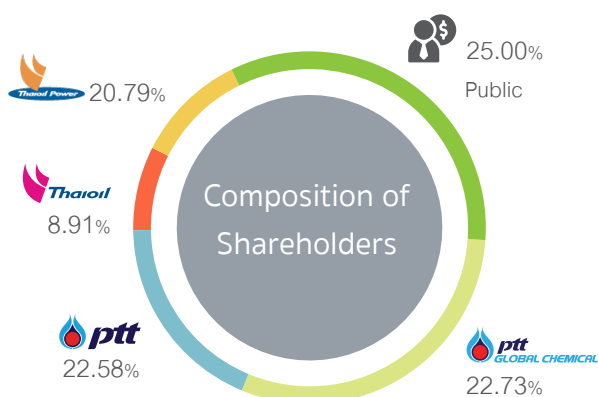


# KEY PERFORMANCE HIGHLIGHTS PERFORMANCE

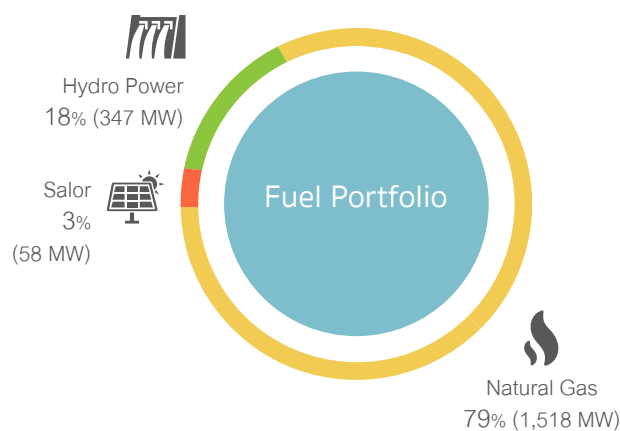




## GPSC Profile



## Fuel Portfolio



## Overall Business Operation



### Power

Thailand  
Commercial 1,509 megawatts  
Under construction 45 megawatts  
Overseas  
Commercial 20.8 megawatts  
Under construction 347 megawatts



### Steam

Thailand  
Commercial 1,512 tons/hour  
Under construction 70 tons/hour



### Chilled Water

Thailand  
Commercial 12,000 refrigeration tons



### Industrial Water

Thailand  
Commercial 2,080 cubic meters/hour



## History

### 2013

- Was established (after the integration of PTT Utility Company Limited (PTTUT) and Independent Power (IPT) on January 10, 2013

### 2014

- Registered and renamed to Global Power Synergy Public Company Limited (GPSC) on November 27, 2014

### 2015

- Listed in the Stock Exchange of Thailand (SET). The first day trade was on May 18, 2015





## Business Strategy

**Vision** “The global leading innovative and sustainable power company”

### Mission



### Strategy

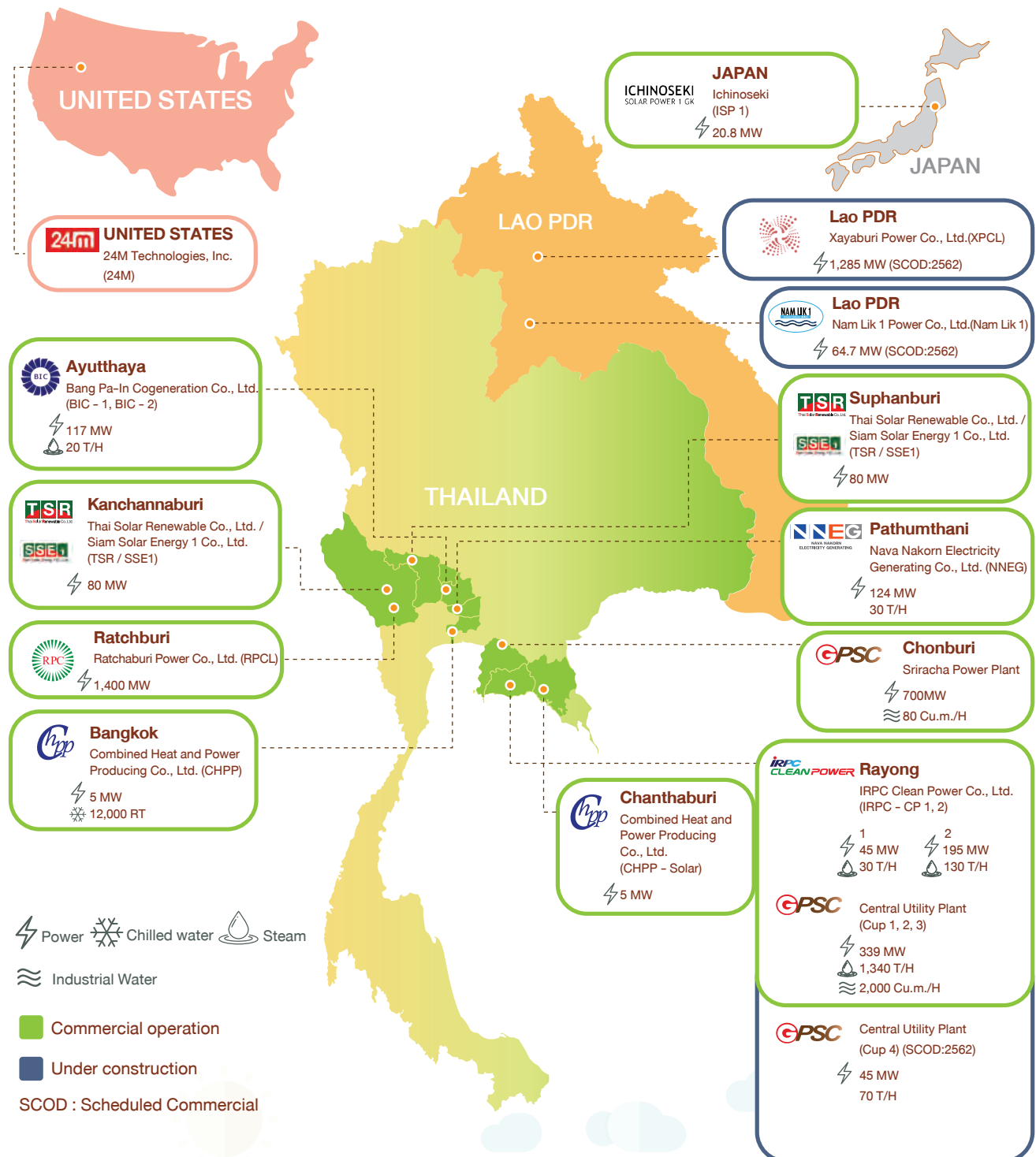


- Listed in SET 50 and Asia Pacific ex Japan Small Cap
- Listed in ESG 100
- Achieved excellent level for CGR Scoring
- Won the Best CFO Award from Investment Analysts Association (IAA)

- Selected as Thailand Sustainability Investment by SET
- Ranked BBB- rating by S&P's and A+ (tha) by Fitch Ratings
- Received the Best CEO (Investor Relations), Best IR Company (Thailand) and Environmental Responsibility Award from Corporate Governance Asia



## Company Overview

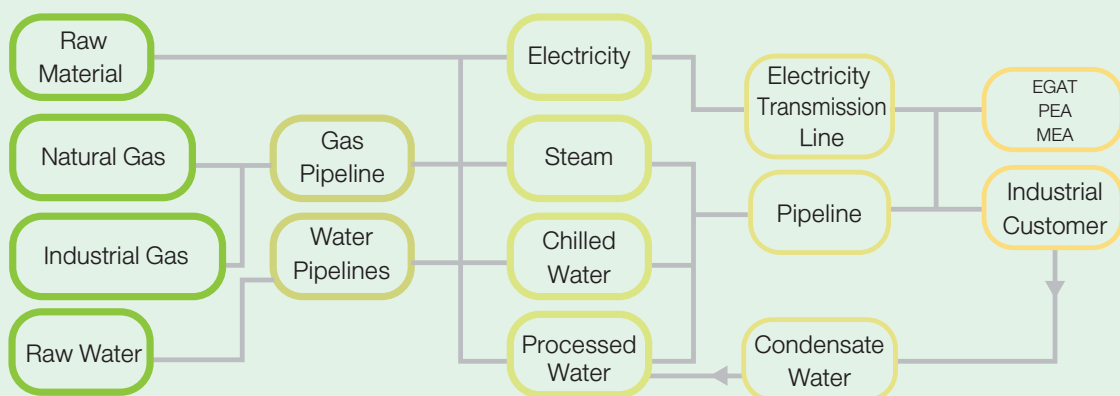
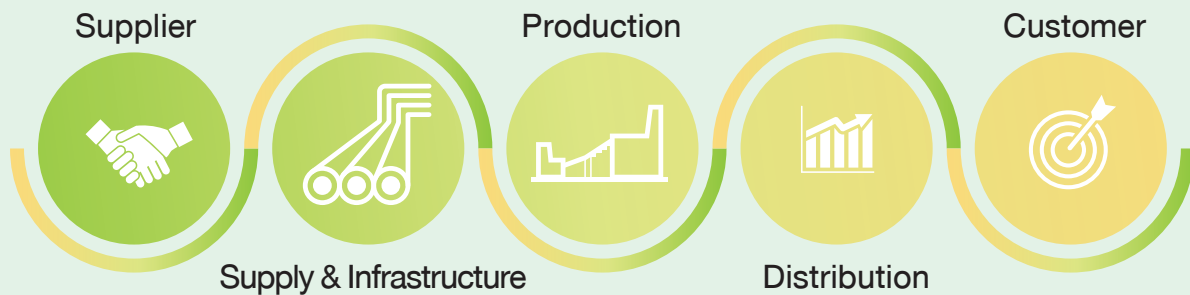


GPSC and its sub-invested companies are scattered in Thailand and abroad in which selling power to industrial customers and public agencies, including, Electricity Generating Authority of Thailand (EGAT), Provincial Electricity Authority (PEA), and Metropolitan Electricity Authority (MEA). In addition, the company also sells steam to industrial customers in nearby areas to avoid the risk of customer monopoly.





## Value Chain



## Participation in National Level Organization

GPSC is aware of roles and responsibilities to drive business operation aligned with the company's approach on sustainability by supporting participation in national level organizations for advice and information exchange relating to industry direction and sustainability development. Example national level organizations that GPSC participates are the following:

- Thai Listed Companies Association (TCLA)
- The Association of Private Power Producers (APPP)
- The Thai Chamber of Commerce and Board of Trade of Thailand
- Petroleum Institute of Thailand ((PTIT)
- The Federation of Thai Industries (F.T.I)
- Thailand National Committee of CIGRE
- Thai Institute of Directors (IOD)
- Thailand Business Council for Sustainable Development (TBCSD)




## STAKEHOLDER ENGAGEMENT<sup>(102-12, 102-40, 102-42, 102-44)</sup>



GPSC recognizes the importance of stakeholder engagement. The company believes that good relationships built upon trust and stakeholders' feedback are valuable assets that will drive the company toward the goal of sustainable development and growth along with creating maximum benefits for all groups of stakeholders. GPSC has been in constant communication with stakeholders to build clear understanding on topics of interest and incorporate their feedback into the

company's decision and business planning process.

GPSC classifies stakeholders into six main groups: 1) Shareholders and investors 2) Government agencies and related organizations 3) Employees 4) Business partners, suppliers and contractors 5) Customers and 6) Community and society. Communication and engagement methods across stakeholder groups are listed as follows:

Stakeholder Group	Engagement Channels	Topics of Stakeholders' Interest
 <p><b>1. Shareholders and Investors</b> (Investors, shareholders, financial institutions)</p>	<ul style="list-style-type: none"> <li>• Annual shareholder meeting</li> <li>• Quarterly analyst meeting</li> <li>• Investment presentation</li> <li>• Company on-site visit once a year</li> <li>• Communication channels via website, e-mail, telephone, letter and others.</li> <li>• Grievance mechanism via GPSC's complaint system</li> <li>• Interview with representatives from shareholders and investors</li> </ul>	<ul style="list-style-type: none"> <li>• Transparency and corporate governance</li> <li>• Community engagement and social responsibilities</li> <li>• Innovation investment and development</li> <li>• Power production from renewable energy</li> <li>• Stable and sustainable profits and business development</li> </ul>

Stakeholder Group	Engagement Channels	Topics of Stakeholders' Interest
 <p><b>2. Government Agencies and Related Organizations</b> (Government agencies, state enterprises, local administration organizations, along with private companies with authority to approve or sign any licenses or permits for the company)</p>	<ul style="list-style-type: none"> <li>• Report financial and operating results to relevant government agencies at the required frequency</li> <li>• On-going participation in government projects and activities</li> <li>• PTT Group Public Affairs Seminar</li> <li>• Interview with representatives from government agencies and related organizations</li> </ul>	<ul style="list-style-type: none"> <li>• Compliance with rules, regulations and policies of relevant regulators</li> <li>• Expansion to renewable energy</li> <li>• Community and environmental impact mitigation</li> <li>• Response to future changes</li> </ul>
 <p><b>3. Employees</b> (Executives and employees)</p>	<ul style="list-style-type: none"> <li>• Conduct employee engagement survey once a year</li> <li>• Submit complaints to managers or via the company's complaint system</li> <li>• Town hall meeting for executives to interact face-to-face with employees</li> <li>• Internal communication</li> <li>• E-mail communication</li> <li>• Interview employee representatives</li> </ul>	<ul style="list-style-type: none"> <li>• Employee skill development</li> <li>• Employee well-being</li> <li>• Compensation and career progress</li> <li>• Business challenges and opportunities</li> </ul>
 <p><b>4. Business Partners, Suppliers, Contractors</b></p>	<ul style="list-style-type: none"> <li>• Organize Supplier Relationship Management event once a year</li> <li>• Annual supplier satisfaction survey</li> <li>• Interview with representatives from business partners, suppliers and contractors</li> </ul>	<ul style="list-style-type: none"> <li>• Supplier audit for mutual sustainable development</li> <li>• Fair competition with equal treatment</li> <li>• Communication with suppliers</li> <li>• Innovation on reliable production and delivery</li> <li>• Efficient and transparent procurement system</li> <li>• Legal labor practices</li> <li>• Safety of suppliers, employees, and contractors</li> </ul>
 <p><b>5. Customers</b></p>	<ul style="list-style-type: none"> <li>• Annual customer satisfaction survey</li> <li>• Customer relationship activities (Monthly, quarterly and annually)</li> <li>• Monthly conference to monitor and report on (1) Demand plan (2) Preparation and maintenance plan (3) Follow-up on resolutions</li> <li>• Interview customer representatives</li> </ul>	<ul style="list-style-type: none"> <li>• Product delivery and reliability of the production system</li> <li>• Prompt response to customer needs</li> <li>• Customer communication channels</li> <li>• Compliance with public policies</li> <li>• Preparing employees to handle changes</li> <li>• Technology development for environmental impact mitigation</li> </ul>
 <p><b>6. Community and Society</b> (Communities, media, and non-profit organizations)</p>	<ul style="list-style-type: none"> <li>• Conduct community satisfaction survey once a year</li> <li>• Community relationship activities, regularly visiting locals and people who may be affected directly and indirectly by GPSC operations</li> <li>• Invite locals to visit the power plants</li> <li>• Organize a community meeting for feedback during the EIA/EHIA process</li> <li>• Organize the "Shoulder-to-Shoulder" seminar at least once every quarter</li> <li>• Interview representatives from the Community and Society group</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental impact management that may arise from GPSC's operations</li> <li>• Physical and residential safety</li> <li>• Environmental preservation</li> <li>• Communicate to ensure community's understanding on GPSC operations</li> <li>• Local employment</li> </ul>



## STAKEHOLDER'S VOICE

**Mr. Kongkrapan Intarajang**

**Director**

Global Power Synergy Public Company Limited

### Shareholders and Investors



GPSC should consider sustainability issues on the economic, social and environmental dimensions by incorporating sustainability management approach into the company's vision and mission to drive development that aligns with changes in the utilities and infrastructure industry. GPSC's current business approach which is generating income by operating the power plant business and seeking new business opportunities enables the company to meet stakeholders' expectation on sustainability issues.



**Mr. Weerasak Chaengkarn**

**Director**

Map Ta Phut Group Industrial Estate Office

### Government Agencies and Related Organizations



GPSC business provides energy security to the Eastern Economic Corridor region, which is a good thing and also supports the local economy. However, GPSC should consider the environmental impacts on the community by controlling air, water and waste pollution below the legal limits in order to operate a sustainable business alongside the community.



**Mr. Pruet Kampee**

**Division Manager, Energy Disruptive Innovation**

Global Power Synergy Public Company Limited

### Employees



The employees expect GPSC to consistently pursue sustainable issues in order to achieve continuous growth and gain acceptance of stakeholders. The key issue for employees is human resource development so that employees are knowledgeable, capable, and adaptable to GPSC's business development or any business changes which seem to occur more rapidly.





## Business Partners, Suppliers, Contractors



“ The issue that GPSC should prioritize is fair and transparent business operations with employee and contractor safety concerns as well as mitigating social and environmental impacts. In addition, GPSC should organize activities to support and develop suppliers to sustainably grow alongside the company. ”

**Mr. Napatsagorn Mathaprechakun**  
Service Sales Engineer : Motor and Generator  
ABB (Thailand) Company Limited

## Customers

“ GPSC has operated its business with sustainability considerations on all for three dimensions, economic, social and environmental, at a reasonably good level. GPSC should strike a balance among the three dimensions to ensure business sustainability by considering the future directions of the country, public policies, technology development and innovation on environmental impact mitigation, as well as developing employee capabilities in parallel with integrity and ethics. ”



**Mr. Paranai Waitayasewee**

**Vice President**  
Production Planning and Sales & Marketing  
EO-Based Performance  
TOC Glycol Company Limited



**Mr. Chakropong Cholsaranon**  
President of Map Ta Phu Community  
Rayong Province

## Community and Society

“ In the past, GPSC has implemented CSR activities as evidenced by based on community needs. GPSC should focus on concrete community development and truly address community needs to create mutual sustainability. ”

**Mr. Phataraphol Suwannawut**  
President of Pan Din Thai Community  
Rayong Province

“ The power and utilities business is vital to the country's energy security. However, the business must improve the production technology and strive toward clean energy to reduce impacts on the community and the environment. ”





## MATERIALITY ASSESSMENT

(102-21, 102-32, 102-46, 102-47)

GPSC considers issues that matter to its business operation both the organization and associations with the expectation of all stakeholders groups. These issues are used to assess important sustainability issues of GPSC by adopting Materiality Assessment of Global Reporting Initiative (GRI) to prioritize the issues which consist of the following steps:



Process	Practice Guidelines
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### STEP 1: IDENTIFICATION

Identification of relevant issues that impact GPSC's sustainability in the aspects of environment, society, and economy by considering business strategies, risks and challenges, expectations, GRI, global business and industrial trends and interests of internal and external stakeholders, as well as grouping related issues into aspects in order to properly manage them correspondingly to all stakeholders.

- The Sustainable Development Guidelines of PTT Group and GPSC
- International Practice Guidelines, such as GRI<sup>1</sup>, DJSI<sup>2</sup>, SDGs<sup>3</sup>, WBCSD<sup>4</sup>, CDP<sup>5</sup>, ISO 26000<sup>6</sup>, UNGC<sup>7</sup>, and others
- Listening of opinions from internal and external stakeholders.
- Annual survey of employee's opinions
- Community satisfaction survey
- Customer satisfaction survey
- Corporate image developing process
- Grievance receiving through different channels
- Corporate risk assessment
- Workshops with the company's executives

### STEP 2: PRIORITIZATION

Assessment of the importance of material aspects by considering two impact dimensions which are the impact on GPSC and stakeholders. Each aspect is classified into three levels of importance; high, medium and low. This report only covers and focuses on the aspects with material levels of high and medium.

- Workshops with representatives from all agencies that are directly relevant to each stakeholder group.

### STEP 3: VALIDATION

Reporting the summary of material aspects which are important to GPSC by collecting the result of material assessment that is relevant to GRI Aspects. The summary is reported to responsible parties to evaluate material aspects and their boundary to ensure completeness of the relevant issues relating to the company. In addition, GPSC reports the summary of material aspects to GPSC Management Committee for validation and approval of material aspects in GPSC Sustainability Report.

- Subgroup meeting of each agency to review the level of importance analyzed from external stakeholders.
- The company's executives participate in the meeting and review material issues of the company.

Process	Practice Guidelines
<b>STEP 4: REVIEW</b>	
Consistently reviewing and improving the report by conducting external verification audit to confirm that the identification material aspects of the company reflect stakeholder interests and expectations, as well as developing stakeholder engagement process for a better representation of stakeholder interests.	<ul style="list-style-type: none"> <li>• External assurance of sustainability reporting</li> <li>• Grievance receiving through different channels</li> <li>• Subgroup meeting of each sustainability agency to review the report on sustainable development performance</li> </ul>

**Remark:**

- <sup>1</sup> Global Reporting Initiative (GRI) is the organization that initiates the international report which is used as a prototype of preparing a report of sustainable development.
- <sup>2</sup> Dow Jones Sustainability Indices (DJSI) is a family of capital indices that assesses the effectiveness of business operations according to the guideline of sustainable development of the world's leading companies which the worldwide funds use it as the investment criteria.
- <sup>3</sup> Sustainable Development Goals (SDGs) is a set of sustainable development goals under the United Nations (UN), comprising 17 main objectives to be achieved and implemented by 2030.
- <sup>4</sup> World Business Council for Sustainable Development (WBCSD) is the committee of business persons operating business for the world's environment. This committee comprises business persons from the groups of more than 120 international leading companies that are officially accredited in the "Earth Summit" in 1992.
- <sup>5</sup> Carbon Disclosure Project (CDP) is the global institution highly recognized by its environmental management.
- <sup>6</sup> ISO 26000 is an international standard for social responsibility.
- <sup>7</sup> UN Global Compact (UNGC) is a United Nations initiative that incorporates into business policies and strategies so companies can uphold to the accepted international standards in the area of human rights, labor, environment and anti-corruption.

