



Member of  
**Dow Jones  
Sustainability Indices**  
Powered by the S&P Global CSA

GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

INTEGRATED SUSTAINABILITY  
REPORT 2023

# GROW GREEN ENERGY



# Global ESG Assessment

An international indicator of GPSC's commitment to creating long-term, sustainable value for energy innovations

## Vision:

The global leading innovative and sustainable power company

## Aspiration:

To be top-three power company in Southeast Asia with more than half of MW from green portfolio

## Mission:

To be a PTT Group power and smart-energy flagship that innovatively pursues operational excellence to create value for stakeholders by delivering reliable products to customers with responsibility to the planet



# Global ESG Assessment and DJSI\*

“DJSI – An international indicator of GPSC’s commitment to creating long-term sustainable value for energy innovations”

\* DJSI: Dow Jones Sustainability Indices



# Corporate Strategy

---

## 4S



### S1

#### Strengthen and Expand the Core

Promote and develop our core business with emphasis on maximum shareholders' satisfaction and appreciation of their needs while fostering customers' confidence with operational excellence.



### S2

#### Scale-up Green Energy

Raise the proportion of clean-energy development (solar, wind, and integrated renewables) together with energy storage systems (ESSs).



### S3

#### S-curve and Batteries

Invest in innovation to grow income from the battery business and New S-Curve businesses while accommodating transformation of the energy and power businesses.



### S4

#### Shift to Customer-Centric Solutions

Strive for energy management solutions.

# NET ZERO GHG EMISSIONS PATHWAY

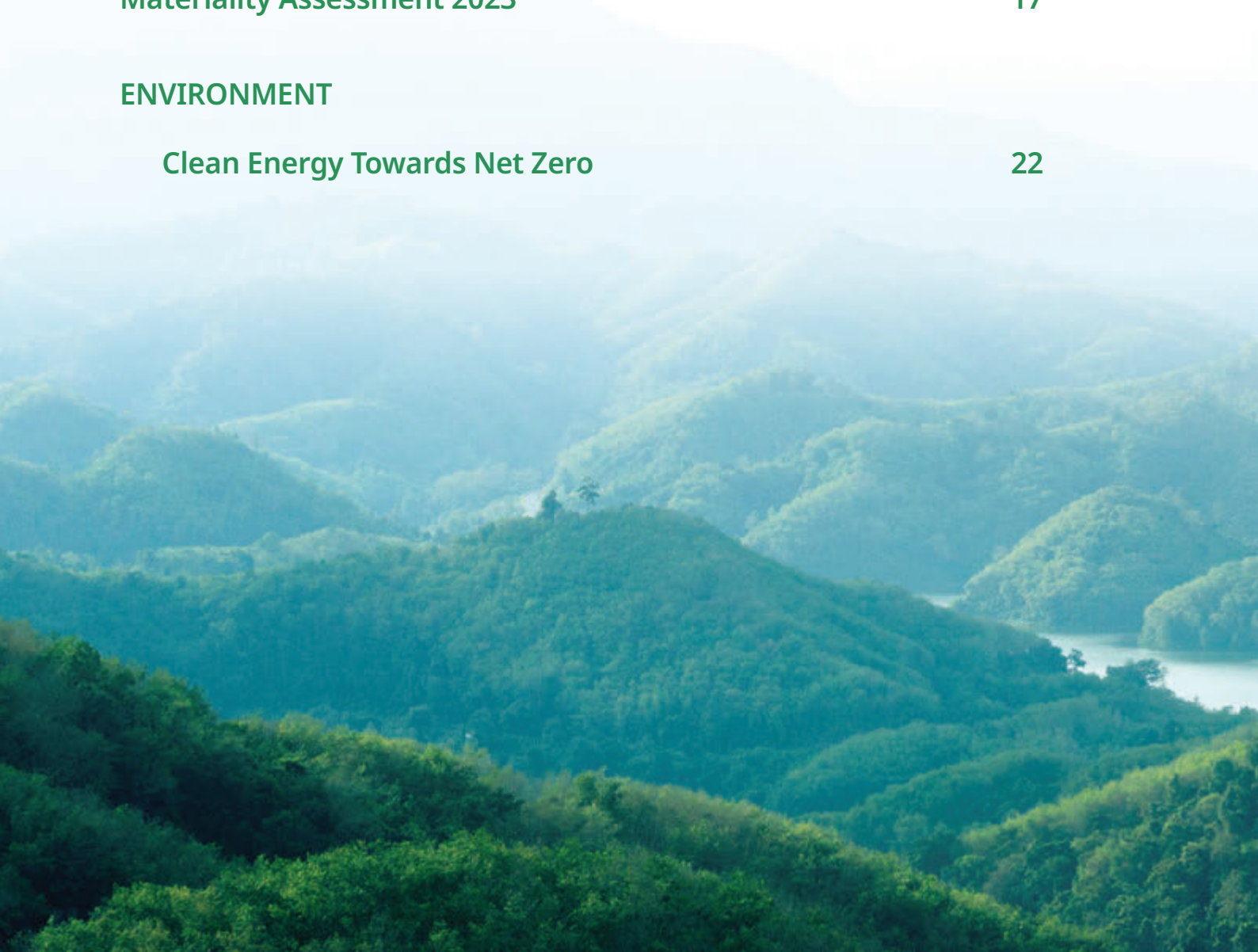
"Moving towards a Low-Carbon Electricity Business and Net Zero Greenhouse Gas Emissions" through technology and innovation development by 2050 and net zero emissions by 2060 through four key action plans, as described below.