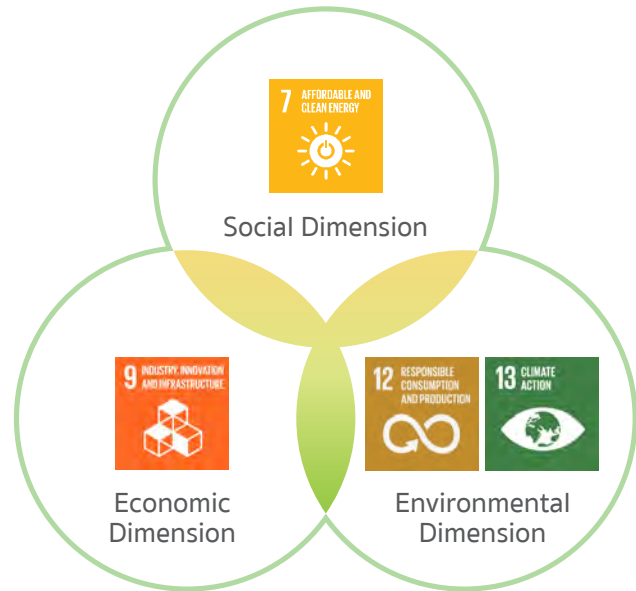
## Materiality Matrix 2017





## INTEGRATING SDGS INTO BUSINESS

GPSC determines to drive sustainable targets to the highest efficiency by operating its business to be in line with four of Sustainable Development Goals (SDGs), which are goal number 7 (affordable and clean energy), goal number 9 (industry innovation and infrastructure), goal number 12 (responsible consumption and production), goal number 13 (climate action). GPSC integrates these goals into business operations to ensure that all parties in the organization are ready to achieve the international sustainable development along with the company's business growth and stakeholders' utmost benefits.





## Material Sustainability Issues in 2017

GPSC Material Issues	Global Reporting Initiative (GRI) Correspondence	Key Stakeholder and Impact Boundary	
		Within Organization	Outside Organization
<b>GOOD CORPORATE GOVERNANCE</b>	<ul style="list-style-type: none"> <li>• Management Approach (103-1, 103-2, 103-3)</li> <li>• Governance (102-18, 102-19, 102-20, 102-21, 102-22, 102-27, 102-28)</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Investors and Shareholders</li> <li>• Government Agencies and Related Functions</li> <li>• Partners/Suppliers and Contractors</li> <li>• Customers</li> </ul>
<b>BUSINESS ETHICS AND INTEGRITY</b>	<ul style="list-style-type: none"> <li>• Management Approach (103-1, 103-2, 103-3)</li> <li>• Ethics and Integrity (102-16, 102-17, 102-25)</li> <li>• Economic Performance (201-4)</li> <li>• Anti-corruption (205-2)</li> <li>• Anti-competitive behavior (206-1)</li> <li>• Public Policy (415-1)</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Investors and Shareholders</li> <li>• Government Agencies and Related Functions</li> <li>• Partners/ Suppliers and Contractors</li> <li>• Customers</li> </ul>
<b>HUMAN RIGHTS IN OUR BUSINESS</b>	<ul style="list-style-type: none"> <li>• Management Approach (103-1, 103-2, 103-3)</li> <li>• Human Rights Assessment (412-2)</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Investors and Shareholders</li> <li>• Government Agencies and Related Functions</li> <li>• Partners/ Suppliers and Contractors</li> <li>• Customers</li> <li>• Community and Society</li> </ul>
<b>RISK MANAGEMENT</b>	<ul style="list-style-type: none"> <li>• Management Approach (103-1, 103-2, 103-3)</li> <li>• Strategy (102-15)</li> <li>• Economic Performance (201-2)</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Investors and Shareholders</li> <li>• Customers</li> <li>• Community and Society</li> </ul>
<b>INNOVATION FOR SUSTAINABLE POWER</b>	<ul style="list-style-type: none"> <li>• Management Approach (103-1, 103-2, 103-3)</li> <li>• Research and Development (DMA (EUSD))</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Investors and Shareholders</li> <li>• Customers</li> <li>• Partners/ Suppliers and Contractors</li> </ul>
<b>OPERATIONAL EXCELLENCE</b>	<ul style="list-style-type: none"> <li>• Management Approach (103-1, 103-2, 103-3)</li> <li>• System Efficiency (EU-1, EU-2, EU-11)</li> <li>• Demand Side Management (EU-10)</li> <li>• Availability and Reliability (DMA (EUSD), EU-28, EU-29, EU-30)</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Investors and Shareholders</li> <li>• Government Agencies and Related Functions</li> <li>• Partners/ Suppliers and Contractors</li> <li>• Customers</li> <li>• Community and Society</li> </ul>
<b>VALUABLE EMPLOYEES</b>	<ul style="list-style-type: none"> <li>• Management Approach (103-1, 103-2, 103-3)</li> <li>• Market Presence (202-1)</li> <li>• Employment (401-1, 401-2, 401-3, EU-15)</li> <li>• Labor and Management Approach (402-1)</li> <li>• Training and Education (404-2, 404-3)</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	

GPSC Material Issues	Global Reporting Initiative (GRI) Correspondence	Key Stakeholder and Impact Boundary	
		Within Organization	Outside Organization
<b>OCCUPATIONAL HEALTH AND SAFETY</b>	<ul style="list-style-type: none"> <li>• Management Approach (103-1, 103-2, 103-3)</li> <li>• Occupational Health and Safety (403-1, 403-2, EU-25)</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Government Agencies and Related Functions</li> <li>• Partners/ Suppliers and Contractors</li> <li>• Community and Society</li> </ul>
<b>SUPPLY CHAIN MANAGEMENT</b>	<ul style="list-style-type: none"> <li>• Management Approach (103-1, 103-2, 103-3)</li> <li>• Health and Safety for Contractor and Subcontractor Employees (EU-17, EU-18)</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Partners/ Suppliers and Contractors</li> <li>• Community and Society</li> </ul>
<b>CUSTOMER RELATIONSHIP MANAGEMENT</b>	<ul style="list-style-type: none"> <li>• Management Approach (103-1, 103-2, 103-3)</li> <li>• Stakeholder Engagement (102-43)</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Customers</li> <li>• Community and Society</li> </ul>
<b>SUSTAINABLE COMMUNITY ENGAGEMENT</b>	<ul style="list-style-type: none"> <li>• Management Approach (103-1, 103-2, 103-3)</li> <li>• Economic Performance (201-1)</li> <li>• Indirect Economic Impacts (203-1, 203-2)</li> <li>• Local Communities (413-1)</li> <li>• Socioeconomic Compliance (419-1)</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Community and Society</li> </ul>
<b>CLIMATE CHANGE RISKS AND ADAPTATIONS</b>	<ul style="list-style-type: none"> <li>• Management Approach (103-1, 103-2, 103-3)</li> <li>• Emissions (305-1, 305-2, 305-3, 305-4, 305-5)</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Government Agencies and Related Functions</li> <li>• Partners/ Suppliers and Contractors</li> <li>• Community and Society</li> </ul>
<b>ENVIRONMENTAL MANAGEMENT</b>	<ul style="list-style-type: none"> <li>• Management Approach (103-1, 103-2, 103-3)</li> <li>• Energy (302-1, 302-3)</li> <li>• Water (303-1, 303-2, 303-3)</li> <li>• Emissions (305-7)</li> <li>• Effluents and Waste (306-1, 306-2)</li> <li>• Environmental Compliance (307-1)</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Government Agencies and Related Functions</li> <li>• Community and Society</li> </ul>
<b>BIODIVERSITY PRESERVATION</b>	<ul style="list-style-type: none"> <li>• Management Approach (103-1, 103-2, 103-3)</li> <li>• Biodiversity (304-2)</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Government Agencies and Related Functions</li> <li>• Community and Society</li> </ul>



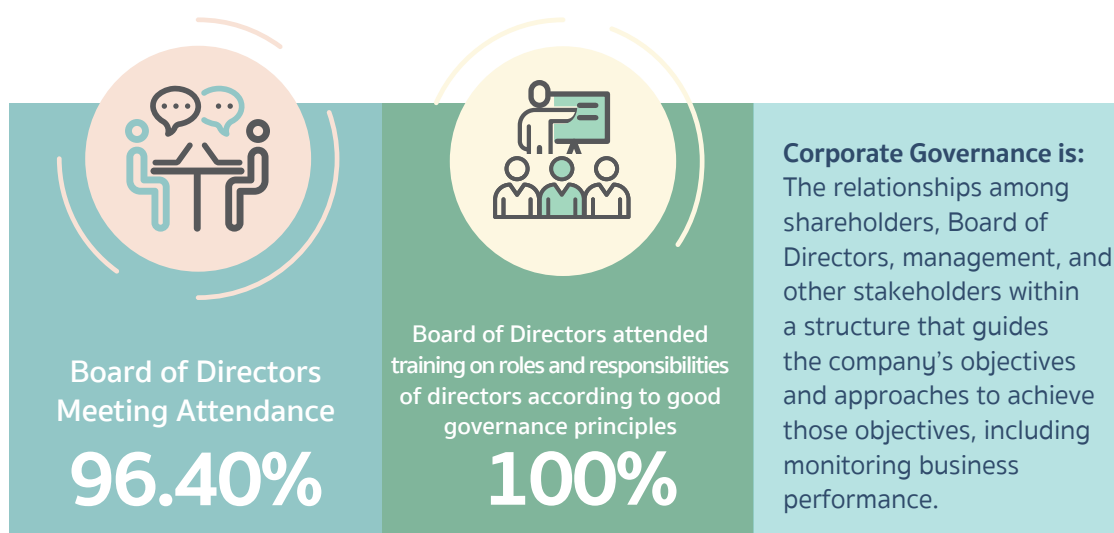
# SUSTAINABLE GROWTH







## GOOD CORPORATE GOVERNANCE



The Board of Directors serves as a key mechanism to drive and oversee the organization to achieve the overall business objectives. Therefore, to facilitate the optimal outcome of this mechanism that leads to the enhancement of sustainable development and competitiveness. GPSC places great emphasis on

recruiting and nominating the board of directors, defining structures, roles and responsibilities and assessing the board's performance. These must be carried out with integrity, equality and for the highest benefits of all stakeholders.

### Commitment and Roadmap to Success

According to the Securities and Exchange Commission (SEC)'s regulations pertaining to the business operation and GPSC's credibility, GPSC ensures full compliance with such regulations by implementing the following policy and approaches on corporate governance:

- Corporate Governance Policy (Additional information is available at <http://www.gpscgroup.com/en/cg/policy>)
- Sub-committees covering all dimensions of corporate governance
- Sustainability governance structure
- Defining a clear scope, roles and responsibilities of the board of directors
- Analyzing the mix of skills and expertise of the Board of Directors and develop the board's capabilities

## Performance

GPSC's corporate governance structure comprises twelve directors, four of which are independent directors, who have been selected and nominated with a fair and transparent process that complies with all relevant laws. Based on the company's belief that future success requires diverse perspectives and expertise, GPSC's board nomination also takes into consideration diversity in gender, age and expertise.

GPSC defines a clear scope, roles and responsibilities of the Board of Directors by focusing on value creation for stakeholders and related persons while conducting business with integrity, transparency and accountability. (Additional information is available at <http://www.gpscgroup.com/en/about/directors>) Furthermore, to ensure systematic and comprehensive corporate governance, GPSC has set up four sub-committees, namely the Audit Committee, the Nomination and Remuneration Committee, the Corporate Governance Committee and the Risk Management Committee. (Additional information is available at <http://www.gpscgroup.com/en/about/organization>) These sub-committees enhance GPSC's management and governance capabilities to oversee all business functions in a thorough and effective manner.

GPSC places great emphasis on the board's suitability and capabilities in a variety of aspects related to the company's business management. Therefore, the company creates the board skills matrix for identifying individuals with valuable skills, expertise and work experiences that suited with qualification of GPSC's board which will lead to optimal corporate governance. Moreover, the Board of Directors also participates in regular trainings, such as courses for directors by the Thai Institute of Directors (IOD).



On September 11, 2017 GPSC hosted the PTT Group CG Day 2017 under the theme of "CG in DNA : Together We can"

" GPSC gives priority on director recruitment which focuses on diversity of directors' qualifications and expertise according to the skill matrix. The higher number of female directors in GPSC's board of directors represents company's commitment to gender equality which delivers the message that every employee with determination, commitment and constant self-improvement can thrive in this organization. A direct benefit of having more female directors is that by nature, women are careful and detail-oriented which facilitate the board's role as a gatekeeper."

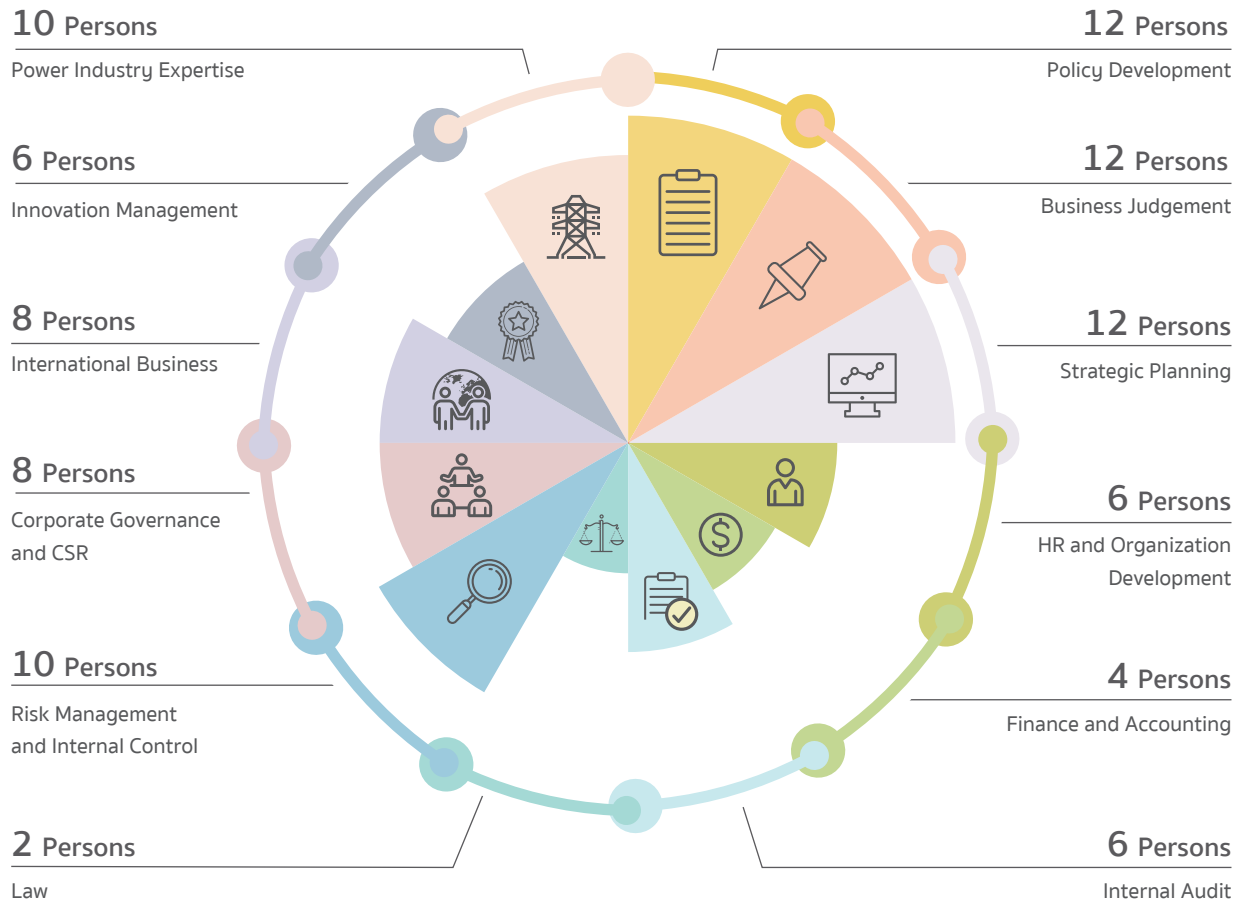


**Ms. Peangpanor Boonklum**

Director / Member of the Corporate Governance Committee  
Global Power Synergy Public Company Limited



## Board Skill Matrix



GPSC organizes 12 board meetings per year. In 2017, Directors attended Board of Directors meeting 96.40% with the meeting objectives of monitoring various aspects of the company's operations, including setting the business directions to achieve sustainability and the company's goals.

GPSC's management approach gives priority on continuous improvement in environmental and social responsibility management according to sustainability

practices and policy. The company sets up the Corporate Sustainability Management Department which directly reports to the President and Chief Executive Officer. The Department is responsible for overseeing and monitoring the implementation of the Sustainability Policy for both the support and operation divisions according to the organizational structure which will lead to effective and systematic sustainability management.





## Awards and Recognitions

### GOOD CORPORATE GOVERNANCE DIMENSION COMPANY WITH EXCELLENT CG SCORING

GPSC has been surveyed in the Corporate Governance Report (CGR) of Thai Listed Companies 2017 by the Thai Institute of Directors (IOD) with the resulting CGR scores at the "Excellent" level for the second consecutive year.



### SUSTAINABILITY DIMENSION

#### TOP 100 LISTED COMPANIES WITH OUTSTANDING SUSTAINABILITY PERFORMANCE (ESG 2017)

GPSC has been selected as one of the listed companies on the ESG100 Award by Thaipat Institute for the outstanding performance in Environmental, Social and Governance aspects for the second consecutive year. The award was surveyed by collecting sustainability data of 656 companies listed on the Stock Exchange of Thailand.



### THAILAND SUSTAINABILITY INVESTMENT 2017

Thailand Sustainability Investment (THSI) is a group of stocks with outstanding Environmental, Social and Governance (ESG) performance. The selection criteria were created by the Stock Exchange of Thailand to align with national and global standards with a panel of judges that include all related organizations in the capital market. 2017 marked the first year that GPSC participated in the assessment and has been listed in the Thailand Sustainability Investment for companies on SET with THB 30–100 billion of market capitalization. This result from sustainability assessment reflects that GPSC integrates sustainability in business and incorporates ESG considerations, which have always been the company's commitment.



Key Performance Indicators	2017 Target	2017 Performance	2018 Target
Board Performance Evaluation Level	Excellent Level	Excellent Level	Excellent Level



## BUSINESS ETHICS AND INTEGRITY

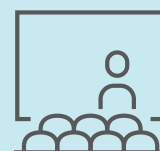


### GPSC's Code of Conduct

A set of rules that defines the scope of behavioral standards and proper conduct that employees shall observe as a norm within the bound of ethics, integrity and honest in creativity, systematic and equal and fair manner, which create good reputation and drive for company's sustainable development.



GPSC received no complaints related to business and Integrity.



Portion of employees signing an acknowledgement on GPSC's code of conduct

**100%**

GPSC believes that strong corporate ethics does not only reduce risks of business damages but also increase competitiveness by creating utmost benefit to all groups of stakeholders. Therefore, GPSC is

committed to conducting business with integrity in economic, social and environmental dimensions in order to fulfil the company's mission and goals.

### Commitment and Roadmap to Success

Unethical business practices have large and wide-ranging impacts on stakeholders. Therefore, business ethics ranks high on the government's agenda with a consequence of strict laws being promulgated to maintain transparency and investor confidence in business operations. For these reasons, GPSC requires all levels of employees and operators under the company's supervision to uphold and comply with the Corporate Governance & Code of Conduct Manual. In addition to establishing the following implementation approaches on corporate ethics:

- Anti-corruption Policy (Additional information is available at: <http://www.gpscgroup.com/en/cg/policy>)
- Corporate Governance and Code of Conduct Manual (Additional information is available at: <http://www.gpscgroup.com/en/cg/manual>)
- Code of conduct on supporting political parties
- Whistleblowing system
- Whistleblowing and Whistleblower Protection Policy
- Code of conduct and practice on accepting and giving gifts, assets, or any other benefits (Additional information is available at: <http://www.gpscgroup.com/en/cg/policy>)
- Code of conduct on private benefits and conflicts of interest
- GPSC ethical business culture

## Performance

GPSC is committed to conducting business on the basis of transparency, fairness, integrity and accountability with the implementation covering variety dimensions, such as code of conduct on accepting and giving gifts, assets or any other benefits; code of conduct on supporting political parties; whistleblowing channels along with the company's anti-corruption policy. These policies and codes of conduct have been communicated to all directors, executives and employees for acknowledgement, comprehension and compliance to reduce conflicts of interest and prevent potential risks that may inflict damages on the business.

"GPSC established the anti-corruption measures through the process of risk assessment, policy announcement and communication with directors, executives, employees, subsidiaries and suppliers, to ensure that the company has systematic, transparent, accountable and utmost benefit anti-corruption practices. Such practices are critical for preventing risks that may cause damages to the company and supporting the company to operate business based on Corporate Governance."



**Ms. Dutdao Phuttasatta**

Vice President, Corporate Affairs and Legal  
Global Power Synergy Public Company Limited

**"Corruption"** is defined as both directly and indirectly bribery.

Method	Form	Recipient	Purpose
<ul style="list-style-type: none"> <li>Giving, including an offer/ promise to give</li> <li>Accepting or soliciting</li> </ul>	<p><b>"Money, assets, or any other benefits"</b></p> <p>Examples of forms of corruption: political support, charitable donation, sponsorship, gift, entertainment, and other expenses.</p>	<ul style="list-style-type: none"> <li>Government officials or</li> <li>Private or</li> <li>Related persons</li> </ul>	<ul style="list-style-type: none"> <li>An act or</li> <li>Omission of an act in violation of the lawful duty to gain or maintain business or other benefits that are inappropriate.</li> </ul>

Exceptions are cases in which it is permissible by laws, regulations, announcements, rules, local cultural norms, and business etiquette.

GPSC sets guidelines on accepting-giving gifts, entertainment, or any forms of benefits (No Gift Policy) that align with the Anti-corruption Policy to prevent the company's personnel from taking-offering bribes or other benefits to GPSC employees and outside persons, especially government officials. For gifts that have been accepted but are inconvenient to return, GPSC will collect them for donation or other appropriate public benefits which will set a high standard for transparent and effective operations.

Moreover, to promote good governance on private benefits and conflicts of interest, in 2017, GPSC's employees with potential conflicts of interest between themselves or their family members and the company

filed a report to disclose the conflicts of interest. The company's employees are required to report conflicts of interest at least once a year and whenever any changes arise, such as hiring a family member to work for the company or a future joint venture company. The information will be used to determine prevention measures to avoid any potential conflicts of interest.



In 2017, GPSC improved the whistleblowing process along with responsible business functions by announcing the Whistleblowing and Whistleblower Protection Policy and establishing opening channels to report complaints such as the company's website, telephone, fax, and mails. GPSC also has a process to manage reported complaints with specified timeframe

and clear responsible units to facilitate fair and timely responses to complaints. GPSC establishes confidential process to protect personal information of whistleblowers by concealing their name and personal information from unrelated persons. However, in 2017, there was no reported case related to violation of company's policy moral and ethical practices.



## Participation in Thailand's Private Sector Collective Action Coalition Against Corruption (CAC)

GPSC has strong commitment to join the Collective Action of the Private Sector Against Corruption (CAC). At the current stage, GPSC has already submitted a request for certification and been awaiting for the CAC Council decision. In addition, GPSC has specified the roles and responsibilities of the board of directors, the sub-committees and executives as well as requiring employees to strictly comply with the anti-corruption measures to prevent any acts that may lead to corruption risk both directly and indirectly, such as political support, charitable donation, sponsorship, gifts, entertainment and other expenses.