- 🌿 **Reduce fossil fuel usage**
- 🌿 **Enhance infrastructures**
- 🌿 **Grow renewables**
- 🌿 **Trading & Offset**



# Content

About this Report	08
Message from the President & Chief Executive Officer	10
Value Creation Through the Business Model 2023	12
Business Strategy and Corporate Outlook	15
Materiality Assessment 2023	17
<b>ENVIRONMENT</b>	
Clean Energy Towards Net Zero	22



**ECONOMICS**

Being an Innovative Leader	32
Capturing the Future Sustainability Market	38

**SOCIAL**

Employee-focused Organization	46
Voices of Stakeholders	52
Data Coverage	54
Assurance Statement	56

# About this Report GRI 2-1, 2-2, 2-3, 2-4, 2-5

In Global Power Synergy Plc (GPSC)'s preparation of its annual sustainability report, it strives to disclose performance outcomes in economic, social, and environmental aspects while illustrating its due regard for sustainable development on critical issues for its business as well as for all stakeholders from January 1 to December 31, 2023. The scope of this report ranges from affiliates where GPSC holds 75% equity upward or is a strategic owner\*, located in Thailand, essentially identical to last year's report. GPSC leverages the Integrated Sustainability Report (IR) scope of the Value Reporting Foundation in tandem with a selected material assessment to disclose data on its management approach and outcomes in line with the Global Reporting Initiative (GRI) Standards 2021 together with additional indicators for the Electric Utilities Sector Disclosure. GPSC applied partial disclosure of data under the IFRS S1 guidelines for disclosing sustainability-related financial data and IFRS S2 guidelines for disclosing data on opportunities and risks related to climate change.

Besides, GPSC has defined goals and reported on its operations that are consistent with the United Nations Sustainable Development Goals (SDGs) as well as disclosure (Task Force on Climate-related Financial Disclosure) as recommended by TCFD.

Part of the 2003 Integrated Sustainability Report is also disclosed on GPSC's website for further credibility, accuracy, and consistency with the GRI standards. This report has earned limited assurance of its data accuracy by SGS (Thailand) Co., Ltd., for both the report and website contents. Details appear on page 56-58. This is the seventh year of third-party certification, a tradition that GPSC is determined to pursue.

Committed to improving the quality of its sustainability development report, GPSC aspires to elevate the quality of information disclosure. We would appreciate your recommendations to integrate with our operations and advocacy of sustainable development in conjunction with all stakeholders. Below are contact channels.

\* Remarks: For additional details on the scope of our reporting, please see page 54-55 of this report.





## Contact Channels



Website : <http://www.gpscgroup.com>  
Mail : Sustainable Management and Climate Change Section Global Power Synergy Plc  
555/2 Energy Complex, Building B 7<sup>th</sup> Floor, Vibhavadi Rangsit Road, Chatuchak,  
Bangkok 10900  
Tel : +66 2140 4600  
Fax : +66 2140 4601



Policy



Materiality



Performance Data



Stakeholder Engagement



GRI Content Index



Online Reader Survey



# Message from the President & CEO



The year 2023 saw the world besieged by various challenges posed by economic situations, energy crises, and geopolitical conflicts, not to mention energy transition, which requires consideration of the balance between the environment and society in order to concretely reduce greenhouse gas emission at the international level, to be achieved via the Conference of the Parties (COP) 28. It is undeniable that these challenges will affect Thailand's industrial and energy sectors. Therefore, the adjustment and preparedness to deal with these upcoming changes are the critical missions of Global Power Synergy Plc (GPSC). To elaborate, we must achieve decarbonization of our lifestyles, decentralization of our power grids, digitalization and artificial intelligence (AI) integration, and

development of our infrastructure to sustain future power demand and innovations, including EV batteries and energy storage systems. All these represent business opportunities as well as relentless creation of shared value for our stakeholders.

Recognizing the significance of these missions, we have based our business on a solid foundation and are ready to adjust ourselves while striking a balance among our economic, environmental, and social aspects (good governance) with our strategic plans and sustainability framework with "The global leading innovative and sustainable power company" vision. Below are our key goals:

- Carbon Neutrality by 2025 and Net Zero Emissions by 2060 consistent with Thailand's nationally determined contributions (NDCs)
- Growth in power capacity from renewables (green energy) that exceeds 50% of our total power capacity by 2030
- Support of Sustainable Development Goals (SDGs)
- Business conformance to the basic human rights code under the United Nations Guiding Principles on Business and Human Rights
- In conjunction with PTT Group, mobilization and development of power-sector and smart energy innovations for future ways of life and changes in global energy demand.
- As for business strategy, GPSC relies on "4S". S1: Strengthen and Expand the Core, focusing on an increase in reliable generation efficiency. S2: Scale-up Green Energy domestically and internationally. S3: S-Curve & Batteries, focusing on energy storage systems, batteries, and renewables value chain to scale up innovative business. S4: Shift to Customer-centric Solutions, focusing on decentralization of energy systems and energy management systems. All these guide our operations toward our goals. Below are our business highlights in 2023:

- Leveraging the merit order, we achieved optimization in power generation with optimal production costs. This year we achieved overall variable power charges that more effectively reflected energy costs better than in 2022. We relentlessly focused on synergistic operations to optimize our asset management, thus leading to joint production and connection to power grids and steam networks. In addition, we successfully optimized our targeted cost reduction measures, leading to rising gross profit to THB 19,230 million (up 56% from last year) and a net profit of THB 3,694 million (up 314%).
- Our renewables power capacity from domestic and international sources surged by more than 2,000 megawatts to a total of 4,884 megawatts, or 52% of our total capacity
- Participating in Dow Jones Sustainability Indices (DJSI) assessment, we were named a DJSI member in the Emerging Markets Index group under Electric Utilities for the second straight year
- We achieved SET ESG Ratings from the Stock Exchange of Thailand, which named us a Sustainable Investment stock for the fifth successive year with an “AA” assessment rating.