Key Performance Indicators	2017 Target	2017 Performance	2018 Target
Employee training on GPSC's code of conduct	At least 1 time per year	Completed as the target	At least 1 time per year
Percentage of employees signing an acknowledgement on GPSC's code of conduct	100%	100%	100%





## HUMAN RIGHTS IN OUR BUSINESS



Communicated and published Human Rights Policy in 2017



Management approach on human rights covers 6 related parties



GPSC received no complaints related to human rights violation

Respect for human rights, both in thought and action, are fundamental rights and freedoms that every human deserves. GPSC conducts business with adherence to human rights principles and universally

accepted policies, as well as controlling, monitoring and preventing any potential human rights violations with the company's stakeholders throughout the business value chain.

### Commitment and Roadmap to Success

GPSC is well aware that a strong commitment on human rights with equal and fair treatment of both internal and external stakeholders will contribute to smooth and sustainable business operations. Therefore, GPSC is committed to promoting basic human rights of every employee by respecting laws, cultures, customs, traditions and beliefs without discrimination toward suppliers, customers, contractors, communities and societies to prevent any form of human rights violations and mitigate any potential risks of human rights violations from business operations.

GPSC sets the following policy and management framework on human rights to ensure that the business is conducted in accordance with ethical and human rights principles as prescribed by international organizations while also striking a balance in fulfilling the company's duty to stakeholders.

- Human Rights Policy
- Due Diligence Process on Human Rights Grievances
- Human Rights Management System

Remark: Additional information is available at [www.gpscgroup.com/en/sustainability/humanrights](http://www.gpscgroup.com/en/sustainability/humanrights)

## Performance

GPSC formally announced the Human Rights Policy in 2017 which has taken effect for the entire organization in 2017. The policy focuses on equal treatment of all employees and stakeholders without

discrimination on the basis of physical appearance, mentality, race, nationality, religion, gender, language, age, skin colour and education, including respect and tolerance of different beliefs and social status.

### Human Rights Policy Communication

GPSC communicated Human Rights Policy to all executives and employees for awareness and understanding through E-Mail and Information Panel in QSHE & KM Day 2017. The information that has been communicated includes GPSC's management

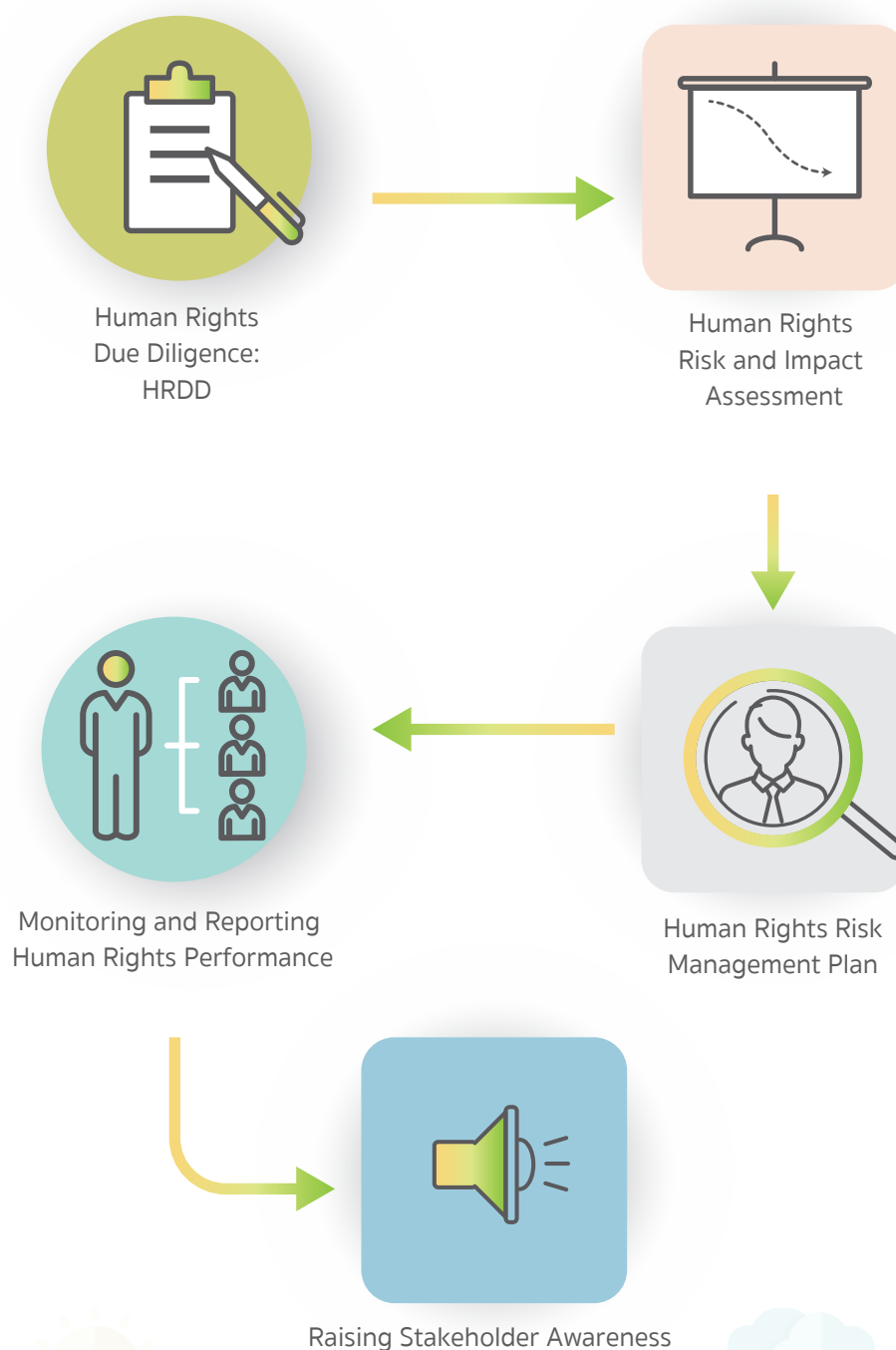
approach on Human Rights that covers on six related parties which are employee (labor rights), community and society (community rights), supply chain, security and safety, environment and customer (customer rights).



Knowledge Communication on the Management Approach on Human Rights Policy for Employees

In addition to the Human Rights Policy, GPSC uses human rights management system of PTT Group as an approach to manage human rights issues within the company. This management approach will enable

the company to screen and control human rights risk from affecting business operations throughout the supply chain.



Moreover, the company has variety channels to receive opinions and suggestions from all groups of stakeholders (e.g. employee, supplier, customer, and

community and society) via GPSC's website, telephone, fax and e-mail. In 2017, there was no complaint related to human rights violations.



## RISK MANAGEMENT



Business uncertainties engender challenging and unavoidable risks for the business. Therefore, GPSC has adopted systematic Enterprise Risk Management that aligns with the company's business strategies

to prepare and transform challenging risks into opportunities to become the global leading innovative and sustainable power company.

### Commitment and Roadmap to Success

The power and utilities industry faces both technological and management complexity as well as the challenge of meeting public expectation. Therefore, effective risk management aligned with international standards is the key to preventing potential future losses and building confidence with stakeholders. GPSC has a proactive risk management plan with an emphasis on on-going risk assessment and analysis covering the entire organization as well as potential investment projects. GPSC has established policy and approaches for sustainable risk management practices as follows:

- Risk Management Policy
- Coordinated risk management strategies throughout the organization with explicit risk appetite and risk tolerance levels
- Risk management structure and framework which cover both corporate and functional levels
- Corporate risk management process
- Emerging risk management
- Crisis preparation and business continuity plan for every business unit
- Risk management system aligned with International standards (COSO ERM Framework and ISO31000:2009)
- Risk Management Committee at both the board level and the management level representing every business unit and establishment with a clear scope of risk management based on the Risk Management Committee Charter
- Risk analysis and assessment for the overall organization that includes sustainability issues
- Risk correlation analysis
- Risk management culture with measures

Remark: Additional information is available at [www.gpscgroup.com/en/sustainability/economic](http://www.gpscgroup.com/en/sustainability/economic)





## Performance

### Environmental, Social and Governance Risks (ESG Risks)

GPSC proactively acts to protect against potential damages from future incidents or overall corporate risks by analysing and assessing them at corporate and functional level, as well as establishing risk prevention measures with close monitoring.

Risk assessment at every level will take into account impacts on finance, process, reputation, compliance, customer and employee to reflect the expectations of every group of stakeholders. Furthermore, whenever relevant, GPSC makes every effort to conduct additional risk analysis on Environmental, Social and Governance (ESG)

aspects, such as risks from a power plant construction project with potential environmental and community impacts.

In 2017, GPSC started to assess corruption risk to prepare for the certification process of Thailand's Private Sector Collective Action Coalition against Corruption (CAC) by requiring all business units that may be exposed to such risk to conduct risk assessments and create consistent risk management measures.

### Emerging Risks

Emerging risks arise from global trend changes which significantly impact the company's value chain. GPSC recognizes potential future impacts from emerging risks and, therefore, have conducted

emerging risk assessments and created measures to accommodate changes, particularly for key risk issues from technological disruption and climate change.





## Risk from Technological Disruption

### Risk to GPSC:

In present, every company in industry must not distribute electricity and steam immediately upon production; nor can customers keep a reserve for on-demand usage. However, with technology

advancement, future energy storage equipment and systems will have higher efficiency and storage capacity at lower costs which may affect the company's distribution system.

### Management Approach:

- Collaborate in research and development of new types of Lithium-ion batteries with higher efficiency and lower costs
- Develop businesses related to production and usage of energy storage batteries
- Promote learning on energy storage technology for employees to accommodate new businesses in the future

## Risk from Climate Change

### Risk to GPSC:

Natural disasters caused by climate change have direct impacts on the company's operations, for instance, precipitation change or solar intensity change causing production volume from solar power plants

deviates from expectation and affects electricity sales revenue. Moreover, the company also faces a future risk of the government issuing and enforcing a policy to control greenhouse gas emissions.

### Management Approach:

- Identify investment opportunities in renewable energy to reduce greenhouse gas emissions
- Establish a greenhouse gas emission reduction plan
- Participate in Thailand Voluntary Emission Reduction Program (T-VER)
- Implement energy conservation projects by optimizing resource utilization

## Creating Risk Management Culture

Earnest cooperation of employees from all levels of the organization is vital in creating successful and sustainable risk management. GPSC is committed to creating a risk culture within the organization by incorporating risk management as part of key performance indicators for all executives and employees as well as organizing on-going risk management training for employees and related persons. In 2017, GPSC has been developing an online system to deliver risk management content and

basic tests which is expected to be rolled out in 2018. Moreover, to enhance the effectiveness in assessing functional risks, GPSC has designated a risk agent for each function whose scope of responsibilities, modified in 2017, will follow the sub-division line categorized by related risk clusters. This modification makes the segregation of risk management duties more pronounced and comprehensive for the entire organizational structure.

"Every division in the company has a designated risk agent and has been conducted a functional risk assessment, as well as created a risk management plan to ensure most risks stay within the bound of the tolerance level. Risk management is an important issue for executives and has been incorporated into common KPI of all employees."



**Mr. Sararag Dattibongs**

Division Manager, Risk Management  
and Internal Control

Global Power Synergy Public Company Limited

Key Performance Indicators	2017 Target	2017 Performance	2018 Target
Functional Risk Management	Identify functional risks for all risk areas	100% identification of functional risks from all risk areas	Monitor and review functional risks for all risk areas
Risk Training	All risk agents receive risk training.	All risk agents have received risk training.	All new employees and main contractors receive basic risk management training.

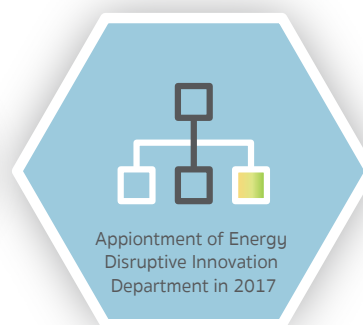


# TECHNOVATION





## INNOVATION FOR SUSTAINABLE POWER



GPSC is committed to supporting technology research and development that align with the company's business strategies, such as energy storage technology and internet of things (IoT) technology.

This will assist GPSC to achieve the vision of becoming the global leading innovative and sustainable power company.

### Commitment and Roadmap to Success

Rapid technological changes in the power and utilities industry directly impact the company on its competitiveness and growth opportunities such as production costs, business directions and new investment opportunities. GPSC, therefore, places importance on technology research by providing knowledge on innovation to employees, seeking for partners in innovation development and commercializing research to business opportunities.

GPSC has set the following policy and management approach on innovation to serve as a framework for sustainable and optimal innovation development.

- Technology Research and Development Policy
- Setting return targets for investments in research and innovation and continuous monitoring of investment budgets
- Strategies to manage and support research and innovation
- Business alliance to promote research and development on innovation that aligns with the company's businesses

Remark: Additional information is available at [www.gpscgroup.com/en/sustainability/economic](http://www.gpscgroup.com/en/sustainability/economic)



## Performance

One of GPSC's approaches for innovation development is to form ongoing alliances at both domestic and international levels. On August 15, 2017, the company entered into a strategic partnership agreement with Marubeni Corporation, a leading Japanese company with expertise on power and industrial plants, to collaborate on starting and expanding the power digital solution business such as digitalizing the control of production system to enhance efficiency and stability.



"We are in the middle of a major technological transition. GPSC is well-prepared to step into this new era whereby a partnership with Marubeni Corporation will prove to be a crucial move."



**Mr. Surong Bulakul**

Chairman of the Board  
Global Power Synergy Public Company Limited

"This constitutes GPSC's significant progress toward becoming a leader in Lithium-ion battery production technology to store energy from power generation which is a part of our business growth strategies. This new innovation will expand the range of possible power production methods which will benefit the country and power consumers as well as promoting the company's sustainability in the energy business."



**Mr. Toemchai Bunnag**

President and Chief Executive Officer  
Global Power Synergy Public Company Limited

Furthermore, GPSC has also partnered with 24M Technologies, Inc. to commercialize Lithium-ion battery technology for production and distribution in ASEAN as well as business expansion to developing a Lithium-ion battery factory. Such innovation is considered an advance technology with potential to facilitate growth for the power business in the future. GPSC plans to apply this technology to real settings in the area of Eastern Economic Corridor.



GPSC realizes the importance of providing knowledge on innovation for employees. In 2017, the company sponsored employees to learn about innovation on energy storage technology with 24M Technologies, Inc. in the United States for three months. Throughout the training period, employees had acquired knowledge on energy storage development to support renewable energy which includes Lithium-ion battery production and production plant design. Moreover, to enhance the efficiency of innovation management, GPSC set up the Energy Disruptive Innovation Department in 2017 which is responsible for studying, seeking and facilitating opportunities in new technology or innovation to develop company's businesses and products.



"GPSC has increased its knowledge base and employees' with expertise on Lithium-ion battery, enabling the company to develop new products and businesses to facilitate continuous growth and enhance competitiveness in the future."

## Expanding Power and Utilities Business with Innovation

### Energy Storage System that Supports 24-hour Solar Rooftop Power Production

In 2017, GPSC piloted the installation of rooftop solar at two PTT gas stations. The company invested in the solar roof installation and imported solar panels that qualified international standards. Each gas station has a production capacity of 59.4 kilowatts. In the future, the company plans to incorporate energy storage system with solar rooftop panel in order to manage electricity from solar energy efficiently.



**Mr. Pruet Kampee**

Division Manager, Energy Disruptive Innovation  
Global Power Synergy Public Company Limited  
Participant of the innovation education project with 24M Technologies, Inc.

Key Performance Indicators	2017 Target	2017 Performance	2018 Target
Responsible Parties for Innovation Development	To appoint Energy Disruptive Innovation Department	Appointment of Energy Disruptive Innovation Department	To appoint supporting function under Energy Disruptive Innovation Department for enhancing efficiency in innovation development



## OPERATIONAL EXCELLENCE



Continual development in innovative technology to deliver high quality and environmental friendly products to customers is the approach that GPSC has always committed and followed. GPSC focuses on internal management to enhance the efficiency and reliability

of production and distribution management which are vital to maintaining the company's competitiveness and achieving the business growth target in the future. In addition, achieving operational excellence at GPSC will also lead to energy security for the nation.

### Commitment and Roadmap to Success

The key element of the power and utilities business is efficiency and reliability in the production and distribution management as any mistakes in such process can lead to serious consequences for the customers' businesses. GPSC establishes an audit, assessment and monitoring system to support the production and distribution system to ensure efficiency and reliability in every step of the process from project initiation and design, construction management and power plant operation management. GPSC has the following management approaches to support production efficiency and reliability:

- Management strategies for efficient and reliable power production
- Lowering production losses focuseing on efficiency improvement and maintaining machinery at prime conditions with the Total Productive Maintenance (TPM) system
- Real-time optimization system
- Highly efficient and reliable distribution system
- Development and application of the Operational Excellence Management System (OEMS)
- Internal management system to monitor operations in both normal and crisis situations
- Internationally accredited management systems such as the ISO 9001:14001, the OHSAS/TIS 18001 and the IMS
- Increasing skills for machine operators with the Operator Training Simulator (OTS) program
- Power Management Controller (PMC)

*Remark: Additional information is available at [www.gpscgroup.com/en/sustainability/environmental](http://www.gpscgroup.com/en/sustainability/environmental)*

## Performance

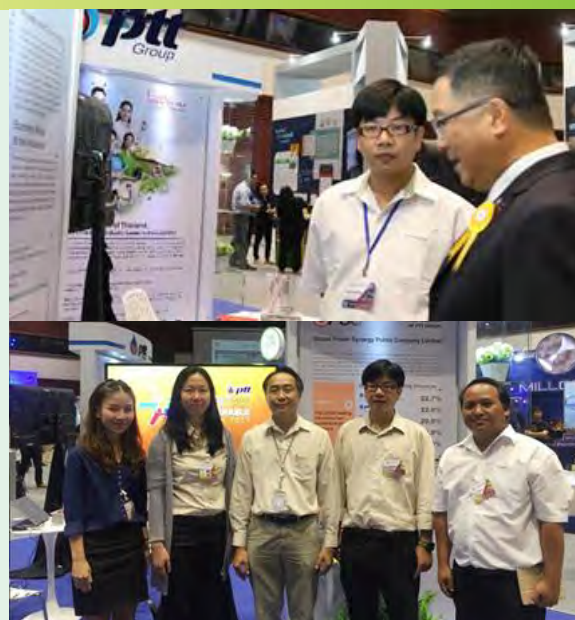
GPSC has maintained the standard of excellence in power reliability and availability by achieving the targets in power reliability and availability for three consecutive years. In 2017, GPSC power distribution met the delivery schedule for every customer without any unplanned disruption. Such success results from implementing the management strategies to

ensure continual efficiency and reliability of the power production system, such as synchronizing production with customer demand, enhancing efficiency of the production process and skill building for machine operating employees.

### Synchronizing Production with Customer Demand

#### REAL-TIME OPTIMIZATION SYSTEM

GPSC invented the Real-time Optimization System to respond and adapt with changes in customer demand and unexpected events. The system enables GPSC to automatically meet customer demand for energy production with hourly updated information resulting in accurate calculation of production targets and higher reliability in product delivery both in terms of quantity and continuity. From the success of this innovation, GPSC was invited to present this work at the National Engineering 2017 (an engineering 4.0 product, technology and innovation expo) organized by the Engineering Institute of Thailand as well as received platinum-level award from PTT Group SPIRIT Days for Sustainable Growth 2017 for creating new business value and optimizing resources for utmost benefit by using technology and innovation. Such award and opportunity are much appreciative for GPSC and will motivate the company to improve the production process to be more efficient.



### Improving Production Efficiency

#### REPAIRING PRODUCTION EQUIPMENT TO REDUCE STEAM LEAKAGE

GPSC has adopted Focus Improvement approach to enhance efficiency with the goal of no loss and zero waste. In 2017, GPSC followed such approach by checking production equipment and fixing steam leakage in the valve vent areas. Result in steam loss reduction by more than 50,000 tons per year which, in turn, helped lower production costs by more than THB 48 million per year. Moreover, these implementations augment production capacity to ensure reliable steam distribution.





Steam loss reduction  
**52,560** Tons per year



Cost reduction  
**THB 48** Million per year

### CHANGING THE METHOD OF CLEANING STEAM PIPES

Rusty long steam pipes cause damages to the machines and lower the steam quality. The normal method of cleaning steam pipes with high-pressure steam is expensive and takes a long time. Therefore, GPSC has improved the cleaning method by switching to sandblasting which is cheaper and faster. The first piloted project with 2,200 meter long steam pipes resulted in a cost saving of more than THB 2 million and a shortened cleaning period by five days.

	Old Method High-pressure steam cleaning	New Method Sandblasting
 Cleaning expenses (THB Million)	2.6	0.6
 Cleaning duration (Days)	6	1

### Skill Building on Machine Operations for Employees

#### Operator Training Simulator: OTS

Response training to potential scenarios in the production system is one of GPSC's priorities. In 2017, 40 employees working in various production units participated in the Operator Training Simulator Program for operating on auxiliary boilers, gas turbines and steam turbines. The program outcomes and assessments show that employees can skillfully operate the machines to minimize mistakes and correctly solve problems. The passing rate was 100% from 40 participants in the program.

"The Operator Training Simulator is a very important program that helps employees to respond to different situations, such as gas turbine problem or power outage situation. The program develops problem-solving skills for employees. In which, accuracy and timely problem solving skill help to bring back a power plant to its normal operating, in other words, increasing reliability of the power system."



**Mr. Narin Nopsiri**

Section manager, Shift Operations: OS3H  
Global Power Synergy Public Company Limited

### Awards and Recognitions

At the award ceremony of the PTT Group Operational Excellence Award 2017 held on March 30, 2017 at PTT Global Chemical Public Company Limited, Rayong Province, GPSC took a great pride in being awarded the Zero Unplanned Shutdown Award for the Central Utility Plant 2, the Central Utility Plant 3 and the Siracha Power Plant which have operated without unplanned shutdown. This award is a testament to the high level of efficiency and reliability of GPSC's production and distribution.





Key Performance Indicators	2017 Target	2017 Performance	2018 Target
Plant Reliability	Sriracha Power Plant 99.70%	100%	99.03%
	Central Utility Plant 1,2 and 3 99.99%	100%	99.995%
Plant Availability	100%	100%	100%
Unplanned Shutdown	0 case	0 case	0 case



# INCLUSIVE CITIZENSHIP





## VALUABLE EMPLOYEES



Employee Training  
Budget

**THB 3.98 Million**



Employee Engagement

**52%**



Average Training Hours for  
Each Employee

**27.89 hours per year**

GPSC recognizes that all employees are valuable resources that serve as the key engine for business competitiveness and the company's success. Therefore, GPSC is committed to developing and enhancing employees' potential in accordance with the

corporate strategy to maintain continuity in the existing business and identify investment opportunities in the power and utilities business with the goal of working toward mutual success and sustainable progress between employees and the company.