May I express my sincere thanks and appreciation to the shareholders, customers, business partners, the public, and all other stakeholders for their wonderful support to and trust in our operations over the past 11 years. We will continue to give it our very best under the sustainability framework with due regard for good governance, the environment, and society, while readying ourselves to make strides together with communities and stakeholders for long-term business growth and international recognition.

**(Worawat Pitayasiri)**

**President and Chief Executive Officer**

# Business Activities across the Value Chain



## Imported factors

Financial capital	Human capital	Manufacturing capital
<ul style="list-style-type: none"> <li>Costs of sales</li> <li>Total liabilities</li> <li>Cash flow from operating activities</li> </ul>	<ul style="list-style-type: none"> <li>Workforce</li> <li>Workforce expenditure</li> <li>Employee upskilling investment</li> <li>Advocacy of well-being and workplace safety</li> <li>Employee upskilling and employee stewardship</li> </ul>	<ul style="list-style-type: none"> <li>Power generation capacities from fossil fuels and renewables</li> <li>Assets, property, plant &amp; equipment</li> </ul>

## Key results

<ul style="list-style-type: none"> <li>EBITDA and net profit from business operations</li> </ul>	<ul style="list-style-type: none"> <li>Employee engagement</li> <li>Turnover</li> <li>Succession plan management for all positions</li> <li>Zero lost-time injury</li> </ul>	<ul style="list-style-type: none"> <li>Increase in other non-current assets</li> <li>Increase in synergistic value from M&amp;As</li> </ul>
--	--	---

## Impact on stakeholders

<ul style="list-style-type: none"> <li>Return on equity</li> <li>Profit per share</li> <li>Dividend payment</li> </ul>	<ul style="list-style-type: none"> <li>Continual training for employees</li> <li>Continual training curriculum development for employees</li> <li>Increase in returns on HR capital investment</li> </ul>	<ul style="list-style-type: none"> <li>Availability of power distribution systems</li> <li>Reduction in emergency shutdown duration</li> </ul>

## Materiality Issues for Sustainability

<ul style="list-style-type: none"> <li>GRC, Maintaining Reliability and Availability</li> </ul>	<ul style="list-style-type: none"> <li>OHS, Employee-focused Organization, Human Rights</li> </ul>	<ul style="list-style-type: none"> <li>Maintaining Reliability and Availability</li> </ul>
---	--	--

# GOVERNANCE



## Products

- Power and steam production
- Energy products and services, incl. ESS technology and smart energy service systems
- Systematically managed GHG Scopes 1, 2, and 3, wastewater, waste, and air pollution

## Vision

- The global leading innovative and sustainable power company

## Strategy



## NET ZERO Strategy

- Reduction of fossil fuel consumption
- Capacity increase in renewables power generation
- Infrastructural development
- Exchange and compensation/offsetting

### Relational social capital

- CSR activity investment budget
- Comprehensive human rights audit
- Engagement with stakeholders

### Intellectual capital

- Employees working on innovation development
- ESS research investment budget

### Natural capital

- Employees working on environmental management
- Water and energy consumption

- Community satisfaction
- Customer satisfaction
- Assessment of investment returns on all community projects

- Project on prototype and test installation of battery ESSs for customers
- Preparation of contracts and/or MOUs on installation of battery ESSs

- Reduction in production fuels
- Reduction in energy consumption in business operations
- Reduction in corporate water consumption
- Zero fine levied on environmental impact created

- Zero case of human rights violation
- Proper tax payment
- Hiring of local labor or new graduates
- Income generation for communities from the Zero Waste Village Project



- Customer and supplier education on battery products
- Investment in NUOVO PLUS for continual responsibility on battery development and production



- Reduction in waste to landfill
- Reduction in GHG emission through T-VER
- Reduction in GHG emission from renewables power generation



- Customer Relationship Management, Supply Chain Management, Sustainable Community

- Being an innovative leader. Capturing the Future sustainability market

- Environmental Management, Clean Energy towards Net Zero



# Business Strategy and Corporate Outlook

GPSC’s strategy in 2023 (for 2023-2030) sustains energy transition to a clean-energy innovation era, made up of S1: Strengthen and Expand the Core, S2: Scale-up Green energy, S3: S-Curve & Batteries, and S4: Shift to Customer-Centric Solutions. Business focus is on Thailand and India, Vietnam, and Taiwan (2nd Home countries). Six aspects of key enablers are partnership, financial discipline, technology & digitalization, sustainability, agile & resilient organization, and operational excellence. These enablers would sustainably grow GPSC’s business with due regard for the environment and stakeholders on its goal of being Southeast Asia’s leading power producer. GPSC’s Carbon Neutrality goal is by 2050 and Net Zero Emissions goal is by 2060.



## Goal

To become one of the top three power generation companies in Southeast Asia with more than 50% of power generation from the green portfolio.




## Mission

Be a leader of the innovative power and smart power businesses of PTT Group that applies innovation for operational excellence and strives to generate value-added for stakeholders by delivering to customers reliable products with social responsibility.




<b>Geography :</b>	 Thailand	 India	 Vietnam	 Taiwan		
<b>Capital :</b>	 Financial capital	 Manufactured capital	 Intellectual capital	 Human capital	 Social and Relationship capital	 Natural capital
<b>Enable :</b>	 Partnership	 Financial discipline	 Technology & Digitalization	 Sustainability	 Agile & resilient Organization	 Operational Excellence


## S1 Strengthen and Expand the Core

	KPIs	Outcomes in 2023	Long-term goals	More details
<p>Promote and develop our core business with emphasis on maximum shareholders' satisfaction and appreciation of their needs while fostering customers' confidence with operational excellence to upgrade safety, reliability, profitability, and sustainability at international standards. To this end, GPSC relentlessly upgrades its people development and application of management standards as well as digital technology to drive and upgrade various aspects of operation together with growth to related businesses in and outside Thailand.</p>	<ul style="list-style-type: none"> <li>• Customer satisfaction</li> <li>• Realized synergy value</li> <li>• SAIFI</li> <li>• TRIR</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> <li>✗</li> </ul>	<ul style="list-style-type: none"> <li>• EBITDA ≥ 2,300 MB</li> <li>• ≤ 0.10</li> <li>• 0.00</li> </ul>	<p>Scan QR CODE</p> 

## S2 Scale-up Green Energy

	KPIs	Outcomes in 2023	Long-term goals	More details
<p>Raise the proportion of clean-energy development (solar, wind, and integrated renewables) together with energy storage systems (ESSs). Focus investment on target countries (India, Vietnam, Taiwan) to grow clean-energy projects as well as GHG intensity and GHG emission reduction. GPSC's renewables generation goal is at least 50% of total capacity, and our GHG intensity reduction goal is 35% by 2030.</p>	<ul style="list-style-type: none"> <li>• Additional MW growth</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> </ul>	<ul style="list-style-type: none"> <li>• 15 GW Renewables</li> <li>• Reduce GHG Intensity by 35%</li> <li>• &gt;50% of renewables in portfolio</li> </ul>	<p>Scan QR CODE</p> 

## S3 S-Curve & Batteries

	KPIs	Outcomes in 2023	Long-term goals	More details
<p>Invest in innovation to grow income from the battery business and New S-Curve businesses while accommodating transformation of the energy and power businesses. GPSC's goals are to join partners in driving the EV battery business and Energy Storage Systems (ESSs) and provide other services related to the value chain of the battery business. GPSC also values other New S-Curve businesses that would play key roles in the future power sector, namely the renewables value chain, hydrogen energy business, and carbon capture, utilization &amp; storage (CCUS).</p>	<ul style="list-style-type: none"> <li>• New business value chain</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> </ul>	<ul style="list-style-type: none"> <li>• Battery production capacity of 4 Gigawatt-hours in Thailand</li> </ul>	<p>Scan QR CODE</p> 

## S4 Shift to Customer Centric Solutions

	KPIs	Outcomes in 2023	Long-term goals	More details
<p>Strive for energy management solutions by focusing on distributed generation, district cooling, and energy management service to leverage energy service to meet customers' needs of for expense reduction, energy efficiency improvement, and greater energy stability, thus leading Thailand toward a low-carbon society. This strategy will be implemented in Thailand first.</p>	<ul style="list-style-type: none"> <li>• Development of new products for the market</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> </ul>		<p>Scan QR CODE</p> 



# Material Issues concerning Sustainability for 2023

## GRI 3-1, 3-2

The 2023 assessment of material issues concerning sustainability found changes in external factors that have caused positive as well as negative impacts and creation of long-term values for stakeholders and the business. Pressure from both internal and external sources that has led to these changes involve such issues as self-adjustment to cope with the fluctuating economy, attempt to reduce GHG emissions to tackle climate change, geopolitical conflicts and energy crisis, the changing market demand, and the evolving pattern of energy consumption, together with human rights and biodiversity, both of which have gained increasing attention globally.






### Remarks:

- Key Material Issues are issues whose effects in various aspects, namely economic (corporate governance), social, and environmental, are recognized by internal and external stakeholders. Both positive and negative impacts are scored by their levels of impacts (high to very high impact) on internal and external stakeholders as well as on the business, taking severity and probability of risks into consideration.
  - o Positive impacts: such as greater profitability and business growth, a better quality of life and of the environment.
  - o Negative impacts: such as business loss and its ensuing recovery cost, breach of related laws and regulations, lower quality of life and of the environment.
  - o indicates very high impact (very high risk and very high business opportunity).
  - o indicates high impact (high risk and high business opportunity).
- Fundamental Material Issues involve basic requirements for the company in compliance with general laws, standards, and practices, which internal and external stakeholders view as issues of low to moderate impacts.
  - o indicates moderate impact (moderate risk and moderate business opportunity).
  - o indicates low impact (low risk and low business opportunity).