### Commitment and Roadmap to Success

Giving every employee an opportunity for self-improvement, a flexible career direction and the ability to operate at global standards is the key reason behind GPSC's success in maintaining a talented and professional workforce with an in-depth understanding of customer needs. Therefore, GPSC's human resource management approach places a high emphasis on recruitment, talent development and leadership development, as well as appropriate and competitive remuneration that align with the corporate value (SPIRIT) in which all executives and employees believe and uphold.

The Human Resources and Organization Effectiveness Department has established the following policy and approaches on human resource management.

- Human Resource Management Policy and approaches for mutual growth
- Career management system
- Appropriate succession
- Fair and competitive compensation and benefits benchmarked against the same industry
- Sharing and fostering a learning culture within the organization
- Integrated human resource and organizational development strategy
- Promoting and supporting employees' values – leadership development and planning on employee training
- Equal employee treatment with the rights to voice opinions through employee representatives
- Building engagement with the company
- Creativity from diverse organization

*Remark: Additional information is available at [www.gpscgroup.com/en/sustainability/economic](http://www.gpscgroup.com/en/sustainability/economic)*

## Performance

### Human Resource Development

GPSC ensures that human resource development, both for technical and business knowledge, is consistent with the business direction and appropriate for the roles and responsibilities of individual employees which will lead to effective alignment of personnel development and corporate strategy. GPSC has applied this personnel development approach to design specialized training programs which cover skill building courses for employees at all levels and divisions. Training courses are classified into three types of courses: core, functional and leadership development course. GPSC also places an emphasis on concrete application of knowledge acquired from the human resource development programs by measuring returns on every human resource development program which will be used as input into future consideration and further program improvement.



#### Leadership Development Program: LDP

The objective of Leadership Development Program or LDP is to develop knowledge skills and capability of employees and managements before level promotion. Program participators will receive knowledge on preparation for the upcoming challenges. The program consists of three courses which are Leadership Development Program 1 (LDP1), Management Development Program (MDP) and course Performer Development Program (PDP). In 2017, 17 employees participated in this program and spent training budget THB 1,385,000.

"The Leadership Development Program gives participants ideas, techniques and the ability to bring out their full potential to deal with real-life work situations, such as working under pressure, making the best decision with limited information, boosting team morale, operating under crisis or disagreement, lending support when a mistake occurs and helping to fix it."



**Ms. Thareerat Amatayakul**

Analyst

Global Power Synergy Public Company Limited

## Total Productive Maintenance (TPM)

Efficiency of the Operations Department has a direct impact on corporate performance and competitive advantage. Therefore, GPSC has encouraged employees in the Operations Department to participate in the Total Productive Maintenance (TPM) program since 2012. Participants learn about the continuous improvement process (Kaizen) by brainstorming for problem identification, goal setting, planning, implementation, evaluation and enhancement. From this training program, employees are able to apply the knowledge in various production activities, such as knowledge on improvement and maintenance of gas turbines and knowledge on improvement and maintenance of power transformers, to reduce unplanned shutdowns which increase reliability in the production system and minimize potential losses, such as machine breakdowns, accidents and lawsuits from suppliers. In 2017, there were 158 employees participating in the Total Productive Maintenance program, accounting for the total number of employees in the Operations Department.

"The Total Productive Maintenance Program is a management process that requires everyone to take part in the task of creating a better production process and optimizing resource usage. The benefit of such program is that everyone has to take a step forward together; and one step forward together is better than 100 steps ahead by a single individual. The goal is to march toward innovation which requires employees to possess skills in innovation, adaptation and flexibility to effectively respond to constant changes."



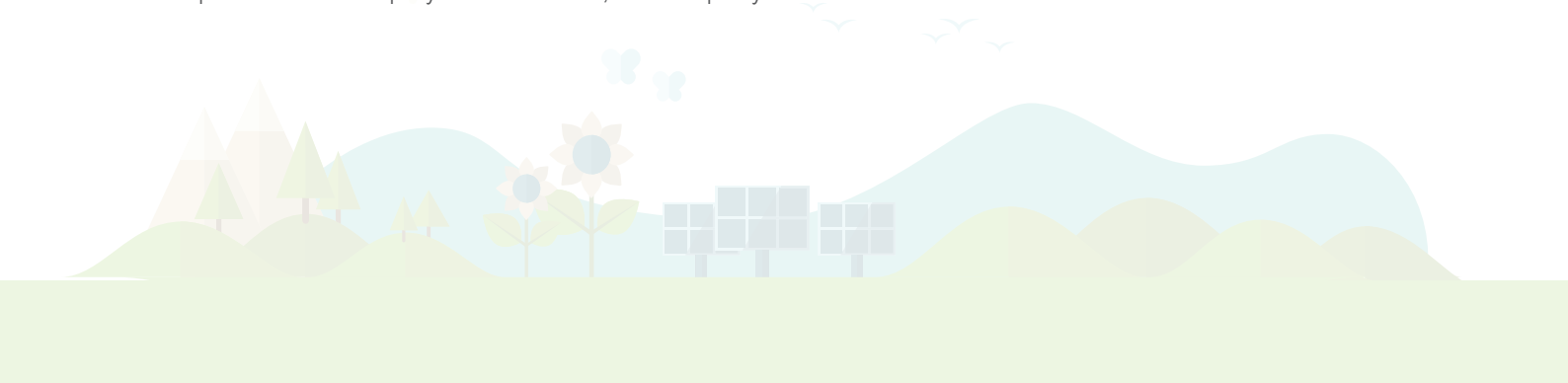
**Mr. Smornchai Khoonrak**

Executive Vice President, Operations  
Global Power Synergy Public Company Limited

## Incentive and Career Progress

GPSC recognizes that fair and appropriate employee compensation and benefits are important for retaining talents. Therefore, the company has implemented the Human Resource Management Policy and conducted a compensation and benefits survey of companies in equivalent industries to be used as a benchmark for determining appropriate compensation for employees. Moreover, the company

also attends to career progress of employees with a plan of adopting the Career Management System in 2018 and supporting internal recruitment to fill vacant job positions at both staff and management levels via Internal Job Post on the company's intranet system. In 2017, GPSC was able to fill seven vacant job positions out of 45 total vacancies with internal recruitment.



### We grow together

"I started working at GPSC as a maintenance engineer in 2012. Throughout my five years at GPSC, I feel that the company has valued employees highly and has given opportunities to all employees to grow alongside the company. I have been given many opportunities for self-improvement, such as battery production training in the United States and have participated in the energy storage system business development team as an engineer which makes me feel valued and cared for by the company."



**Mr. Korrakid Chantharawisud**

Engineer, Energy Disruptive Innovation  
Global Power Synergy Public Company Limited



## Enhancing Employee Engagement

The level of employee engagement is an indicator of the company's effectiveness in human resource practices. Employee engagement in 2017 was at 52% (with male employees showing the level of engagement at 55% and female employees showing engagement level at 45%) which was higher than the previous year. The better employee engagement results reflect the company's effort to incorporate employees' feedback

and expectation from previous employee engagement surveys to improve the business operations. Moreover, employee resignation in 2017 was at 2.55%, which was 36% lower than the prior year, illustrating an outstanding performance of GPSC in retaining valuable employees to build mutual success and progress in a sustainable manner together with the company.

Key Performance Indicators	2017 Target	2017 Performance	2018 Target
Employee Turnover Rate	Less than 3.99%	2.55%	Less than 3.99 %
Employee Engagement	55%	52%	52%



## OCCUPATIONAL HEALTH AND SAFETY



GPSC recognizes that employees and contractors are key drivers for achieving the company's business goals and objectives. Therefore, GPSC values the life

of every employee and contractor by committing to a vision of becoming an accident-free and injury-free organization.

### Commitment and Approaches

To mitigate risks that can lead to loss of lives, injuries and work-related illnesses of employees and contractors which can cause disruption in business continuity, GPSC is committed to implementing the Quality, Security, Safety, Health and Environmental Policy (QSHE). The company focuses on building a safety culture within the organization ("we SAFE") to create safety perspective for all employees to "work safely, look out for others, think before acting and pause if unsafe." GPSC establishes the following approaches to promote safety for employees and contractors:

- Quality, Security, Safety, Health and Environmental Policy (QSHE Policy)
- Established safety committee
- Contractor safety management
- Health risk assessment
- Industrial hygiene management and employee wellness promotion (Fit to Work)
- A system to collect reliable performance data on occupational health and safety with an independent third-party audit
- Supporting safety culture (we SAFE) that is measurable by assessing security, safety, occupational health and environmental culture
- Process safety and personal safety management
- Short-term and long-term strategic goals in occupational health and safety practices
- Incident Reporting Program
- Occupational health and safety management: TIS/OHSAS 18001
- Management of the environment of working condition

Remark: Additional information is available at [www.gpscgroup.com/en/sustainability/environmental](http://www.gpscgroup.com/en/sustainability/environmental)

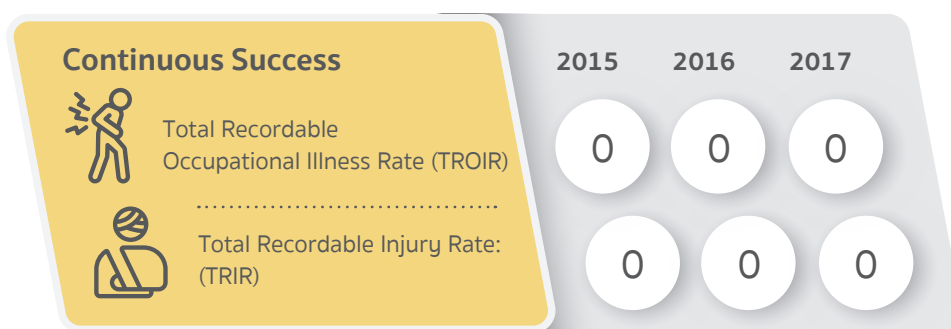


## Performance

GPSC has been successfully achieving the goal of being an accident-free and injury-free organization demonstrated by the two success indicators on safety, the Total Recordable Occupational Illness Rate (TROIR) and the Total Recordable Injury Rate (TRIR), which have consistently been at zero from 2015 to 2017. Moreover, the company has consistently maintained the TIS/OSAS 18001 occupational health and safety certification from the Management System Certification

Institute (Thailand) or MASCI since 2014 and plans to continually improve its management system as a preparation for upgrading to the 45001 standard.

GPSC is committed to setting prevention measures and building a safety culture within the organization by implementing safety and occupational health initiatives both for process safety and personal safety.

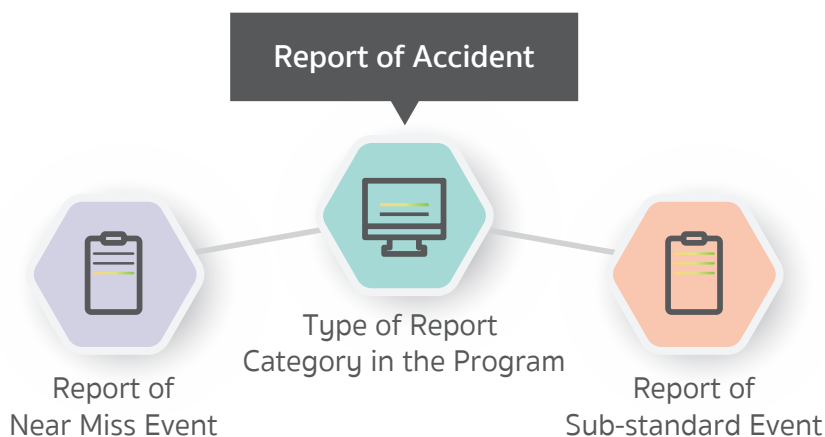


## Employee Wellness Program

This program builds on employees' annual check-ups by hiring experts to analyze and give customized health advice to individual employees. GPSC plans to provide additional health knowledge to employees in the format of small group trainings to share health advice and build engagement among participants. In 2017, there were 91 participants in the program, accounting for 31.16 % of total number of employees.

## Incident Reporting Program

GPSC develops and improves the incident reporting program which is a centralized communication system through an online database. The program has been completed and rolled out since September 2017 which has enabled employees to share information on accidents or near-miss incidents more conveniently, quickly and effectively.



"GPSC web accident was developed with the purpose of helping in employees to report accident, near miss and sub-standard events, which are the important events for assigning safety measures, with convenience and clear process of consideration and authorization. The results of investigation will be used as statistical information for future plan development. The program also minimizes the difficulty and complication data collections and storage, in which demonstrates as improvement in efficiency of the operation."



**Mr. Thanawuth Chaibenjakul**

Division Manager, Quality, Safety, Security,  
Health and Environment Policy  
Global Power Synergy Public Company Limited

Key Performance Indicators	2017 Target	2017 Performance	2018 Target
Total Recordable Occupational Illness Rate (TROIR)	0 case	0 case	0 case
Total Recordable Injury Rate (TRIR)	0 case	0 case	0 case





## SUPPLY CHAIN MANAGEMENT



Number of suppliers  
receiving ESG audits  
**4 suppliers**



Number of suppliers signed  
GPSC's Supplier Code of Conduct  
**114 suppliers**



Reduction in  
procurement expenses  
**THB 154 Million**

As a leader in the power business that fuels growth of PTT Group, GPSC has every intention of complying with the PTT Group Procurement Policy 4.0. By working with suppliers to reduce the impacts on safety, health,

environment and society, GPSC ensures a supplier base that can help the company achieves its goal of becoming the innovative power flagship of PTT Group.

### Commitment and Roadmap to Success

Sustainable supply chain management is a critical factor for a business to develop supplier relationships, enhance competitiveness and lower potential business risks. Therefore, GPSC is committed to working with every supplier in accordance with the Supplier Sustainable Code of Conduct which covers issues on business ethics, human rights, safety and environmental management. The company set the following Supply Chain Management Policy and approaches to create efficient supplier chain management that aligns with the Sustainability Management Policy.

- Procurement Policy
- Vendor list and selection system for potential suppliers
- Agreement and formal acknowledgement of Supplier Sustainable Code of Conduct in the Terms of Reference (TOR)
- Raising standards of supplier operations toward sustainability with annual seminars
- Building a culture of effective supply chain management among employees and knowledge and technology sharing for improving procurement process
- Green procurement
- Pursuing procurement excellence
- Supplier contract management
- Creating joint business standards in accordance with the Supplier Sustainable Code of Conduct
- Supplier audits on environmental, social and governance considerations
- Supply chain risk management and program design

Remark: Additional information is available at <http://www.gpscgroup.com/en/sustainability/economic>

## Performance

GPSC is committed to building supplier engagement and working together toward sustainable businesses by pursuing the following approaches classified into three levels:

### Level 1: Requesting cooperation from every supplier to sign the Supplier Sustainable Code of Conduct Acknowledgement form

In 2017, GPSC started requesting suppliers to sign the Supplier Sustainable Code of Conduct Acknowledgement form. There were 114 suppliers who signed the acknowledgement forms which amounted to 38% of all suppliers in the non-feedstock category. GPSC targets to request all suppliers in the non-feedstock category to sign the acknowledgement forms of the Supplier Sustainable Code of Conduct by 2018.

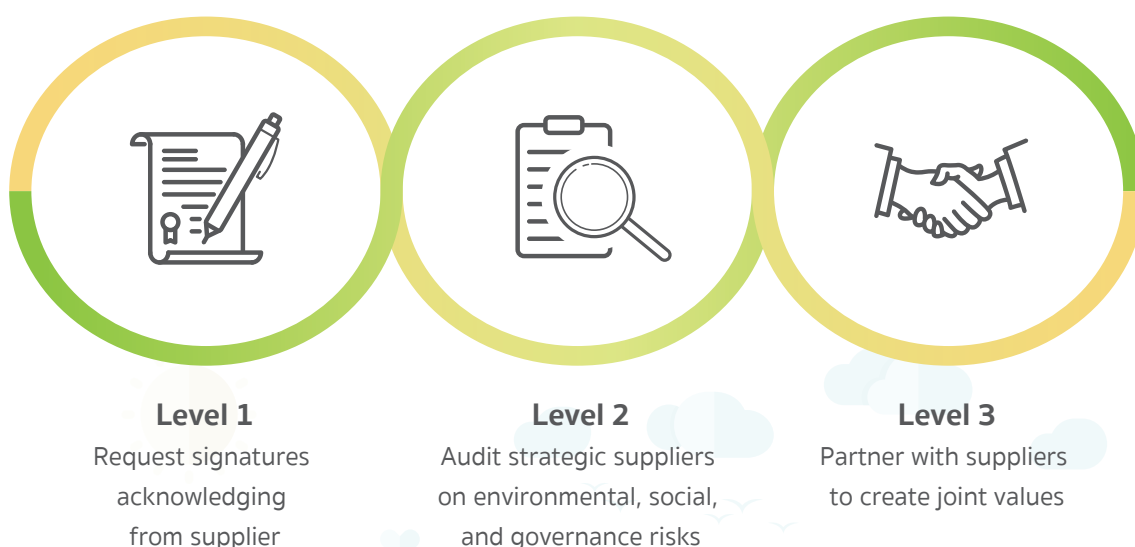
### Level 2: Auditing strategic suppliers on environmental, social and governance risks

In November 2017, the Management System Certification Institute (Thailand) or MASCI conducted on-site audits of four strategic suppliers in Tier 1 using the ISO19011-2011: Guidelines for Auditing Management Systems, which is a global standard and consistent with PTT Group's management approach on sustainable supply chain management.

### Level 3: Partnering with suppliers to create joint values

GPSC plans to build on supplier audit results by conducting further analyses to identify risk mitigation approaches and future joint business opportunities. Moreover, the company also promotes suppliers' learning process for self-improvement by offering support and advice which turns into a process of sustainable joint value creation.

#### From Engagement to Joint Value Creation



## Strategic Supplier Audit on Environmental, Social and Governance Risks for 2017

"By participating all activities, suppliers are aware of GPSC's approach toward sustainability which encourages and promotes business partners to operate business sustainably together."



**Mr. Napatsagorn Mathaprechakul**  
Service Sales Engineer : Motor and Generator  
ABB (Thailand) Company Limited

"Supplier audit on environmental, social and governance risks allowing GPSC to acknowledge supplier capability related to sustainability and identify how to cooperate together for supplier development."



**Mr. Jirat Jetwarapong**  
Procurement Officer  
Global Power Synergy Public Company Limited

### Auditing Procedure

- Contact suppliers to notify the dates of audit and send confirmation documents
- Supplier self-assessments
- Conduct supplier audits by collecting and reviewing information along with reviewing documents from suppliers
- Report audit results to suppliers and related persons

### Next Process

- GPSC will monitor and work with suppliers whose audit results were rated "Fair" for further improvement.
- GPSC plans to perform audits on Tier 2 suppliers in the coming year.

### Results

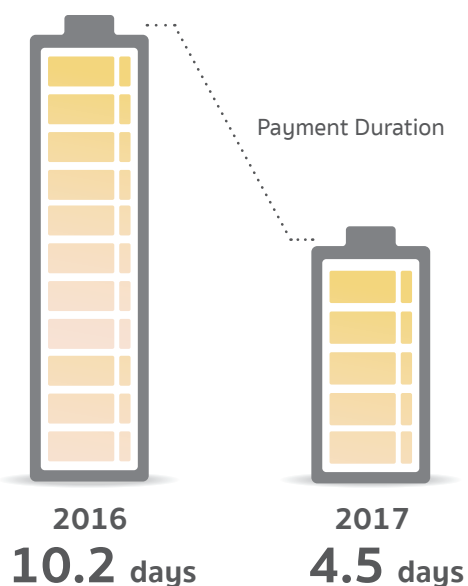
- Most suppliers understood the assessment criteria and were able to perform accurate assessments.
- Every supplier demonstrated better performance on safety than other areas because of compliance with PTT Group's requirements.
- Suppliers were interested and fully cooperated with the auditing plans.





## Procurement Excellence Initiative

### Shortening Payment Duration



According to complaints from suppliers related to problems with late payment of the company, GPSC decided to analyze and solve such problem for improving efficiency in procurement process by reforming payment processes which include eliminating problem with document losses and allowing payment approval outside the office.



Total expense saving  
THB **3.01** Million



Shorten payment duration by  
**55.88%**

Key Performance Indicators	2017 Target	2017 Performance	2018 Target
Supplier audit on sustainability performance by third party	4 suppliers in Tier 1	4 suppliers in Tier 1	10 suppliers in Tier 2
Employee training on ESG issues consistent with sustainable supplier management	100% of procurement employees receive training	100% of procurement employees completed training	100% of users of the Procurement Management Manual receive training
Signing the Supplier Sustainable Code of Conduct Acknowledgement form	100 suppliers in Tier 1	114 suppliers in Tier 1	100% of significant suppliers in Tier 1



## CUSTOMER RELATIONSHIP MANAGEMENT



Intense business competition under the current economic condition affirms the importance of customer relationship management for a company to maintain its competitive edge and sustainable operations. Therefore, GPSC is committed to continuously

achieving and increasing customer satisfaction on products and services by improving services for power delivery and ensuring the most stable services to meet the needs and build confidence with customers in the heavy industry sector.

### Commitment and Roadmap to Success

With our commitment on customer satisfaction through delivering good customer experiences, GPSC sets business objectives and directions with an underlying principle of creating joint values and growing with our customers. The company achieves customer relationship management excellence by setting up an efficient system for data processing and analysis as follows:

- GPSC establishes code of ethics on confidentiality, record keeping, use of internal data which includes protection and confidentiality of customer and trade data.
- Deepening customer engagement by adding communication channels, such as Facebook and LinkedIn. Therefore, customers can acquire information on the company's operations quickly and conveniently.
- Setting up the Telemetry system to read and collect data from customers' electricity meters online which allows the company to adjust delivery plans and optimize power production capacity.
- Conducting a customer satisfaction survey every year and regularly organizing activities to maintain good customer relationships to deepen customer engagement.

Remark: Additional information is available at <http://www.gpscgroup.com/en/sustainability/economic>

## Performance

### Customer Satisfaction

GPSC conducts a customer satisfaction survey annually. The results of the survey is presented at the board meeting once a year to guide planning, development and improvement of product quality as well as communicating lessons learned and response measures of customer feedback to relevant business functions. Moreover, the company regularly organizes activities to maintain good customer relationships on an ongoing basis with frequency ranging from monthly, quarterly and annually. These activities enable the company to improve its business operations and address specific needs of each customer segment as well as monitoring performance of customer relationship management and continuously achieving customer satisfaction.

"GPSC's strength is in the reliability of its power system which can generate electricity steadily and continuously. As such, TOC Glycol Co., Ltd. has never encountered a problem of power outage or sudden power shortage."

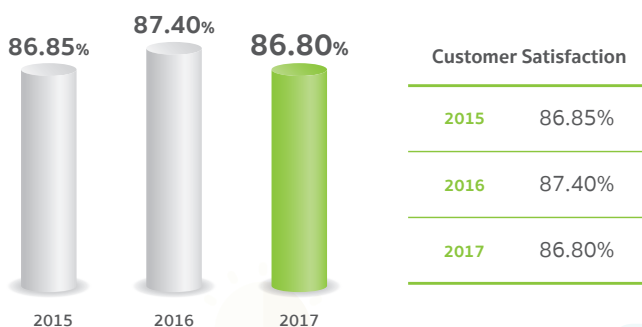


**Mr. Pharanai Waitayasewe**

Vice President Production Planning and Sale & Marketing  
EO-Based Performance TOC Glycol Company Limited

In 2017, GPSC conducted a customer satisfaction survey with 20 companies. From 59 survey respondents, the average satisfaction score was 86.80% which surpassed the minimum target of 85%. The company has also expanded its survey response channels by adding a telephone interview of pre-screened customers to achieve management excellence and acquire in-depth understanding of customer needs. During the last year, there was no complaint related to customer data protection and confidentiality.

### Customer Satisfaction

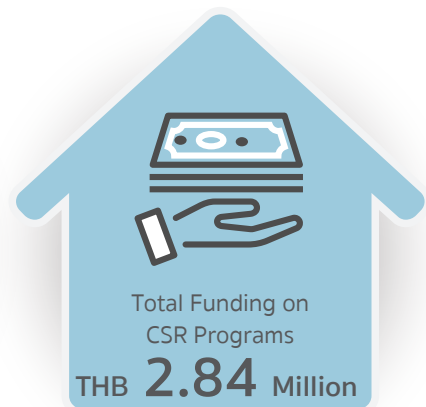
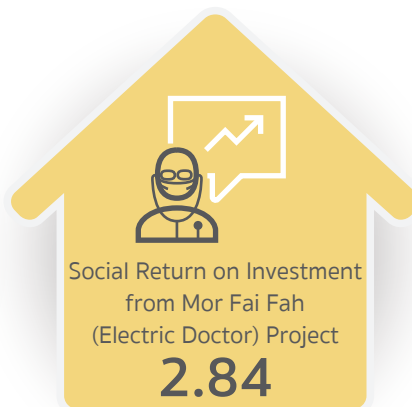
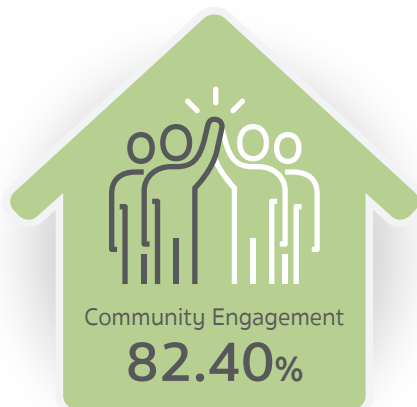


Furthermore, the company recognizes that online social media, which are widespread as well as quick, convenient and easy to use, have become increasingly important communication channels in the digital age. Therefore, GPSC has added these channels to quickly and conveniently communicate information on the company's operations and to encourage engagement between customers and the company with the goal of responding to customer feedback in the most efficient manner.

Key Performance Indicators	2017 Target	2017 Performance	2018 Target
Customer Satisfaction	85%	86.80%	85%



## SUSTAINABLE COMMUNITY ENGAGEMENT



GPSC pursues the mission of “conducting business with social and environmental responsibilities” which is a critical factor for creating a balance between meeting business objectives and ensuring community wellbeing. Therefore, GPSC has been conducting

business with community responsibility by operating within a corporate social responsibility (CSR) strategic framework which encompasses initiatives and programs on education, quality of life improvement, public engagement and the environment.

### Commitment and Roadmap to Success

GPSC is aware of the duties and responsibilities to meet public expectation of the private sector's role in improving the quality of life in local communities. Therefore, GPSC implements a variety of social and community development programs that align with the company's corporate strategies and direction with the goal of creating shared value with communities in a sustainable manner.

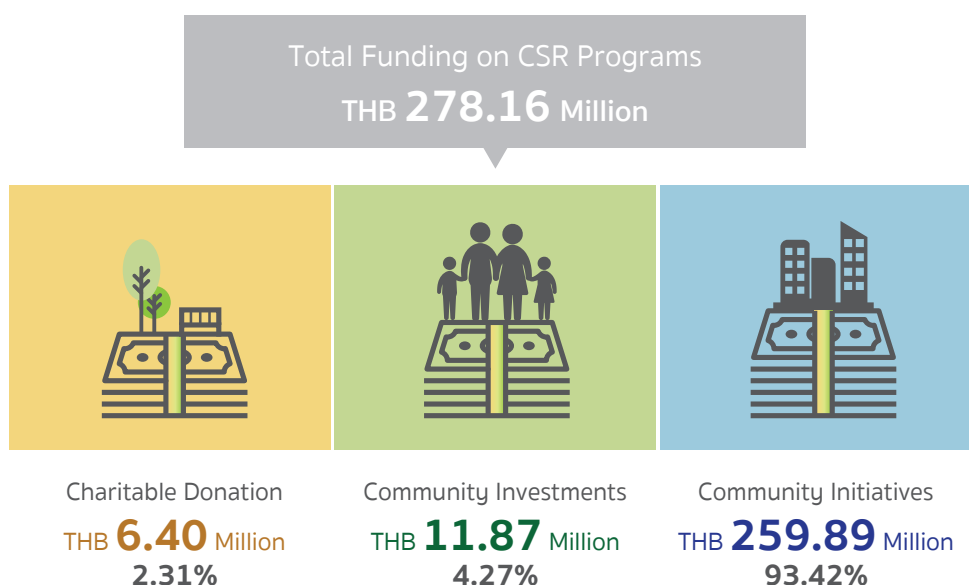
GPSC develops the following community management policy and framework to guide effective social responsibility practices and create genuine benefits for the communities.

- Social and Environmental Responsibility Policy
- Caring for communities by surveying community engagement in the areas of operations
- Fostering employee charitable spirit
- Corporate social responsibility strategic framework that aligns with business strategies and direction
- Analysis of Social Return on Investment (SROI) for CSR projects

Remark: Additional information is available at [www.gpscgroup.com/en/sustainability/social](http://www.gpscgroup.com/en/sustainability/social)

## Performance

GPSC recognizes and puts great emphasis on social and environmental responsibilities. Therefore, the company has provided funding and other resources to promote community development on an ongoing basis. In 2017, CSR projects sponsored by GPSC covered four aspects of the corporate social responsibility strategic framework with the total funding amount of THB 278.16 million. Moreover, GPSC also emphasizes the value of measuring social returns on investment which can then be used as input for improvement and development of future CSR projects. In 2017, GPSC started to calculate the social return on investment of the Mor Fai Fah (Electric Doctor) Project program with the target of performing this analysis for other programs in the following year.



## Educational Program

### Scholarships for vocational school students in Rayong Province Project

The program was launched in 2016 with the objectives of creating shared value for youths in the areas of operations and responding to the government's policy on shortage of skilled labor. In 2017, GPSC gave six scholarships to vocational school students pursuing vocational certificate degree which provide financial aids until graduation.

"In the past, I had to work while going to school. Now, I can devote full attention to my study. My mother can use the saving of my tuition to support my younger sibling's education."



**Mr. Nopanont Pilarak**

Vocational School Student, Rayong Province  
A student who receives electronics scholarship





**2**  
Electrical Power  
Scholarships



**2**  
Mechanics  
Scholarships



**2**  
Electronics  
Scholarships

## Improving the Quality of Life Program

### Mor Fai Fah (Electric Doctor) Project

This is a social and community program that leverages specific skills and expertise of GPSC and employees to maintain power systems and publicize knowledge on power safety to communities in surrounding areas. The program had subsequently been upgraded and developed into a CSR project that reflects the company's leadership in the power business of PTT Group and has expanded the geographic coverage to other areas. In 2017, the Mor Fai Fah (Electric Doctor) project was expanded beyond

the existing areas to cover, for example, Pracharath schools under GPSC's oversight in Chachoengsao Province, Pho Daeng Sub-District, Health Promoting Hospital in Chumphon Province, Phang Khon Hospital and Sakon Nakhon Hospital in Sakon Nakhon Province which suffered flood damages in the Southern region and the North-eastern region respectively. Moreover, during 2017-2018, PTT Group will introduce this program to 42 Pracharath schools under PTT Group's oversight with GPSC as the program leader.

"This program has greatly benefited the schools by replacing old electric wires which in turn reducing the risks of fire and electric shocks. This has given both teachers and students more confidence in the safety of the school's power system."



**Mr. Nithat Thamprateep**  
Director  
Baan Wat Takiean School

"I am delighted and happy to be a part of the program to help the society and ensure safety for young students. I think what the company has gained from raising the quality of life in schools is the recognition and trust from the people who saw our effort. Moreover, the company shared useful knowledge on power system maintenance with school staff as well as GPSC guidelines that the company uses regularly."



**Mr. Polchet Tobhodchanapant**  
Section Manager, Reliability  
Volunteering Employee Global Power Synergy Public Company Limited



## Public Engagement Program

### Kiang Bha Kiang Lai (Shoulder to Shoulder) Project

GPSC visited all communities within the three-kilometer radius of the company's operation sites, which are Map Ta Phut Town Municipality, Mabkha Pattana Municipality and Ban Chang Town Municipality, to build understanding on the company's operations and promote community relations. In 2017, GPSC presented the overview of the company's safety, occupational health and environmental practices as well as provided electricity knowledge to local residents under the topic "Electricity in Daily Life", such as power safety, checking and maintaining the power system, how to select electrical appliances and how to lower electricity bills or energy saving tips.

"GPSC's public relations employees are very friendly. They develop good relationship with community as well as consistently arrange social activities. In case the community needs any help from the company, GPSC always effectively responds in timely manner. However, GPSC should improve by supporting community with more directional approach."



**Mr. Chakrapong Cholsaranon**

President of Map Ta Phu Community



## Environmental Program

### Rayong One Stop Service Management Project

GPSC has collaborated with Rayong Provincial Administration Organization (Rayong PAO) to alleviate the problems of municipal waste increase in its area. The company has developed and designed a waste management plan with the goal of maximizing benefits for the communities, which is the Integrated Waste Management Program that consists of two phases as follows:

**Phase 1 :** Refuse-Derived Fuel (RDF) project is a project that GPSC invests and operates machine for waste separation and treatment under a contract

for treating municipal waste of 500 tons per day. The results of waste separation will be used as a component for creating utmost benefits as follows:

#### Combustible Waste



Fuel for power and heat generation

#### Organic Waste



Soil amendments for agricultural use in Rayong Province

#### Recyclable Waste



Metal and non-metal scraps will be reused

#### Residual Waste



Road surfacing or disposed in landfills

**Phase 2 :** Power plant from fuel energy project is a project that uses Refuse-Derived Fuel (RDF) in power plants. This initiative has been promoted to a government's policy in accordance with the Alternative Energy Development Plan (AEDP) in 2015-2036. This project is in the process of requesting a power purchase approval according to the regulation on purchasing electricity from community waste. Integration of a power plant and a recycling plant will lower the impact on communities by reducing outbound fuel transport as well as promoting power stability in local areas. Moreover, the communities also benefit from the power development fund whose mandate is to develop local communities

Key Performance Indicators	2017 Target	2017 Performance	2018 Target
Number of CSR projects evaluated by Social Return on Investment (SROI) analysis	1 project	1 project	1 project
Community Satisfaction Score	84%	82.40%	75%
CSR budget as a percentage of profit	0.5%	0.58%	0.75%

Note: The lower community satisfaction target in 2018 results from GPSC's plan to hire an external company to conduct a survey on specific groups which will be included in computing the average together with the survey data collected from GPSC's social programs.



# ENVIRONMENTAL RESPONSIBILITY







## CLIMATE CHANGE RISKS AND ADAPTATIONS



Amount of direct GHGs Emission  
(Scope 1) less than last year

**10%**



Carbon Footprint  
Product Label  
All Products Type



Continual Cooperation with  
Thailand Greenhouse Gas  
Management Organization (Public)

The impacts of climate change, such as storm, flood, rising sea level and drought, with the trend of increasing severity and frequency pose significant risks for the global community may affect GPSC's business continuity. Therefore, GPSC focuses on preparing for the risks and opportunities from climate change that

directly relates to SDG13: Climate Action by increasing production efficiency, expanding the share of power production using renewable energy and engaging with stakeholders to reduce greenhouse gas emissions in a sustainable manner.

### Commitment and Roadmap to Success

Thailand has ratified the Paris Agreement to demonstrate the country's commitment to reducing greenhouse gas emissions by 20-25% within 2030 in order to keep the rising global temperature below two degrees Celsius. To support this national commitment as well as to comply with increasingly stricter regulations on greenhouse gas emissions reduction globally and domestically, GPSC, as a member of the global community and an industrial enterprise that supports Thailand's economic growth, is committed to supporting and collaborating with all sectors to achieve the challenging goal of greenhouse gas emission reduction by establishing the following policy and management approaches:

- Climate Change Policy
- Climate change strategy that aims to reduce carbon dioxide gas emissions of any forms and any activities
- Participating in greenhouse gas reduction projects with Thailand Greenhouse Gas Management Organization (Public Organization)
- Risk assessment related to climate change
- Developing greenhouse gas reduction targets for both the short term and the long term
- Organizing workshops to develop climate change strategies

Remark: Additional information is available at [www.gpscgroup.com/en/sustainability/environmental](http://www.gpscgroup.com/en/sustainability/environmental)

## Performance

### Green Production

GPSC focuses on sustainably optimizing resource usage according to the Eco-Efficiency principle by improving efficiency of power and steam production processes within the company. In 2017, GPSC implemented a variety of energy conservation projects to reduce greenhouse gas emissions, such as switching to coolant propellers certified by Thailand Greenhouse Gas Management Organization to reduce greenhouse gas volume by one ton carbon dioxide equivalent per year (tonnes CO<sub>2</sub>e), as well as assessing product carbon footprint of the Central Utility Plant 1, the Central Utility Plant 2 and the Central Utility Plant 3, to be certified for the carbon footprint product label and the carbon footprint reduction or global warming reduction label. Moreover, the company's compiled databases show a reduction in direct (Scope 1) and indirect (Scope 2) carbon dioxide emissions by 10% and 55% respectively.

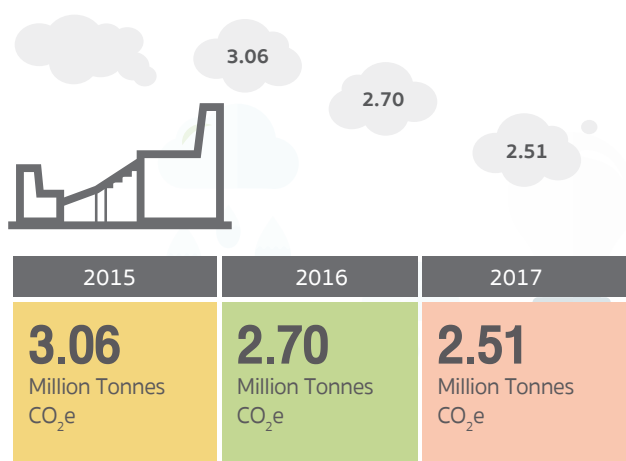
"Although the company has a better track record of carbon dioxide emissions than the industry average, GPSC continues to place significant emphasis on managing the fuel portfolio which is the major source of pollution emissions to the environment. The company plans to keep the portfolio's pollution emissions at the level of the national average and to apply new technologies to GPSC's operations, such as the energy storage technology which will play a role in the power business and the reliability of power systems in the future."



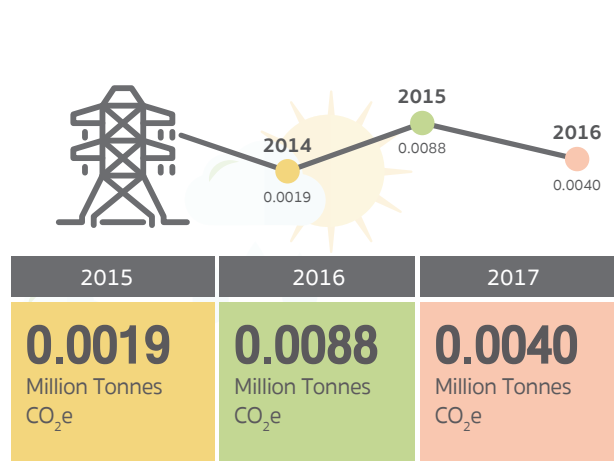
**Mr. Kowit Chuengsatiansup**

Executive Vice President, Asset Management  
Global Power Synergy Public Company Limited

#### GHG Emission Scope 1

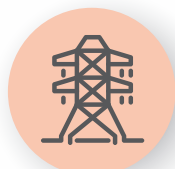


#### GHG Emission Scope 2



## GHG Emission Scope 3

**1,253 tonnes Carbon dioxide equivalent (CO<sub>2</sub>e)**



Loss in electricity transmission and distribution



Purchasing products and services\*



Transportation via airplanes by employees



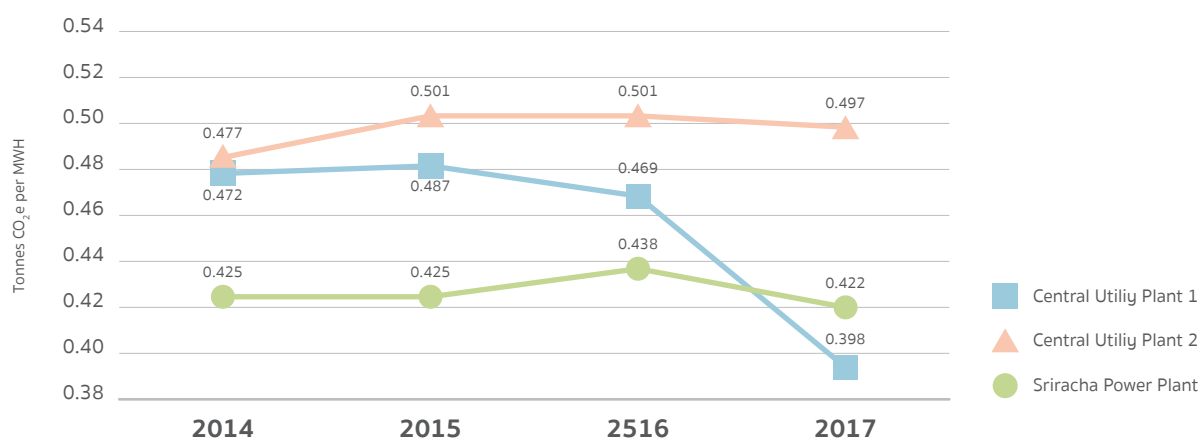
Waste combustion by external parties\*



Transportation of supplies and mobile combustion of fuels

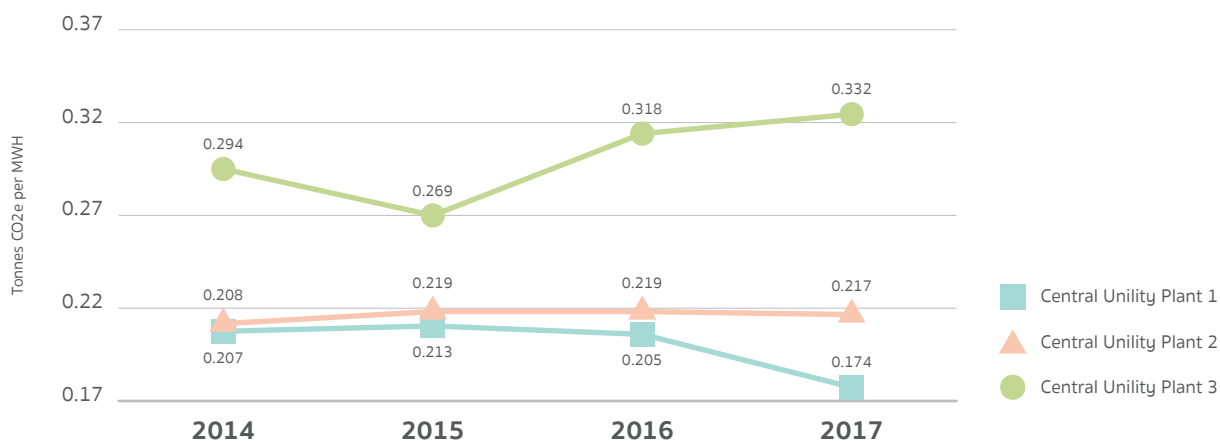
\*Remark : Additional activities that report in 2017

## GHG Emission per Unit of Electricity Produce



Remark: Significant change in GHG emission per unit of electricity produce in Central Utility Plant 1 from 2016 is the result of fuels management by finding the optimization in plant operation.

## GHG Emission pre Unit of Steam Production



## Increasing the Share of Power Production with Renewable Energy

GPSC determines to increase the share of power production using renewable energy and the energy storage system. The company has launched a variety of projects to achieve this goal, such as building on the RDF project which is a collaborative effort with Rayong Provincial Administration Organization and Rayong Province in integrated waste management to produce Refuse-Derived Fuel (RDF). GPSC plans to produce power from such fuel by building a RDF power plant with an eight-megawatt production capacity. Furthermore, GPSC also has a joint venture investment in an energy storage system and battery company with the goal of applying the energy storage technology in a hybrid power plant. More information is available in the Innovation Section.

"GPSC has a clear direction in expanding the share of alternative energy in the production power portfolio as well as reducing greenhouse gases which is another activity that GPSC has been working on consistently. GPSC envisions the share of renewable energy in the portfolio to be approximately 10% of the total which, in the long term, will be appropriately adjusted upward since renewable energy will play an increasingly important role as a solution to greenhouse gas reduction, GPSC's operations and the country's energy mix."



**Mr. Somkiat Masunthasuwun**

Executive Vice President, Business Development  
and Corporate Strategy  
Global Power Synergy Public Company Limited

"Reducing environmental impacts is not merely a duty. It is necessary to instill conscientiousness in which the Operations Department at GPSC has implemented since 2014. Participation is completely voluntary and motivated by the desire to reduce environmental problems in the society."