# Materiality Assessment 2023



Material Issue	Impact (Positive and Negative)	Occurrence		Stakeholder	Global reporting Initiative: GRI	Sustainable Development Goals : SDGs
		Past/ Present	Future			

## Key Material Issue

<b>Clean Energy Toward Net Zero</b>	<ul style="list-style-type: none"> <li>- GPSC being one of the country's leading service providers of clean energy, taking part in driving attainment of Net Zero and climate change targets</li> <li>- Attracting foreign investors into the energy industry</li> </ul>	✓		Government / public, customers, suppliers	<ul style="list-style-type: none"> <li>- Management Approach (3-1, 3-2, 3-3)</li> <li>- Energy (302-1, 302-3, 302-4)</li> <li>- Emission (305-1, 305-2, 305-3, 305-4, 305-7)</li> </ul>	  
	<ul style="list-style-type: none"> <li>- Supporting low-carbon businesses and innovations with promising future growth</li> <li>- Encouraging the workforce to recognize the values of actions that lead to Net Zero emission</li> </ul>	✓	✓	Shareholders, investors, partners, customers, employees		
	<ul style="list-style-type: none"> <li>- Encouraging access to clean energy sources among consumers</li> </ul>	✓	✓	Customers, society, and communities		

Material Issue	Impact (Positive and Negative)	Occurrence		Stakeholder	Global reporting Initiative: GRI	Sustainable Development Goals : SDGs
		Past/ Present	Future			

### Key Material Issue

<b>Environmental Management</b>	- A legal obligation GPSC not only honors but realizes its impacts on corporate image and business operation	✓		Shareholders, investors, government, society and communities, customers	- Management Approach (3-1, 3-2, 3-3) - Water (303-1, 303-2, 303-3, 303-4, 303-5)	 
	- Promoting a better quality of life for communities - GPSC responding to public policies - Fostering a good corporate image and confidence in the organization - Managing community people's concerns for particulates emitted by power plants	✓	✓	Shareholders, investors, government, society and communities, customers	- Emissions (305-7) - Effluents and Waste (306-1, 306-2, 306-3, 306-4, 306-5) - Environmental Compliance (307-1)	
<b>Capturing the Future Sustainability Market</b>	- Promoting and conforming to changing market trends dictated by customers' demand and public policies		✓	Shareholders, investors, government, customers, suppliers	- Management Approach (3-1, 3-2, 3-3)	 
	- Forging cooperation for product development, regarded as creation of values and market opportunities for the company and business partners		✓	Partners		

Material Issue	Impact (Positive and Negative)	Occurrence		Stakeholder	Global reporting Initiative: GRI	Sustainable Development Goals : SDGs
		Past/ Present	Future			

**Key Material Issue**

<b>Being an Innovative Leader</b>	<ul style="list-style-type: none"> <li>- Preventing disruption from new market players while raising business strengths</li> <li>- Being an innovative leader that suppliers can follow suit</li> </ul>	✓	✓	Shareholders, investors, partners, customers, employees, suppliers	<ul style="list-style-type: none"> <li>- Management Approach (3-1, 3-2, 3-3)</li> </ul>	 
	<ul style="list-style-type: none"> <li>- Raising operating efficiency</li> <li>- Raising staff efficiency, supporting staff upskill according to individual interests</li> </ul>		✓	Employees		
	<ul style="list-style-type: none"> <li>- Impacting business results since innovation benefits future product and service expansion</li> </ul>		✓	Shareholders, investors		
<b>Employee-focused Organization</b>	<ul style="list-style-type: none"> <li>- Organization driven by employees for business goals</li> <li>- Creating differentiation and competitive edge</li> </ul>		✓	Shareholders, investors, employees	<ul style="list-style-type: none"> <li>- Management Approach (3-1, 3-2, 3-3)</li> <li>- Collective bargaining agreements (2-30)</li> <li>- Training and Education (404-1, 404-2, 404-3)</li> <li>- Freedom of association and collective bargaining (407-1)</li> </ul>	   
	<ul style="list-style-type: none"> <li>- Employees able to grow on their career paths with good health amid a good workplace environment</li> <li>- Reducing turnover of employees</li> </ul>	✓	✓	Suppliers, employees		

Remarks: More information on material issues concerning sustainability is available on GPSC's website <https://www.gpscgroup.com/th/sustainability/gpsc-sustainability/materiality-assessment>

# ENVIRONMENT



# Clean Energy Toward Net Zero



## Value-Creation Process

### Critical Factors



Financial Capital



Human Capital



Manufacturing Capital



Relational Social Capital



Intellectual Capital



Natural Capital

### Business Driver

Recently, the world has witnessed climate change leading to natural disasters such as floods, drought, and rises in atmospheric temperatures, which have been more frequent and severe. At the same time, it has seen market change for products manufactured with lower GHG emissions and the socio-political drive proposed and ratified by members of the 28<sup>th</sup> United Nations Framework Convention on Climate Change Conference of the Parties (COP28)<sup>1</sup>, with reports on the monitoring of activities agreed by all members, including Thailand, known as the Nationally Determined Contribution<sup>2</sup> (NDC), developed in the COP26. Further to this, the power development industry has been identified as the top GHG emitter compared with other industries<sup>3,4</sup>. As a result, GPSC is determined to generate power from clean energy sources and aggressively reduce greenhouse gas emission to achieve the Net-Zero GHG emission target<sup>4</sup> and consistency with the megatrend. Reduction of GHGs also eases risks and grows business opportunities as well as competitive advantage. In so doing, the severity of climate change impacts would be lower, resulting in a long-term better quality of life of stakeholders.