**Mr. Smornchai Khoonrak**

Executive Vice President, Operations  
Global Power Synergy Public Company Limited

## Engagement in Sustainable Greenhouse Gas Emission Reduction

GPSC recognizes the importance of building knowledge and promoting engagement in greenhouse gas emission reduction. In 2017, the company undertook a variety of initiatives to educate employees on climate change, such as offering a training program on greenhouse gas reduction to increase production efficiency for engineering employees. The expectation is that the knowledge from the training will be applied to improve the power production process to reduce greenhouse gas emissions effectively. Moreover, GPSC also communicates with both internal and external stakeholders on the importance and benefits of reducing greenhouse gas emissions by, for instance, incorporating climate change content in the annual supplier seminar.









GPSC proactively and voluntarily participates in the Carbon Disclosure Project (CDP) program by disclosing information on climate change for the second consecutive year on the CDP survey. CDP is a global institution highly regarded for assessment of environmental, natural resource and climate change impact management by promoting information disclosure on climate change management of organizations worldwide. In 2017, GPSC received a “C” assessment score which will be used as input for further improvement and efficiency enhancement in the company's business operations.



GPSC has been granted a certificate from Thailand Greenhouse Gas Management (TGO) under the Low Emission Support Scheme (LESS) for implementing projects and activities to reduce greenhouse gas emissions at the Central Utility Plant 1, the Central Utility Plant 2, the Central Utility Plant 3 and Sriracha Power Plant. GPSC has participated in the following activities: switching to efficient lighting and electrical appliances, waste recycling, maintaining parts of the compressor system and saving energy by reusing waste water from the coolant system and insulating steam pipes. These activities can serve as prototypes to raise awareness and motivate all sectors to participate in greenhouse gas reduction to become a low carbon society. Moreover, these activities are expected to reduce the greenhouse gas volume by 798 ton CO<sub>2</sub>e.



GPSC has been certified by TGO for the Carbon Footprint Product (CFP) label for the following:

 ELECTRICITY	CENTRAL UTILITY PLANT 1	CENTRAL UTILITY PLANT 2	
Amount of Carbon Dioxide Emission (KgCO <sub>2</sub> e/Mwh)	351	518	
 STEAM	CENTRAL UTILITY PLANT 1	CENTRAL UTILITY PLANT 2	CENTRAL UTILITY PLANT 3
Amount of Carbon Dioxide Emission (KgCO <sub>2</sub> e/Ton)	273	293	249
 DEMINERALIZED WATER	CENTRAL UTILITY PLANT 1	CENTRAL UTILITY PLANT 2	CENTRAL UTILITY PLANT 3
Amount of Carbon Dioxide Emission (KgCO <sub>2</sub> e/Ton)	1.34	0.65	0.89
 SERVICE WATER	CENTRAL UTILITY PLANT 2		
Amount of Carbon Dioxide Emission (KgCO <sub>2</sub> e/m <sup>3</sup> )	0.78		



GPSC has been awarded the Carbon Footprint Reduction or Global Warming Reduction label for reducing carbon dioxide of steam energy. The carbon footprint at the Central Utility Plant 2 and the Central Utility Plant 3 has been reduced by 3.60% and 4.37% respectively.



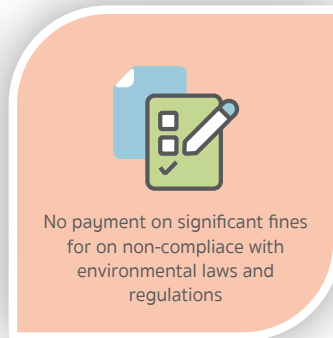
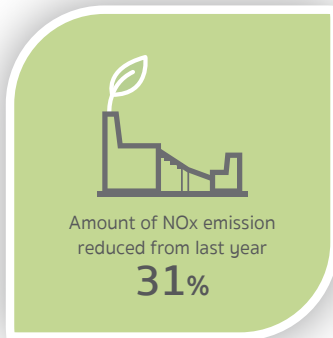
GPSC has joined the pilot program of Thailand Voluntary Emission Reduction Program (T-VER). The company develops power production with a combined heat and power cogeneration system at the Central Utility Plant 2 which has been registered and certified for the greenhouse gas volume of 40,013 tons CO<sub>2</sub>e with TGO's support. GPSC also develops an additional project to join T-VER at the Central Utility Plant 3 which has been registered and certified for the greenhouse gas volume of 1 ton CO<sub>2</sub>e with TGO's support. In the future, GPSC plans to develop an additional project at the Central Utility Plant 3 which will be a cogeneration power plant that can generate electricity, steam and demineralized water. The project is expected to reduce the amount of greenhouse gas emissions by more than 300,000 tons CO<sub>2</sub>e per year.

Key Performance Indicators	2017 Target	2017 Performance	2018 Target
Average GHG Intensity	Less than 0.45 tonnes CO <sub>2</sub> e per MWH	0.30 tonnes CO <sub>2</sub> e per MWH	Less than 0.45 tonnes CO <sub>2</sub> e per MWH





## ENVIRONMENTAL MANAGEMENT



GPSC is committed to operating a sustainable and eco-efficient business by using resources efficiently and continuously monitoring environmental impacts from business activities. This is to achieve the company's objective to becoming the global leading power company that conducts business with social and environmental responsibilities as well as corresponding with the SDG12: Responding consumption and production, which encourages for minimizing environmental and health impacts on stakeholders.

### Commitment and Management Approach

GPSC is well aware that a power and utilities business may cause environmental impacts that raise public concerns on health and environment and force the government to impose strict environmental control measures. Therefore, GPSC has established an approach and strategic objectives in environmental pollution control that align with the company's business strategies by focusing on controlling, preventing and mitigating environmental impacts from sources to create sustainable eco-efficiency.

GPSC has implemented environmental pollution control in accordance with the company's sustainability management policy and issued the following policy and guidelines on environmental pollution control:

- Quality, Security, Safety, Health and Environmental Policy (QSHE Policy)
- Verified by international accreditation bodies (ISO 9001, ISO 14001, OHSAS 18001 and IMS)
- Eco-efficiency best practice certified by the Eco Factory program
- Joining the PTT Group Water Management Team for the company's external water management planning
- Continuous monitoring of water quality prior to discharge to external environment
- System to monitor and investigate sub-standard acts/situations, near-miss incidents, accidents, or abnormal circumstances

- Building environmental management culture
- Short-term and long-term strategic goals in environmental management
- Environmental prevention and impact mitigation measures based on environmental impact assessment: (EIA)
- A credible system to collect, track and manage data on environmental implementation with independent audits
- Projects on raising efficiency in water resource and waste management based on the 3Rs (Reduce, Reuse, Recycle) principle
- Air quality improvement and monitoring projects
- Systematic and effective communication with stakeholders in line with QSHE communication handbook.

*Remark: Additional information is available at [www.gpscgroup.com/en/sustainability/environmental](http://www.gpscgroup.com/en/sustainability/environmental)*

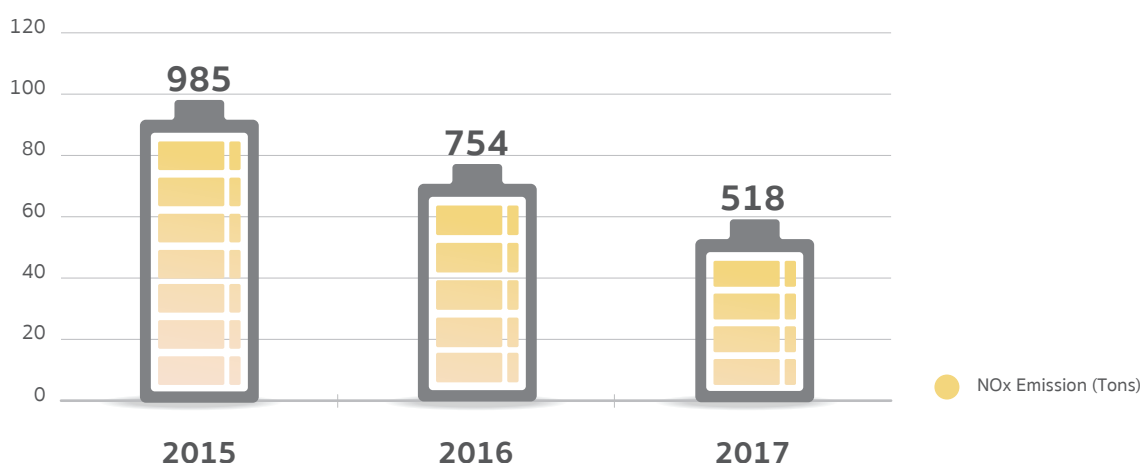
## Performance

### Air Pollution

GPSC places an emphasis on controlling air pollution to reduce impacts on communities and the environment. The main air pollutant from the company's operations is nitrogen oxide caused by the process of power production using natural gas. The implementation of a nitrogen oxide gas reduction project has kept the level of nitrogen oxide concentration at all GPSC's operational sites below the legal limits as well as a

continuous decline in nitrogen oxide gas emissions from the company's operations. In 2017, GPSC implemented a project to lower air pollution while still maintaining combustion efficiency from changes in natural gas properties by improving operating equipment. The machinery improvement aims to maintain combustion efficiency and lower pollution despite changes in natural gas properties from year to year.

### Performance on Reducing Air Pollution



### Waste Materials

GPSC emphasizes the importance of an efficient production process in order to optimize resource usage, mitigate environmental impacts and minimize treatment expenses. In 2017, the company has achieved the

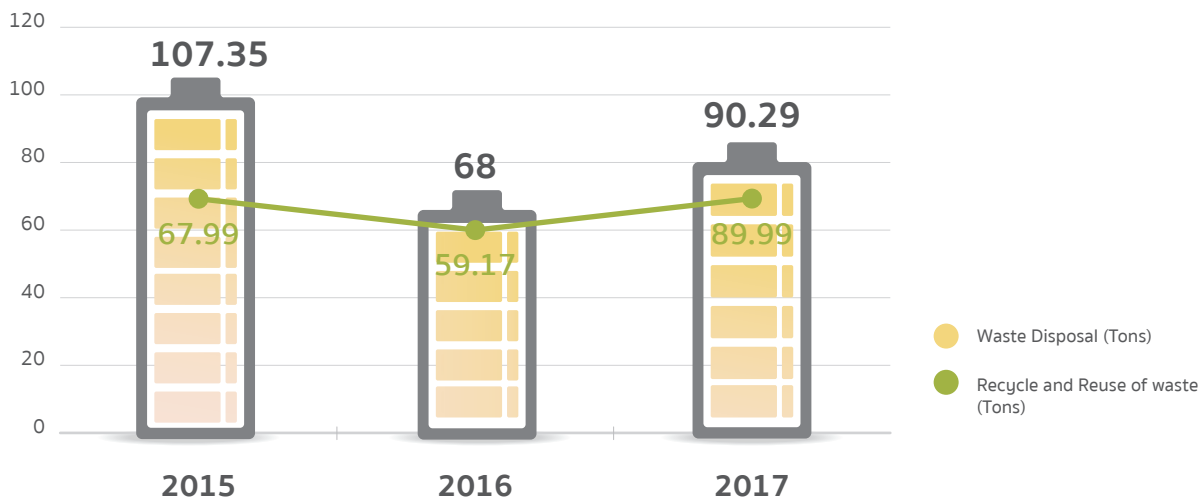
target of zero landfill and has been able to continuously reduce waste volume by integrating 3Rs principle (Reduce, Reuse and Recycle). Employees in every department are responsible to participate waste or



unused materials management project which involves with contacting contactors for separating waste before starting any activities in order to accumulate waste for disposal. Such activities include maintenance, production and activity in the office. From the success of this project, GPSC can reduce expense, on waste

disposal by THB 359,454 and generate profit THB 190,910 by selling waste. In mean of this project reflects GPSC's commitment on be a part of preserving the environment while creating value to the company.

### Performance on Reducing Waste Materials



In 2017, GPSC implementation of waste management at operational sites for both disposal and transportation was in full compliance with all laws and regulations.

### Water Management

The increasing severity of droughts and floods influenced by climate change has caused business risks to GPSC and large-scale impacts on communities. Therefore, GPSC manages water both internally and externally to ensure maximum efficiency with the following implementation.

#### • External Water Management

GPSC collaborates with the PTT Group Management Team to assess water situation in the Eastern region and creates a water management plan to prepare for

risky events related to water resource such as building water tanks to store rainwater for production in the event of a drought.

#### • Internal Water Management

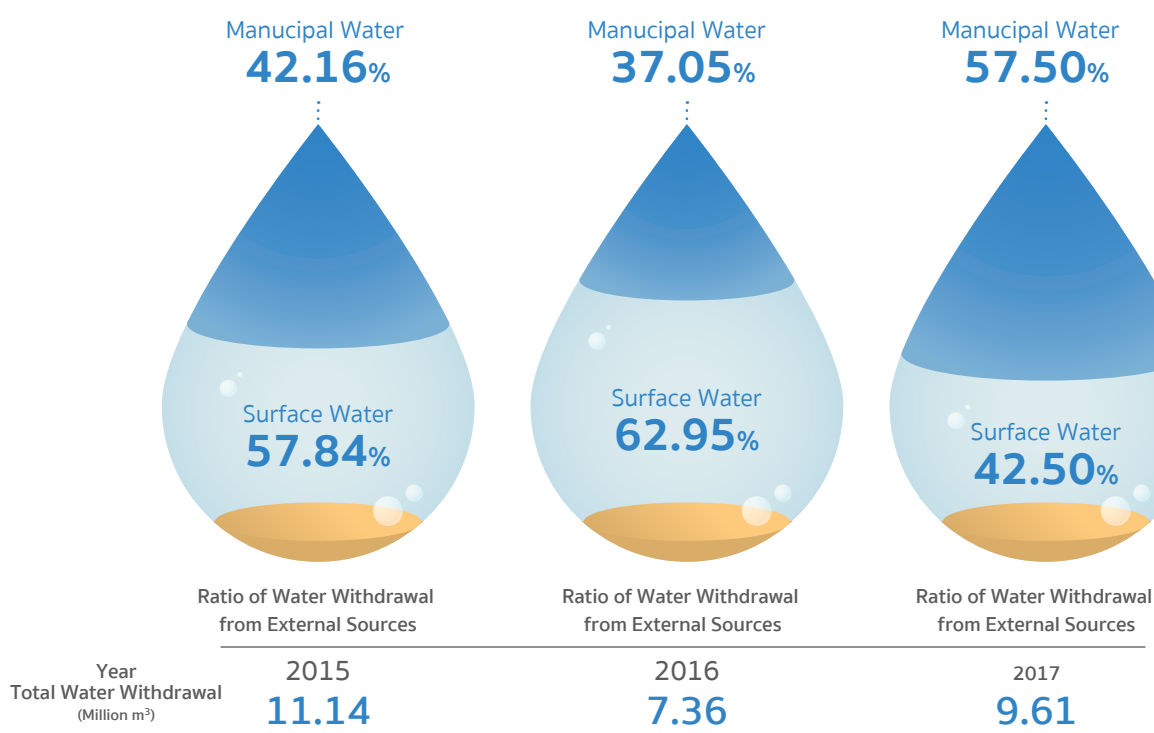
By adhering to the 3Rs (Reduce, Reuse, Recycle) principle, the company was able to reduce water usage for production by 2,998,594.97 cubic meters. and achieved the target of 10% of the total water consumption. Moreover, the company also regularly

checks the quality of water discharged to the environment. In 2017, the quality of water released from all operational sites complied with the legal requirements

## Internal Water Management Projects in 2017

REDUCE	REUSE	RECYCLE
<ul style="list-style-type: none"> <li>Reduce water consumption by minimizing time in backwash process at the demineralized water production unit</li> </ul>	<ul style="list-style-type: none"> <li>Increase water circulation loop cooling tower for reducing the amount of blowdown water</li> </ul>	<ul style="list-style-type: none"> <li>Reuse treated water from heat blowdown by watering trees instead of using tap water.</li> </ul>

## Ratio of Water Withdrawal from External Sources



Remark: Surface water source from the Dok Krai Reservoir of Eastern Water Resources Development and Management Public Company Limited

## Environmental Management

Effectiveness in environmental processes and practices are vital to creating a sustainable business and accomplishing the company's vision and mission. Therefore, GPSC is committed to continuously improving in its environmental management system. In 2016, the company has been granted the ISO 14001:2015 certification for environmental management standards by focusing on developing environmental management capabilities to meet relevant legal requirements and achieving the company's strategic objective on controlling environmental pollution.

Moreover, the company is planning to apply for the Corporate Social Responsibility, Department of Industrial Works (CSR-DIW) certification by 2018 which is issued by the Ministry of Industry for socially responsible businesses with sustainable operations.

"GPSC demonstrates our commitment in raising the standard of environmental management and responsibility by updating the standards from the 2004 to the 2015 version. The standards update involved meeting and applying the stated requirements for environmental management system standards in actual business practices by considering environmental problems from activities, products and services throughout the entire product and service life cycle. This standards upgrade to ISO 14001:2015 will enhance efficiency and effectiveness in environmental management to facilitate future sustainable development."



**Mr. Payont Ampornareekul**

Vice President, Corporate Sustainability Management  
Global Power Synergy Public Company Limited

## Awards and Recognitions

GPSC values the idea of an eco city where every sector collaboratively contributes towards green practices by running environmentally friendly businesses with the goal of sustainable development. The company focuses on continuously developing and improving production processes and environmental management throughout the supply chain to fulfill both internal and external social responsibilities. Success in eco-factory implementation has earned GPSC the eco-factory certification for four plants which are: Central Utility Plant 1, Central Utility Plant 2, Central Utility Plant 3 and Sriracha Power Plant. GPSC is proud to be part of a journey toward green future.



Key Performance Indicators	2017 Target	2017 Performance	2018 Target
ISO 14001:2015 Environmental management standards	Conduct comprehensive review, audits and corrective measures on environmental processes and practices	Received certification on environmental management standards ISO 14001:2015	Maintain certification on environmental management standards ISO 14001:2015



## BIODIVERSITY PRESERVATION

Maintaining natural biodiversity is vital to sustaining ecosystems and natural resources. Physical and climate changes in local areas affect the overall existence of an ecosystem. GPSC has conducted the business with an emphasis prevention and minimization of environmental impacts on biodiversity. The majority of the company's operations are located in an industrial estate which may have a low-level, albeit direct, impact on the ecosystem.

Nonetheless, the company is aware of such risk and committed to maintaining biodiversity by developing a system to manage, control and monitor compliance with projects' environmental impact assessments on an ongoing basis. To date, there has been no evidence of biodiversity impact in the surrounding areas of GPSC's operations.

### Commitment and Roadmap to Success

Conserving biodiversity is an issue that ranks high on every government's agenda, both domestic and abroad, resulting in strict laws to prevent and mitigate environmental impacts from business operations. For this reason, GPSC has set up appropriate biodiversity management ranging from studying environmental impacts, formulating measures to prevent and mitigate environmental impacts and closely monitoring environment impacts for all projects operated both domestically and internationally.

To serve as guidelines for protecting and mitigating impacts on ecosystems and biodiversity, GPSC has issued a policy and management approach on biodiversity as follows:

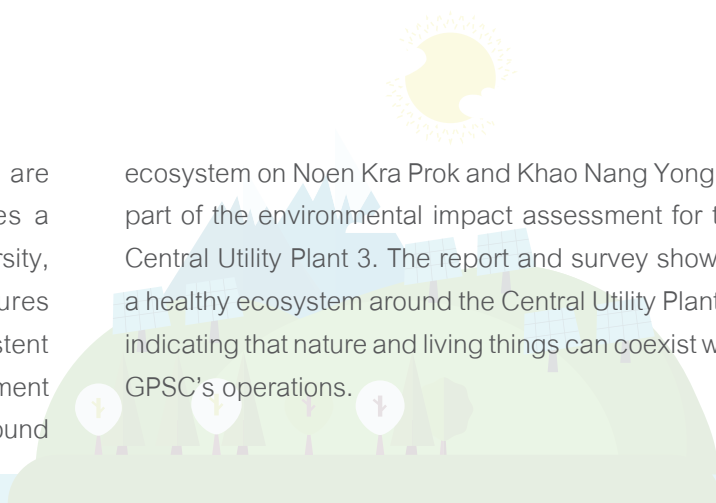
- Conducting environment impact assessments for both domestic and international projects
- Conducting rigorous biodiversity studies for international projects by formulating action plans and environmental management and monitoring plans
- Measures on prevention and environmental impact mitigation; and measures on monitoring and environmental impact assessment

*Remark: Additional information is available at [www.gpscgroup.com/en/sustainability/environmental](http://www.gpscgroup.com/en/sustainability/environmental)*

### Performance

Although GPSC's businesses in Thailand are situated in an industrial estate which imposes a relatively minor impact on habitats and biodiversity, the company still sets and implements measures to reduce environment impacts that are consistent with findings from environmental impact assessment (EIA). In 2017, GPSC had surveyed the above-ground

ecosystem on Noen Kra Prok and Khao Nang Yong as part of the environmental impact assessment for the Central Utility Plant 3. The report and survey showed a healthy ecosystem around the Central Utility Plant 3, indicating that nature and living things can coexist with GPSC's operations.



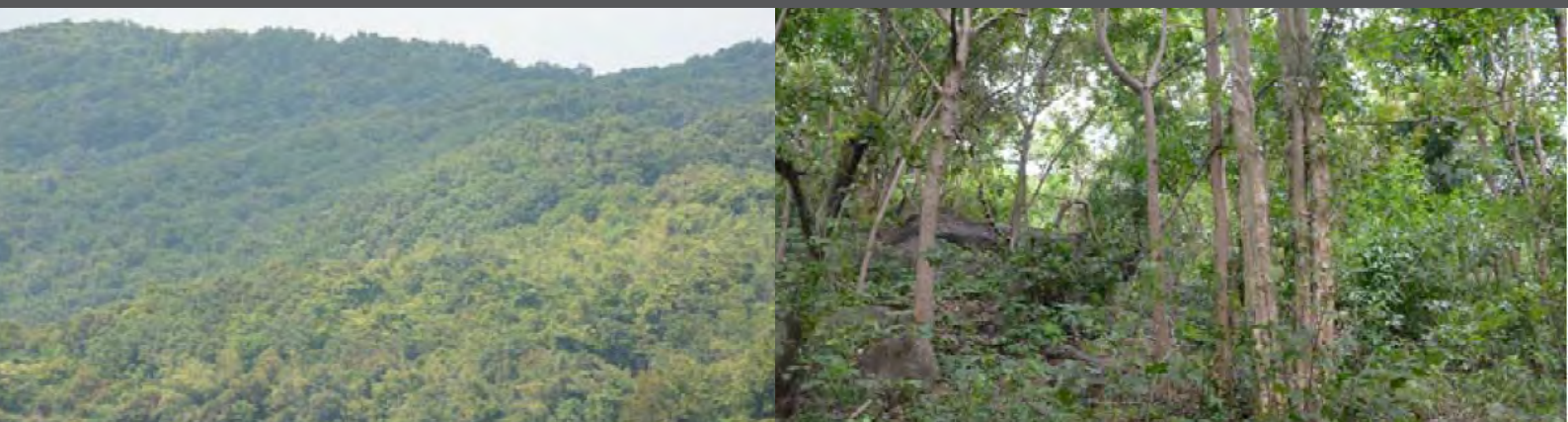


## Survey Results of Above-ground Ecosystem on Noen Kra Prok and Khao Nang Yong for Environmental Impact Assessment of the Central Utility Plant 3

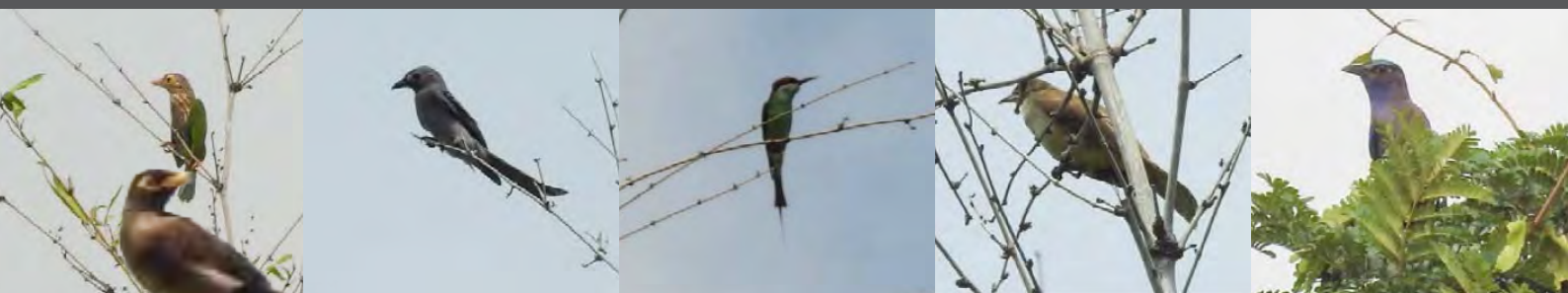
Khao Kra Noen Pok and Khao Nang Yong are located in the north of Industrial Estate Maptaphut with a seven kilometer distance from the Central Utility Plant 3. The survey results showed that Khao Kra Noen Pok and Khao Nang Yong have a variety of forest conditions including mixed forests, leucaena forests and reforested areas surrounded by agricultural areas (palm oil, rubber and plantation), communities and development areas. Most wildlife animals found in the areas are small with the majority being birds. Other types of wildlife animals found in these areas are squirrels, mongooses, jungle fowls, lizards and skinks.



Pictures of the highest intensity area in Noen Kra Prok



Pictures of the highest intensity area in Khao Nang Yong



### Example of bird species found in Noen Kra Prok and Khao Nang Yong

From left to right *Acridotheres tristis*, *Megalaima linerta*, Ashy Drongo, *Merops philippinus*, *Pycnonotus aurigaster benghalensis*, *Coracias*



# SUSTAINABILITY PERFORMANCE DATA

The boundary of reporting sustainability performance data includes Central Utility Plant 1, Central Utility Plant 2, Central Utility Plant 3 and Sriracha Power Plant. However, Solar Power Plant Projects for ground installation and agricultural cooperative in Bangkok and Chanthaburi

Province, the Maintenance Building in Rayong Province and Office in the Energy Complex Building in Bangkok, are not included in the boundary of this report due to the ongoing process of data collection. GPSC plans to report such data in 2020.

GRI Standards	GRI G4	Required Data	Unit	Data Collection Period			
				2014	2015	2016	2017
ANTI-CORRUPTION							
205-2	G4-SO4	Governance body members that the organization's anti-corruption policies and procedures have been communicated to	Persons	10	10	10	12
			%	100	100	100	100
		Governance body members that have received training on anti-corruption	Persons	N/A	N/A	N/A	N/A
			%	N/A	N/A	N/A	N/A
		Employees that anti-corruption policies and procedures have been communicated to	Persons	N/A	N/A	N/A	292
			%	N/A	N/A	N/A	100
		Employees that have received training on anti-corruption	Persons	N/A	N/A	N/A	139
			%	N/A	N/A	N/A	47.60
205-3	G4-SO5	Confirmed incidents of corruption and actions taken	Cases	0	0	1	0
206-1	G4-SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes	Cases	0	0	0	0
419-1	G4-SO8	Total monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	THB Million	0	0	0	0
GRIEVANCE							
103-2	G4-EN34	Number of grievances about <u>environmental impacts</u> <sup>1</sup> through formal grievance process	Cases	0	0	0	0
	G4-HR12	Number of grievances about <u>human rights</u> <sup>2</sup> through formal grievance process	Cases	0	0	0	0
	G4-LA16	Number of grievances about <u>labor practices</u> <sup>3</sup> through formal grievance process	Cases	0	0	0	0
	G4-SO11	Number of grievances about <u>impacts on society</u> <sup>4</sup> through formal grievance process	Cases	0	0	0	0
ECONOMIC PERFORMANCE							
201-1	G4-EC1	Sales revenues	THB Million	23,654	22,444	20,675	19,917
		Operating cost	THB Million	21,981	20,847	18,265	17,226
		Employee wages and benefits	THB Million	300	448	407	518
		Dividend payments for the performance	THB Million	112	1,120	1,573	1,723
		Payments to government	THB Million	422	552	697	518

GRI Standards	GRI G4	Required Data	Unit	Data Collection Period			
				2014	2015	2016	2017
PRODUCT RESPONSIBILITY							
102-42 102-43	G4-PR5	Customer satisfaction survey	% of total clients	85.98	86.85	87.40	86.80
		Data coverage	% of total clients	100	100	100	100
		Customer satisfaction target	% of total clients	85	85	85	85
N/A	G4-EU10	Capacity under consrtruction including purchased power and reserve margins	MW	N/A	N/A	N/A	392
N/A	G4-EU11	Average annual efficiency for total electricity and steam <sup>5</sup>	%	N/A	N/A	N/A	28.00
		Average annual efficiency for electricity <sup>6</sup>	%	N/A	N/A	N/A	66.90
N/A	G4-EU28	System Average Interruption Frequency Index (SAIFI)	N/A	0.03	0.63	0	0
N/A	G4-EU29	System Average Interruption Duration Index (SAIDI)	N/A	0.04	0.7	0	0
N/A	G4-EU30	Average plants availability factor by energy source and by regulatory regime	%	99.9900	99.9837	100	100
REPRESENTATIVES IN HEALTH AND SAFETY COMMITTEES							
403-2	G4-LA5	Total Workers representation in formal joint management worker health and safety committees	Person	N/A	N/A	21	20
			% of Total Employee	N/A	N/A	8.14	6.85
		Executive	Person	N/A	N/A	6	7
			% of Total Health and Safety Committees	N/A	N/A	28.57	35.00
		Middle Management	Person	N/A	N/A	5	3
			% of Total Health and Safety Committees	N/A	N/A	23.81	15.00
		Senior	Person	N/A	N/A	1	1
			% of Total Health and Safety Committees	N/A	N/A	4.76	5.00
		Non-management	Person	N/A	N/A	9	9
			% of Total Health and Safety Committees	N/A	N/A	42.86	45.00

GRI Standards	GRI G4	Required Data	Unit	Data Collection Period			
				2014	2015	2016	2017
403-2	G4-LA6	RATE OF INJURY, OCCUPATIONAL DISEASE, LOST DAY AND WORK RELATED FATALITIES					
		FATALITIES					
		Toal workforce	Cases	0	0	0	0
		Supervised workers	Cases	0	0	0	0
		Employees	Cases	0	0	0	0
		Contractors	Cases	0	0	0	0
		TOTAL RECORDABLE INJURIES CASE					
		Total workforce	Cases	0	0	0	0
		Supervised workers	Cases	0	0	0	0
		INJURIES RATE (IR)					
		Total workforce	Cases/ 1 million Manhours	0	0	0	0
		Supervised workers	Cases/ 1 million Manhours	0	0	0	0
		LOST-TIME INJURY FREQUENCY RATE (LTIFR)					
		Total workforce	Cases/ 1 million Manhours	0	0	0	0
		Supervised workers	Cases/ 1 million Manhours	0	0	0	0
		Employees	Cases/ 1 million Manhours	0	0	0	0
		Data coverage	% of Empliye	100	100	100	100
		Contractors	Cases/ 1 million Manhours	0	0	0	0
		Data coverage	% of Empliye	100	100	100	100
		LOST WORKDAY CASE (LWC)					
		Total workforce	Cases	0	0	0	0
		Supervised workers	Cases	0	0	0	0
		LOST DAY RATE (LDR)					
		Total workforce	Day/1 million Manhours	0	0	0	0
		Supervised workers	Day/1 million Manhours	0	0	0	0

GRI Standards	GRI G4	Required Data	Unit	Data Collection Period			
				2014	2015	2016	2017
DAYS WORKED BY CONTRACTOR AND SUBCONTRACTOR EMPLOYEES ON ELECTRIC UTILITY SYSTEMS (GENERATION, DISTRIBUTION, TRANSMISSION)							
N/A	G4-EU17	Construction activities	Day	365	365	365	365
		Operation activities	Day	365	365	365	365
		Maintenance activities	Day	365	365	365	365
HEALTH AND SAFETY FOR CONTRACTOR AND SUBCONTRACTOR EMPLOYEES							
N/A	G4-EU18	Contractor and subcontractor employees that have undergone relevant health and safety training	%	100	100	100	100
CUSTOMER HEALTH AND SAFETY							
N/A	G4-EU25	Number of <u>injuries</u> to the public involving company assets, including legal judgement, settlement and pending legal cases of diseases	Cases	0	0	0	0
		Number of <u>fatalities</u> to the public involving company assets, including legal judgement, settlement and pending legal cases of diseases	Cases	0	0	0	0
		Contractor and subcontractor working on electric utility systems, employees that have undergone relevant health and safety training in comparison to total contractor and subcontractor	%	0	0	0	0
PHILANTHROPIC ACTIVITIES							
201-1	G4-EC1	Total contribution	THB	1,809,365	36,450,515	230,959,445	278,168,930.
			THB	0	5,325,420	2,337,911	6,401,752
		Charitable donations	% of total contribute	100	14.61	1.01	2.31
		Cash contribution	THB	1,809,365	5,184,075	2,195,411	6,401,752
		Products or services donations	THB	0	141,345	142,500	0
			THB	0	31,125,095	3,621,534	11,875,244
		Community investments	% of total contribute	0	85.39	1.57	4.27
			THB	0	0	225,000,000	259,891,934
		Commercial initiatives	% of total contribute	0	0	97.42	93.42
LOCAL COMMUNITY							
413-1	G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	%	N/A	N/A	N/A	0



GRI Standards	GRI G4	Required Data	Unit	Data Collection Period			
				2014	2015	2016	2017
N/A	G4-EU22	Number of people physically and economically displaced by large projects		N/A	N/A	N/A	0
		Plant expansion	Persons	0	0	0	0
		New plant	Persons	0	0	0	0
		New transmission lines	Persons	0	0	0	0
		Number of people compensated including those that may be affected positively	Persons	0	0	0	0
N/A	N/A	Community satisfaction survey	%	81.23	84.00	90.20	82.40
		Community satisfaction target	%	80.00	80.00	80.00	80.00
PRODUCTION							
N/A	G4-EU1	Total installed capacity	MW	1,052	1,052	1,052	1,052
		Natural gas	% of total contribute	99.07	99.99	99.99	99.99
		Oil	% of total contribute	0.03	0.01	0.01	0.01
N/A	G4-EU2	Net energy generated	GJ	38,175,268	37,516,853	38,664,689	14,274,504
		Natural gas	% of total generation	99.99	99.99	99.99	99.99
		Oil	% of total generation	0.01	0.01	0.01	0.01
ENERGY CONSUMPTION							
302-1	G4-EN3	Total energy consumption	GJ	N/A	56,102,212	83,939,447	39,245,267
		Total direct energy consumption	GJ	N/A	56,033,631	83,919,914	39,208,180
		Total indirect energy consumption	GJ	N/A	68,581	19,534	37,087
		Electricity purchased	GJ	N/A	N/A	1,751,403	38,508
		Steam purchased	MW	85,316	124,740	134,661	0
		Total energy sold	MWh	N/A	6,932,363	6,255,267	7,176,730
		Electricity	MWh	N/A	4,868,024	3,877,575	3,557,097
		Steam	MWh	N/A	2,090,246	2,377,692	3,619,633
302-3	G4-EN5	Total energy intensity	GJ/Mwh	N/A	5.60	10.00	5
WATER WITHDRAWN							
303-1	G4-EN8	Total water withdrawal	Million m³	N/A	11.14	7.36	9.61
		Surface water	Million m³	N/A	6.44	4.63	4.08
		Municipal water	Million m³	N/A	4.70	2.73	4.08
303-3	G4-EN10		Million m3	N/A	N/A	4.59	3.00
		Total water reused and recycled	% of total water withdrawal	N/A	N/A	41%	31%

GRI Standards	GRI G4	Required Data	Unit	Data Collection Period			
				2014	2015	2016	2017
306-2	G4-EN8	WATER DISCHARGE					
		Total water discharge to surface water	m <sup>3</sup>	N/A	1,459,287	1,620,696	1,431,765
305-1	G4-EN15	GREENHOUSE GAS EMISSION (GHGs)					
		Direct total GHGs (scope1)	Tonnes CO <sub>2</sub> e	N/A	3,076,991	2,794,748	2,507,014
305-2	G4-EN16	Direct total GHGs (scope2)	Tonnes CO <sub>2</sub> e	N/A	1,889	8,881	3,967
305-3	G4-EN17	Other indirect GHGs emission (scope3)	Tonnes CO <sub>2</sub> e	N/A	N/A	385,131	1,253
305-5	G4-EN19	Reduction of Greenhous Gas (GHG) emissions	Tonnes CO <sub>2</sub> e	N/A	40,199	268	798.8
305-7	G4-EN21	EMISSIONS					
		Nitrogen Oxides (NOx)	Tonnes NO <sub>2</sub>	N/A	985	754	518.75
		SF <sub>6</sub>	Kg	N/A	5	0	13.5
306-2	G4-EN23	WASTE DISPOSAL					
		Total hazardous waste as defined by National Legistration	Tonnes	N/A	107.35	68.00	90.29
		Recycle	Tonnes	N/A	44.11	31.23	14.96
		Recovery	Tonnes	N/A	23.88	27.94	75.03
		Incineration	Tonnes	N/A	39.31	8.73	0
		On-site storage	Tonnes	N/A	0.05	0.10	0
		Total non-hazardous waste as defined by National Legistration	Tonnes	N/A	665.39	583.63	721.61
		Recycle	Tonnes	N/A	162.39	57.59	42.98
		Recovery	Tonnes	N/A	34.25	23.00	24.31
		Composting	Tonnes	N/A	189.12	468.65	457.11
		Incineration	Tonnes	N/A	34.36	34.39	24.66
		Other management methods (central wastewater treatment plant and land reclamation)	Tonnes	N/A	245.27	0.00	172.55
307-1	G4-EN29	COMPLIANCE					
		Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	THB Million	0	0	0.88	0

GRI Standards	GRI G4	Required Data	Unit	Data Collection Period							
				2014		2015		2016		2017	
				Male	Female	Male	Female	Male	Female	Male	Female
LABOUR PRACTICE											
102-8	G4-10	WORKERS BY AREA									
		Rayong	Persons	132		136		137		151	
			Persons	108	24	112	24	112	25	124	27
		Chonburi-Sriracha	Persons	41		41		41		31	
			Persons	35	6	36	5	37	4	27	4
		Bangkok	Persons	36		63		80		110	
			Persons	17	19	29	34	31	49	47	63
		Other Provinces	Persons	0		0		0		0	
			Persons	0	0	0	0	0	0	0	0
		WORKERS BY EMPLOYMENT TYPE AND CONTRACT									
		Permanent <sup>7</sup> contract	Persons	209		240		258		292	
			Persons	160	49	177	63	180	78	198	94
		Temporary <sup>8</sup> contract	Persons	0		0		0		0	
			Persons	0	0	0	0	0	0	0	0
		Full time <sup>9</sup>	Persons	209		240		258		292	
			Persons	160	49	177	63	180	78	198	94
		Part time <sup>10</sup>	Persons	0		0		0		0	
			Persons	0	0	0	0	0	0	0	0
		WORKERS BY AGE									
		<30 years	Persons	28		48		46		51	
			Persons	20	8	32	16	29	17	31	20
			% by gender against worker category	71.43	28.57	66.67	33.33	63.04	36.96	60.78	39.22
			Persons	174		184		204		230	
		30 - 50 years	Persons	133	41	137	47	143	61	156	74
			% by gender against worker category	76.44	23.56	74.46	25.54	70.10	29.90	67.83	32.17

GRI Standards	GRI G4	Required Data	Unit	Data Collection Period								
				2014		2015		2016		2017		
				Male	Female	Male	Female	Male	Female	Male	Female	
405-1	G4-LA12	>50 years	Persons	7		8		8		11		
			Persons	7	0	8	0	8	0	11	0	
			% by gender against worker category	100.0	0	100.0	0	100.0	0	100.0	0	
			WORKER BY LEVEL									
		Total workforce	Persons	209		240		258		292		
			Persons	160	49	177	63	180	78	198	94	
		Executive	Persons	2		2		1		1		
			Persons	2	0	2	0	1	0	1	0	
			% by gender against worker category	7.14	0.00	4.17	0.00	2.17	0.00	1.96	0.00	
			Middle Management	Persons	20		24		26		38	
		Persons		16	4	19	5	19	7	29	9	
		% by gender against worker category		9.20	2.30	10.33	2.72	9.31	3.43	12.61	3.91	
		Senior		Persons	27		25		43		60	
			Persons	26	1	24	1	38	5	44	16	
			% by gender against worker category	14.94	0.57	13.04	0.54	18.63	2.45	19.13	6.96	
			Non-management	Persons	160		189		188		194	
		Persons		116	44	132	57	122	66	125	69	
		% by gender against worker category		55.50	21.05	55.00	23.75	47.29	25.58	54.35	30.00	

GRI Standards	GRI G4	Required Data	Unit	Data Collection Period									
				2014		2015		2016		2017			
				Male	Female	Male	Female	Male	Female	Male	Female		
WORKER BY FUNCTION													
		Operation	Persons	N/A	N/A	N/A	N/A	N/A	N/A	142	16		
			% by gender against worker category	N/A	N/A	N/A	N/A	N/A	N/A	89.87	10.13		
		Corporate/Support	Persons	N/A	N/A	N/A	N/A	N/A	N/A	56	78		
			% by gender against worker category	N/A	N/A	N/A	N/A	N/A	N/A	41.79	58.21		
TOTAL NUMBER AND RATE OF NEW EMPLOYEES HIRES AND EMPLOYEE TURNOVER													
		New employees	Persons	21		32		22		33			
			Persons	11	10	17	15	6	16	17	16		
		New hire rate	% of total employees	5.26	4.78	7.08	6.25	2.33	6.20	5.82	5.48		
NEW EMPLOYEE HIRE BY AREA													
401-1	G4-LA1	Rayong	Persons	6	3	5	0	3	1	10	3		
			% of total employees	2.87	1.44	2.08	0.00	1.16	0.39	3.42	1.03		
		Chonburi-Sriracha	Persons	0	0	1	0	1	0	0	0		
			% of total employees	0.00	0.00	0.42	0.00	0.39	0.00	0.00	0.00		
		Bangkok	Persons	5	7	11	15	2	15	7	13		
			% of total employees	2.39	3.35	4.58	6.25	0.78	5.81	2.40	4.45		
		Other Provinces	Persons	0	0	0	0	0	0	0	0		
			% of total employees	0.00	0.00	0.00	0.00	0.00	0.00				
		NEW EMPLOYEE HIRE BY AGE											
				<30 years	Persons	3	6	13	10	2	7	9	7
					% of total employees	1.44	2.87	5.42	4.17	0.78	2.71	3.08	2.40
				30 - 50 years	Persons	8	4	4	5	4	9	8	0
% of total employees	3.83				1.91	1.67	2.08	1.55	3.49	2.74	0.00		



[illegible]

GRI Standards	GRI G4	Required Data	Unit	Data Collection Period							
				2014		2015		2016		2017	
				Male	Female	Male	Female	Male	Female	Male	Female
PARENTAL LEAVE											
401-3	G4-LA3	Employee taken parental leave	Persons	N/A	N/A	N/A	N/A	0	4	0	6
		Employee entitled to parental leave	Persons	N/A	N/A	N/A	N/A	184	4	286	6
		Employee returned to work after parental leave	Persons	N/A	N/A	N/A	N/A	0	4	0	6
		Employee returned to work after parental leave who were still employed twelve month after their return to work	Persons	N/A	N/A	N/A	N/A	0	4	0	6
TRAINING AND DEVELOPMENT											
EMPLOYEE RECEIVING REGULAR PERFORMANCE AND CAREER DEVELOPMENT REVIEWS											
404-3	G4-LA11	Executive	Persons	2		2		5		6	
			Persons	2	0	2	0	5	0	6	0
			%	100	0	100	0	100	100	100	0
		Middle Management	Persons	20		24		27		27	
			Persons	16	4	19	5	20	7	20	7
			%	80.00	20.00	79.17	20.83	74.07	25.93	74.07	25.93
		Senior	Persons	27		25		49		53	
			Persons	26	1	24	1	42	7	42	11
			%	96.30	3.70	96.00	4.00	85.71	14.29	79.25	20.75
		Non-management	Persons	160		189		179		157	
			Persons	116	44	132	57	115	64	108	49
			%	72.50	27.50	69.84	30.16	64.25	35.75	68.79	31.21
ELIGIBLE EMPLOYEES TO RETIRE IN THE NEXT 5 AND 10 YEARS											
N/A	G4-EU15	Total	Persons	7	0	8	0	10	0	15	0
		ELIGIBLE EMPLOYEES TO RETIRE IN THE NEXT 5 AND 10 YEARSBY AREA									
		Rayong	Persons	5	0	5	0	6	0	7	0
		Chonburi-Sriracha	Persons	0	0	0	0	0	0	0	0
		Bangkok	Persons	2	0	3	0	4	0	8	0
		Other Provinces	Persons	0	0	0	0	0	0	0	0

GRI Standards	GRI G4	Required Data	Unit	Data Collection Period							
				2014		2015		2016		2017	
				Male	Female	Male	Female	Male	Female	Male	Female
DJSI 3.5	N/A	ELIGIBLE EMPLOYEES TO RETIRE IN THE NEXT 5 AND 10 YEARS BY CATEGORY									
		Executive	Persons	1	0	1	0	5	0	1	0
		Middle Management	Persons	6	0	7	0	4	0	13	0
		Senior	Persons	0	0	0	0	0	0	1	0
		Non-management	Persons	0	0	0	0	0	0	0	0
		EMPLOYEE SATISFACTION									
		Employee satisfaction	%	N/A		72		50		52	
		Employee Satisfaction by Gender	%	N/A	N/A	N/A	N/A	N/A	N/A	55	45
		Data coverage	%	N/A		83.7		91		95	
		Employee Satisfaction Target	%	N/A		N/A		N/A		55	

**Remark:**

<sup>1</sup> Environmental impacts including company's impact on living and non-living natural systems such as land, air, water, and ecosystems.