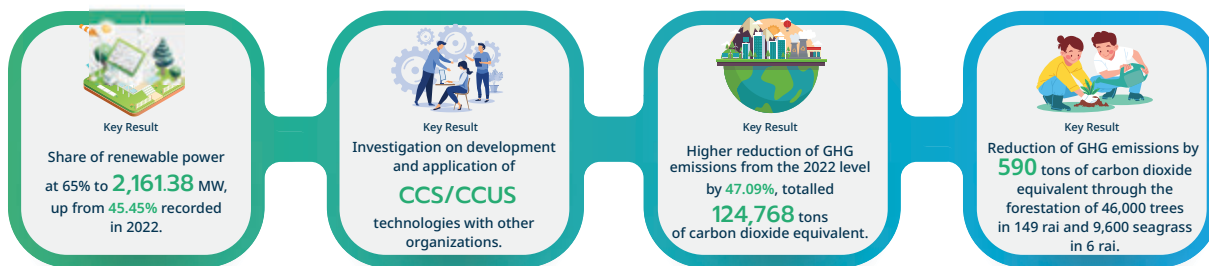
### Aspiration and Main Challenges

- Preparing to become an international power generating leader with progressive investments more on renewables and less on fossil fuels in conjunction with internal carbon pricing for final investment decision-making. With a target of more than half of the total power generated from renewable sources, GPSC maintains commitment to stability and reliability of power production while retaining its business strength and response to the needs of stakeholders in a sustainable manner.
- Managing the crucial challenge with a balance between business growth and conservation of natural resources and the environment under constraints of limited resources and changing consumer behavior through concrete cooperation among all internal and external parties of the corporation.

<sup>1</sup> Summary of Global Climate Action at COP 28  
[https://unfccc.int/sites/default/files/resource/Summary\\_GCA\\_COP28.pdf](https://unfccc.int/sites/default/files/resource/Summary_GCA_COP28.pdf)

<sup>2</sup> National Determined Contributions or NDCs  
<https://unfccc.int/sites/default/files/NDC/2022-11/Thailand%20nd%20Updated%20NDC.pdf>

<sup>3,4</sup> International Energy agency or IEA  
<https://iea.blob.core.windows.net/assets/830fe099-5530-48f2-a7c1-11f35d510983/WorldEnergyOutlook2022.pdf>  
<https://iea.blob.core.windows.net/assets/ed1e4c42-5726-4269-b801-97b3d32e117c/WorldEnergyOutlook2023.pdf>



\* Higher GHG emissions reflected higher power generation to meet higher demand.

The GHG emission concentration is, however, dropping by 7.68% from the 2022 level as a result of the higher efficiency of generating processes.

## Risks and Opportunities



- Increasing efficiency of the power generating process and integrating that with technologies, such as carbon capture, utilization and storage (CCUS) to reduce GHG emissions.
- Increasing share of renewable power from the total generating capacity.
- Increasing use of internal carbon pricing.
- Increasing compliance with new laws and regulations on the environment and climate change.
- Increasing awareness and good corporate image.
- Increasing ability to reduce the long-term cost of capital as a result of better environmental management.
- Increasing integration with new business models, such as the Circular Economy and sustainable supply chains.

## Strategic for Success



- S2 Strategy: Scale-up Green Energy to increase the share of power generation from renewable sources, including solar and wind.
- Infrastructural development to support GHG reduction and capture, such as carbon capture, storage, and utilization (CCS/CCUS) with external organizations.
- Strategy to capture carbon dioxide by using nature-based solutions and forestation.
- Energy management with a focus on increasing energy efficiency, higher production from renewable sources, reducing GHG emissions from power generating process, and increased efficiency of power consumption within the organization.
- Assessing risks and opportunities to develop mitigation to handle impacts of climate change under the TCFD guidelines (Task Force on Climate-related Financial Disclosures).
- Bringing internal carbon pricing (ICP) to enhance investment decision-making for renewable power and low-carbon innovation projects.
- Cooperation with external organizations to exchange knowledge and practices concerning optimizing efficiency of resource consumption.
- Continuous review and updating of environmental management programs with more applications of technologies and innovations to optimize the company's environmental management system.

# Strategic Business Plan

Past	Present (2023)	Future
<ul style="list-style-type: none"> <li>Developed generating process efficiency*</li> <li>Increased share of power generation from renewables*</li> <li>Jointly invested with PTT to increase the share of power generation from renewables in international areas*</li> <li>Became a member of the Thailand Voluntary Emission Reduction Program (T-VER)*</li> <li>Managed work to continuously reduce pollutants and waste from power-generating process*</li> </ul> <p>* Ongoing work programs and activities</p>	<ul style="list-style-type: none"> <li>Investigate and pursue adjustment in energy sources toward clean energy</li> <li>Investigate the use of CCS/CCUS</li> <li>Pursue nature-based solutions for carbon capture</li> </ul>	<ul style="list-style-type: none"> <li>Moving to use clean energy as a primary energy source for power generation</li> <li>Integrating power generation with CCS/CCUS technologies</li> <li>GHG Net Zero emission</li> </ul>







## Outcomes

### Impact to stakeholders and value creation





Activity	Outcome in 2023	Goal	Progress
<b>GHG emission reduction</b> <ul style="list-style-type: none"> <li>Process efficiency improvement (through reduction of energy and fuel consumption)</li> <li>Increasing use of renewable energy sources</li> <li>Co-investing with PTT to increase the share of renewables in international investment</li> </ul>	<ul style="list-style-type: none"> <li>GHG emission intensity down to 0.45 kgCO<sub>2e</sub>/kWh</li> <li>Fuel consumption down to 7.40 million BTU</li> <li>Energy consumption down to 2.17 million MWh</li> </ul>	<ul style="list-style-type: none"> <li>GHG emission intensity of up to 0.49 kgCO<sub>2e</sub>/kWh*</li> <li>Reducing GHG emission intensity by 10% and 35% by 2025 and 2030 respectively (based on the 2020 level)</li> <li>Achieving Carbon Neutrality target by 2050</li> <li>Achieving Net Zero Emission target by 2060</li> </ul>	
	<ul style="list-style-type: none"> <li>Increased share of renewable energy at 38%</li> <li>Utilized renewable energy to reduce GHG emission by 294,505 tons of carbon dioxide equivalent</li> </ul>	<ul style="list-style-type: none"> <li>Increasing share of renewable energy to exceed 50% by 2030</li> </ul>	



Activity	Outcome in 2023	Goal	Progress
<ul style="list-style-type: none"> <li>Became a member of the Thailand Voluntary Emission Reduction Program (T-VER)</li> </ul>	<ul style="list-style-type: none"> <li>The proportion of renewable energy increased from 2022 by 45.45 percent, for a total of 2,161.38 megawatts.</li> </ul>	<ul style="list-style-type: none"> <li>Increase the proportion of electricity produced from renewable energy to more than 50 percent by 2030, with solar energy being the main proportion.</li> </ul>	
	<ul style="list-style-type: none"> <li>Managed under T-VER to reduce GHG emissions by 582,370 tons of carbon dioxide equivalent from eight active projects</li> </ul>	<ul style="list-style-type: none"> <li>Reduction of GHG emissions under T-VER by 4,076,590 tons of carbon dioxide equivalent from eight active projects</li> </ul>	
<b>Managing under a nature-based solution</b> <ul style="list-style-type: none"> <li>Reforestation program</li> <li>Seagrass plantation program</li> </ul>	<ul style="list-style-type: none"> <li>Completed 46,000 trees reforestation in 149 rai</li> </ul>	<ul style="list-style-type: none"> <li>Achieving 10,000-rai reforestation target by 2030</li> </ul>	
	<ul style="list-style-type: none"> <li>Completed 9,600 seagrass plantation in 6 rai</li> </ul>	<ul style="list-style-type: none"> <li>Achieving “No Net Deforestation” target by 2025</li> </ul>	
<b>Promoting and forming alliance for low-carbon society and Net Zero Emission</b>	<ul style="list-style-type: none"> <li>Promoted the Nationally Determined Contribution (NDC) target through GHG reduction within the organization</li> <li>Became a member to promote the GHG emission reduction with external anti-climate change organizations, including the Thailand Carbon Neutral Network, Carbon Market Thailand Network, and RE100 Thailand Club to drive for low-carbon energy businesses</li> </ul>	<ul style="list-style-type: none"> <li>Continuously participating, promoting and enlarging networks for low-carbon movement and GHG Net Zero Emission</li> </ul>	
<b>Environmental management development</b>	<ul style="list-style-type: none"> <li>Reused 225,314.79 tons of waste from operations</li> <li>Reduced 1,529.2 tons of waste to landfill</li> <li>Decreased water consumption by 2,765.89 tons</li> </ul>	<ul style="list-style-type: none"> <li>Achieving zero waste to landfill</li> </ul>	

\* Annual goal

Explanation:

-  Achieved
-  On target

## National targets/directions/ policies



## Key Performance Indicators: KPIs



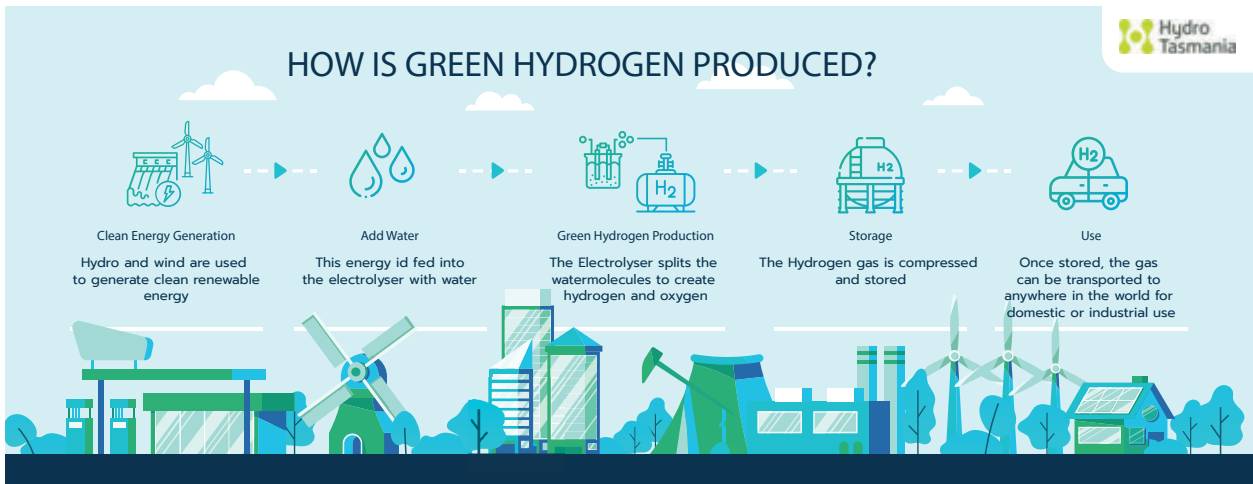
- Stipulated targets under the Nationally Determined Contribution (NDC)
- 20-year National Strategy (2018-2037)
  - o On building infrastructural capability for national competitiveness
  - o On creation of growth with the quality of life concordantly with environmental friendliness (circular socio-economy, marine socio-economy, climate-friendly society, development of urban areas, rural areas, farming, and eco-industrial areas; development of security on water resources, energy resources, and agricultural resources; and a paradigm shift to define the national future direction)
- 13<sup>th</sup> National Economic and Social Development Plan (2023-2027)
  - o Sustainability of natural resources and the environment (circular economy and low-carbon society, natural disasters and climate change risks and impact mitigation)