<sup>2</sup> Human right complaints including discrimination, gender inequality, freedom of association, collective bargaining, forced or compulsory labor, and indigenous rights.

<sup>3</sup> Labor practice complaints including unfair treatment to employee, discrimination or harassment in workplace.

<sup>4</sup> Impacts on society including water availability, social security, infrastructure development, and poverty.

<sup>5</sup> Average annual efficiency for total electricity and steam only includes Central Utility Plant 1, Central Utility Plant 2, and Central Utility Plant 3.

<sup>6</sup> Average annual efficiency for total electricity only includes Central Utility Plant 1, Central Utility Plant 2, and Central Utility Plant 3.

<sup>7</sup> Permanent employee is an employee with permanent contract: A permanent employment contract is a contract with an employee for full-time or part-time work, for an indeterminate period.

<sup>8</sup> Temporary employee is an employee under contract of limited duration, and is terminated by a specific event, including the end of a project or work phase or return of replaced employees.

<sup>9</sup> Full-time employee is an employee whose working hours per week, month, or year are defined according to national legislation and practice regarding working time (such as national legislation which defines that 'full-time' means a minimum of nine months per year and a minimum of 30 hours per week).

<sup>10</sup> Part-time employee is an employee whose working hours per week, month, or year are less than 'full-time'.

# GRI CONTENT INDEX

6.73 mm	Description	Page	Note		External Assurance
			GRI G4	Detail/Omission	
GRI 102: GENERAL DISCLOSURES					
ORGANIZATIONAL PROFILE					
102-1	Name of the organization	Cover	G4-3		✓
102-2	Activities, brands, products, and services	8	G4-4 G4-PR6		✓
102-3	Location of headquarters	Back Cover	G4-5		✓
102-4	Location of operations	10	G4-6		✓
102-5	Ownership and legal form	8	G4-7		✓
102-6	Markets served	10	G4-8		✓
102-7	Scale of the organization	83	G4-9		✓
102-8	Information on employees and other workers	83	G4-10		✓
102-9	Supply Chain	11	G4-12		✓
102-10	Significant changes to the organization and its supply chain	This Page	G4-13	Detail: No significant changes during the reporting period.	✓
102-11	Precautionary principle or approach	32-35	G4-14		✓
102-12	External Initiatives	12	G4-15		✓
102-13	Membership or associations	11	G4-16		✓
STRATEGY					
102-14	Statement from senior decision-maker	4-5	G4-1		✓
102-15	Key impacts, risks, and opportunities	32-35	G4-2		
ETHICS AND INTEGRITY					
102-16	Values, principles, standards, and norms of behavior	26	G4-56		✓
102-17	Mechanisms for advice and concerns about ethics	28	G4-57 G4-58		
GOVERNANCE					
102-18	Governance structure	17	G4-34		
102-19	Delegating authority	18	G4-35		
102-20	Executive-level responsibility for economic, environmental, and social topics	17-18	G4-36		
102-21	Consulting stakeholders on economic, environmental, and social topics	16	G4-37		

Disclosure	Description	Page	Note		External Assurance
			GRI G4	Detail/Omission	
102-22	Composition of the highest governance body and its committees	25	G4-38	Detail: Annual Report	
102-27	Collective knowledge of highest governance body	25	G4-43		
102-32	Highest governance body's roles in sustainability reporting	17	G4-48		
<b>STAKEHOLDER ENGAGEMENT</b>					
102-40	List of stakeholder groups	12-13	G4-24		✓
102-41	Collective bargaining agreements	This Page	G4-11	Detail: GPSC did not have the trade union during the reporting period.	✓
102-42	Identifying and selecting stakeholders	12, 78	G4-25	Omission: Information is unavailable for stakeholder group determination due to the ongoing process of revising the methodology in which GPSC will disclose such information in 2018.	✓
102-43	Approach to stakeholder engagement	12-13, 78	G4-26 G4-PR5		✓
102-44	Key topics and concerns raised	12-13	G4-27		✓
<b>REPORTING PRACTICE</b>					
102-45	Entities included in the consolidated financial statements	Annual Report	G4-17	Detail: The boundary of the consolidated financial statements is included in GPSC and its subsidiaries.	✓
102-46	Defining report content and topic boundaries	3	G4-18		✓
102-47	List of material topics	17	G4-19		✓
102-48	Restatements of information	This page	G4-22	Detail: Sustainability Performance Data for energy consumption, water withdrawn, and GHGs are changed due to changes in calculation methodologies and base year recalculation.	✓
102-49	Changes in reporting	This page	G4-23	Detail: 1. This report mentions about Combined Heat and Power Producing Co. Ltd., (CHPP). The office is in the Energy Complex Building in Bangkok and Maintenance Building is in Rayong. However, the sustainability performance data of such sites is not ready to be disclosed due to the ongoing process of data collection. GPSC plans to disclose such data in 2020. 2. Recalculation for GHGs emission base year	✓



Disclosure	Description	Page	Note		External Assurance
			GRI G4	Detail/Omission	
102-50	Reporting period	3	G4-28		✓
102-51	Date of most recent report	3	G4-29		✓
102-52	Reporting cycle	3	G4-30		✓
102-53	Contact point for questions regarding the report	3	G4-31		✓
102-54	Claims of reporting in accordance with the GRI Standards	3	G4-32-a		✓
102-55	GRI content index	89-94	G4-32-b		✓
102-56	External assurance	97-98	G4-32-c G4-33		✓

### GRI 103: MANAGEMENT APPROACH

103-1	Explanation of the material topic and its Boundary	22, 26, 29, 32, 37, 40, 45, 49, 52, 56, 58, 64, 70-71, 75	G4-DMA-a G4-20 G4-21		
103-2	The management approach and its components	22, 26, 29, 32, 37, 40, 45, 49, 52, 56, 58, 64, 70-71, 75	G4-DMA-b G4-EN34 G4-LA16 G4-HR12 G4-SO11		
103-3	Evaluation of the management approach	23-25, 27-28, 30-31, 33-35, 38-39, 42-44, 46-48, 50-51, 53-55, 57, 59-62, 65-69, 71-74, 75-76	G4-DMA-c		

### GRI 201: ECONOMIC PERFORMANCE

201-1	Direct economic value generated and distributed	77	G4-EC1		
201-2	Financial implications and other risks and opportunities due to climate change	34	G4-EC2		
201-4	Financial assistance received from government	This page	G4-EC4	Detail: In 2017, GPSC did not receive any financial assistance from the government.	

### GRI 202: MARKET PRESENCE

202-1	Ratios of standards entry level wage by gender compared to local minimum wage	This page	G4-EC5	Detail: Entry level wage of GPSC is higher than local minimum wage at significant locations of operation with an equal opportunity to employees regardless of gender.	
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Disclosure	Description	Page	Note		External Assurance
			GRI G4	Detail/Omission	
GRI 203: INDIRECT ECONOMIC IMPACTS					
203-1	Infrastructure investments and services supported	58-62	G4-EC7		
203-2	Significant indirect economic impacts	58-62	G4-EC8		
GRI 205: ANTI-CORRUPTION					
205-2	Communication and training about anti-corruption policies and procedures	77	G4-SO4		
GRI 206: ANTI-COMPETITIVE BEHAVIOR					
206-1	Legal actions for anticompetitive behavior, anti-trust, and monopoly practices	77	G4-SO7		
GRI 302: ENERGY					
302-1	Energy consumption within the organization	81	G4-EN3		✓
302-3	Energy intensity	81	G4-EN5		
GRI 303: WATER					
303-1	Water withdrawal by source	81	G4-EN8		✓
303-2	Water source significantly affected by withdrawal of water	This page	G4-EN9	Detail: There was no water resource significantly affected by the company withdrawal of water in 2017.	
303-3	Water recycled and reused	81	G4-EN10		
GRI 304: BIODIVERSITY					
304-2	Significant impacts of activities, products, and services on biodiversity	75	G4-EN12		
GRI 305: EMISSIONS					
305-1	Direct (Scope 1) GHG emissions	65, 82	G4-EN15		✓
305-2	Energy indirect (Scope 2) GHG emissions	65, 82	G4-EN16		✓
305-3	Other indirect (Scope 3) GHG emissions	65, 82	G4-EN17		
305-4	GHG emissions intensity	66	G4-EN18		✓
305-5	Reduction of GHG emissions	82	G4-EN19		
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	82	G4-EN21		✓
GRI 306: EFFLUENTS AND WASTE					
306-1	Water discharge by quality and destination	72-73, 81-82	G4-EN22		
306-2	Waste by type and disposal method	72, 82	G4-EN23		✓
GRI 307: ENVIRONMENTAL COMPLIANCE					
307-1	Non-compliance with environmental laws and regulations	82	G4-EN29		

Disclosure	Description	Page	Note		External Assurance
			GRI G4	Detail/Omission	
GRI 401 AND GRI G4 (ELECTRIC UTILITIES SECTOR): EMPLOYMENT					
401-1	New employee hires and employee turnover	85-86	G4-LA1		
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	On website	G4-LA2		
401-3	Parental leave	87	G4-LA3		
N/A	Percentage of employees eligible to retire in the next 5 and 10 years broken down by job category and by region	87-88	EU15		✓
GRI 403: LABOR/ MANAGEMENT RELATIONS					
402-1	Minimum notice periods regarding operational charges	This page	G4-LA4	Detail: Comply with local laws and regulations	
GRI 403 AND GRI G4 (ELECTRIC UTILITIES SECTOR): OCCUPATIONAL HEALTH AND SAFETY					
403-1	Workers representation in formal joint management worker health and safety committees	78	G4-LA5		
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work related fatalities	78	G4-LA6	Detail: Not applicable for GPSC to breakdown such data into region and gender due to region and gender equity in Thailand on occupational health and safety.	✓
N/A	Number of injuries and fatalities to the public involving company assets, including legal judgements, settlements and pending legal cases of diseases	80	EU25		
GRI 404: TRAINING AND EDUCATION					
404-2	Programs for upgrading employee skills and transition assistance programs	46-47	G4-LA10		
404-3	Percentage of employees receiving regular performance and carrier development reviews	87	G4-LA11		
GRI 412: HUMAN RIGHTS ASSESSMENT					
412-2	Employee training on human rights policies or procedures	This page	G4-HR2	Omission: Information is unavailable due to the ongoing process of implementation in which GPSC will disclose such information in 2018.	
GRI 413: LOCAL COMMUNITIES					
413-1	Operational with local community engagement, impact assessment, and development programs	58-62	G4-SO1		
GRI 415: PUBLIC POLICY					
415-1	Political contributions	This page	G4-SO6	Detail: GPSC did not support any in-kind both direct and non direct political contribution during the reporting period.	

Disclosure	Description	Page	Note		External Assurance
			GRI G4	Detail/Omission	
GRI 419: SOCIOECONOMIC COMPLIANCE					
419-1	Non-compliance with laws and regulations in the social and economic area	This page	G4-SO8	Detail: GPSC has not been fined for non-compliance with laws and regulations in the social and economic areas during the reporting period.	
GRI G4 (ELECTRIC UTILITIES SECTOR DISCLOSURE: EUSD): SYSTEM EFFICIENCY					
N/A	Installed capacity, broken down by primary energy source and by regulatory regime	81	EU1		✓
N/A	Net energy output broken down by primary energy sources and by regulatory regime	81	EU2		✓
N/A	Average generation efficiency of thermal plants by energy source and by regulatory regimes	78	EU11		✓
GRI G4 (ELECTRIC UTILITIES SECTOR DISCLOSURE:EUSD): DEMAND SIDE MANAGEMENT					
N/A	Planned capacity against projected electricity demand over the long term, broken down by energy source and by regulatory regime	8	EU10		✓
GRI G4 (ELECTRIC UTILITIES SECTOR DISCLOSURE:EUSD): HEALTH AND SAFETY FOR CONTRACTOR AND SUBCONTRACTOR EMPLOYEES					
N/A	Days worked by contractor and subcontractor employees involved in construction, operation & maintenance activities	80	EU17		✓
N/A	Percentage of contractor and subcontractor employees that have undergone relevant health and safety training	80	EU18		✓
GRI G4 (ELECTRIC UTILITIES SECTOR DISCLOSURE:EUSD): AVAILABILITY AND RELIABILITY					
N/A	Management approach	41	DMA (EUSD)		✓
N/A	Power outage frequency	56, 78	EU28		✓
N/A	Average power outage duration	78	EU29		✓
N/A	Average plant availability factor by energy source and by regulatory regime	78	EU30		✓
GRI G4 (ELECTRIC UTILITIES SECTOR DISCLOSURE:EUSD): RESEARCH AND DEVELOPMENT					
N/A	Management approach	38	DMA (EUSD)		✓

\*Remark: Data collection for EU 11 included only GPSC CUP 1-3.

# THE PRINCIPLES OF UNITED NATIONS GLOBAL COMPACT (UNGC) PROGRESS STATUS

UNGC Principle	Progress	Location in this Report
<b>HUMAN RIGHTS</b>		
1. Businesses should support and respect the protection of internationally proclaimed human rights.	<ul style="list-style-type: none"> <li>Supporting human rights principles on employees and management</li> <li>Announcement of human rights policy</li> </ul>	29-31
2. Make sure that they are not complicit in human rights abuses.	<ul style="list-style-type: none"> <li>Establishing Human Rights Management System that includes Due Diligence Process on Human Rights</li> <li>Setting a variety of communication channels for human rights grievances</li> </ul>	29-31
<b>LABOR</b>		
3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	<ul style="list-style-type: none"> <li>Open communication for employee's opinions</li> <li>Did not interfere employees on participating labor association or meeting</li> <li>Established welfare committee that consists of representative employees from various divisions</li> </ul>	<a href="http://www.gpscgroup.com/en/sustainability/social">www.gpscgroup.com/en/sustainability/social</a>
4. The elimination of all forms of forced and compulsory labor.	<ul style="list-style-type: none"> <li>Human resource management that covers human rights aspects</li> <li>Communication of policy and standards related to forced and compulsory labor to suppliers and contractors for using as a guidance</li> </ul>	<a href="http://www.gpscgroup.com/en/sustainability/social">www.gpscgroup.com/en/sustainability/social</a>
5. The effective abolition of child labor	<ul style="list-style-type: none"> <li>Human resource management that covers human rights aspects on child labor issues</li> <li>Communication of policy and standards related to child labor to related suppliers and contractors.</li> </ul>	<a href="http://www.gpscgroup.com/en/sustainability/social">www.gpscgroup.com/en/sustainability/social</a>
6. The elimination of discrimination in respect of employment and occupation.	<ul style="list-style-type: none"> <li>Equity in employment and occupation.</li> </ul>	<a href="http://www.gpscgroup.com/en/sustainability/social">www.gpscgroup.com/en/sustainability/social</a>
<b>ENVIRONMENTAL</b>		
7. Businesses should support a precautionary approach to environmental challenges.	<ul style="list-style-type: none"> <li>Announcement and implementation of Quality, Security, Safety, Health and Environmental Policy (QSHE Policy)</li> <li>Environmental protection and mitigation controls that align with Environmental Impact Assessment (EIA) report</li> <li>Environmental performance audit by external party and verified for compliance with international standard (ISO 14001)</li> </ul>	70-74



UNGC Principle	Progress	Location in this Report
8. Undertake initiatives to promote greater environmental responsibility	<ul style="list-style-type: none"> <li>Improving and monitoring air quality project</li> <li>Continuous program on monitoring water discharge quality</li> <li>Building environmental management culture.</li> </ul>	70-74
9. Encourage the development and diffusion of environmentally friendly technologies	<ul style="list-style-type: none"> <li>Improving efficiency of electricity and steam production by following the eco-efficiency principle</li> </ul>	64-69
<b>ANTI-CORRUPTION</b>		
10. Businesses should work against corruption in all its forms, including extortion and bribery.	<ul style="list-style-type: none"> <li>Announcement of Anti-Corruption Policy</li> <li>Established anti-corruption grievance channels</li> <li>Risk assessment on anti-corruption</li> </ul>	<ul style="list-style-type: none"> <li>26-28</li> <li>33</li> </ul>

# ASSURANCE STATEMENT



## LRQA Assurance Statement

Relating to Global Power Synergy Public Company Limited's within the Sustainability Report for the calendar year 2017

This Assurance Statement has been prepared for Global Power Synergy Public Company Limited (GPSC) 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 Global Power Synergy Public Company Limited (GPSC) to provide independent assurance on its Sustainability Report 2017 (the Report) against the assurance criteria below to a moderate level of assurance and at the materiality of the professional judgement of the verifier using Accountability's AA1000AS (2008) Type 2 approach.

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

- Evaluating the nature and extent of GPSC's adherence to all three AA1000 AccountAbility Principles - inclusivity, materiality and responsiveness.
- Confirming that the report is in accordance with:
  - GRI Standard and core option, and
  - GRI Electric and Utilities Sector Disclosure.
- Evaluating the reliability of data and information for the selected environmental and social indicators listed below:
  - Environmental: Energy consumption (GRI302-1); Water withdraw by source (GRI 303-1); Direct GHG emissions (Scope 1) (GRI305-1); Energy indirect GHG emissions (Scope 2) (GRI305-2); GHG emission intensity (GRI305-4); Nitrogen Oxide (NOx) Sulphur Oxide (SOx) and other significant air emissions (GRI 305-7) and Waste by type and disposal method (GRI 306-2)
  - Social: Type of injury and rates of injury, occupational diseases, lost days and absenteeism and number of work related fatalities (GRI403-2).

Our assurance engagement excluded all of GPSC's operation outside of Thailand.

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

### LRQA's Opinion

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

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

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

**Note:** The extent of evidence-gathering for a moderate assurance engagement is less than for a high assurance engagement. Moderate assurance engagements focus on aggregated data rather than physically checking source data at sites.

### LRQA's approach

LRQA's assurance engagements are carried out in accordance with Accountability's AA1000AS (2008) Type 2 approach. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:

- Assessing GPSC's approach to stakeholder engagement to confirm that issues raised by stakeholders were captured correctly. We did this through reviewing associated records.
- Reviewing GPSC'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 GPSC 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 GPSC makes informed business decisions that may create opportunities that contribute towards sustainable development.



- Auditing GPSC's data management systems to confirm that there were no significant errors, omissions or mis-statements in the Report. We did this by reviewing the effectiveness of data handling procedures, instructions and systems. We also spoke with those key peoples responsible for compiling the data and writing the Report.
- Sampling the consolidated data and information at GPSC's head office in Bangkok and visiting GPSC's Power Plants at Rayong and Sriracha.

### 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 GPSC's stakeholder engagement process.
- Materiality:  
We are not aware of any material issues concerning GPSC's sustainability performance that have been excluded from the Report. GPSC reviews regularly their material issues, against their established and extensive criteria for determining material issues, to reconfirm that their material issues are still relevant. The criteria for determining materiality are not biased to GPSC.
- Responsiveness:  
GPSC has processes for responding to various stakeholder groups, included disclosure of GHG related information to its clients and investors.
- Reliability:  
GPSC uses well designed spreadsheets and web-based systems to collect and calculate the data and information associated with the selected environmental and social indicators. GPSC should apply periodically internal verification to enhance the data quality and promote awareness of data and information disclosure throughout the whole of their operations.

### LRQA's competence and independence

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

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

Signed

Dated: 2 February 2018

Opart Charuratana  
LRQA Lead Verifier



**AA1000**  
Licensed Assurance Provider  
000-11

On behalf of Lloyd's Register Quality Assurance Ltd.  
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# SURVEY OF READER OPINIONS

Your views and suggestions after reading the Sustainability Report 2017 will be incorporated to improve our business performances and future Sustainability Report. Global Power Synergy Public Company Limited (GPSC) appreciates your valuable feedbacks.

## 1. Please fill in the basic information.

Gender ☐ Female ☐ Male ☐ Unspecified

## 2. Which of the following stakeholder groups applied to you?

- ☐ Financial Institutions, Investors & Shareholders ☐ Government Agencies  
☐ Employees ☐ Partners Suppliers & Contractors  
☐ Customers ☐ Society & Communities  
☐ Other (Please specified\_\_\_\_\_)

## 3. How did you find out about GPSC's Sustainability Report?

- ☐ GPSC's Website ☐ Seminar / Lecture / Exhibition  
☐ GPSC's Employees ☐ Other Websites  
☐ Newspaper / Magazine ☐ Other (Please specified\_\_\_\_\_)

## 4. What is the reason for your interest in GPSC's Sustainability Report?

- ☐ To obtain investment information ☐ In purpose of research and education  
☐ To understand GPSC ☐ To obtain specific information (Please explain\_\_\_\_\_)  
☐ To prepare a sustainability report of your company (or Corporate Social Responsibility Report)  
☐ Other (Please explain\_\_\_\_\_)

## 5. Please rate your satisfaction in the presentation of GPSC's Sustainability Report 2017

- |   |                            |                              |                           |                                    |
|---|----------------------------|------------------------------|---------------------------|------------------------------------|
| Completeness of the report                  | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low | <input type="radio"/> Dissatisfied |
| Relevance of issues presented in the report | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low | <input type="radio"/> Dissatisfied |
| Interesting content                         | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low | <input type="radio"/> Dissatisfied |
| Easy to understand                          | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low | <input type="radio"/> Dissatisfied |
| Report design                               | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low | <input type="radio"/> Dissatisfied |
| Overall satisfaction of the report          | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low | <input type="radio"/> Dissatisfied |

## 6. Which chapter of the sustainability report 2017 do you find most interesting? (Please explain)

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## 7. Which chapter of the sustainability report 2017 do you find least interesting? (Please explain)

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## 8. Does this report include all material issues for the sustainability of GPSC?

- ☐ Yes, it does. ☐ No, it does not.

If not, please specify which issues should be added to?

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## 9. After reading this report, do you recognize the commitment of GPSC in sustainability? (Please explain)

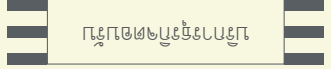
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## 10. Additional suggestions for the future sustainability report.

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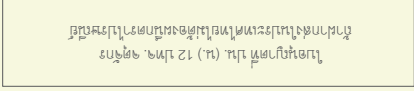
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