- GHG Intensity Reduction\*
- Increasing share of renewable energy
- Strategic move on climate change
- Power generation efficiency improvement
- Water resource management and air pollution management efficiency improvement
- Reduction of waste to landfill

\* Corporate KPIs



Under the megatrend of clean energy and awareness of impacts from climate change significantly affecting the power business, GPSC has accordingly developed a business strategy known as S2: Scale-up Green Energy under the low-carbon power business and the Net Zero emission concepts to cope with energy transition, alleviate the impacts while creating business opportunities amid climate change.



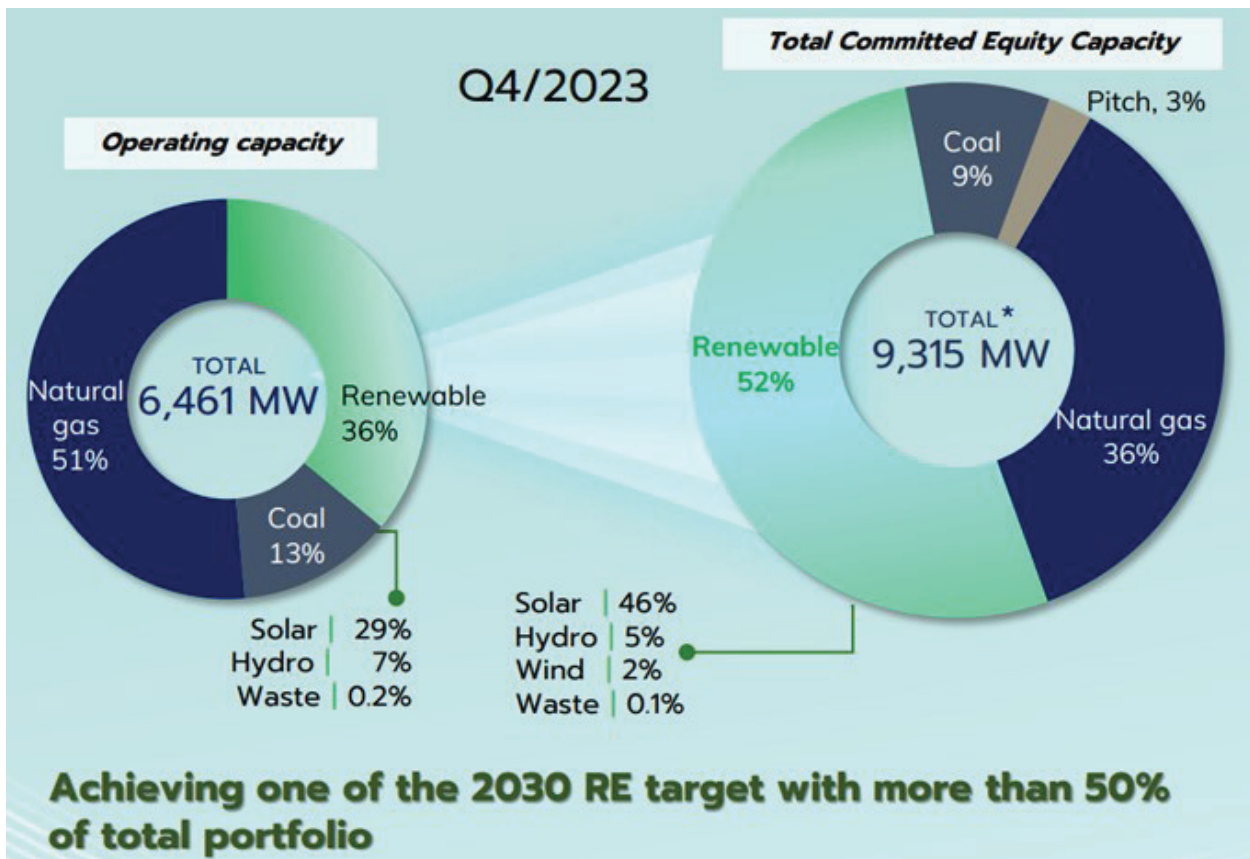
## Investigation and development of green hydrogen, the alternative clean energy of choice

Hydrogen is an alternative energy with high efficiency and the potential to become the future energy of choice for various uses including power generation, heat and steam production, and transport fuel. Green hydrogen is hydrogen generated from renewable energy sources such as solar and wind, as there is no carbon dioxide emission in the generation process, and it therefore significantly helps reduce global GHG emission, the main cause of climate change.

GPSC began its investigation of green hydrogen in 2023 by launching a joint-venture project with Meranti Steel Co., Ltd., a leading steel manufacturer of Singapore, in using green hydrogen for steel production. The project scope included a feasibility study on using clean energy and

energy management to produce steel that is environmentally friendly while reducing GHG emissions from conventional processes. Meranti plans to invest in a steel factory in Thailand as the first green steel manufacturing plant in Southeast Asia using clean energy, including solar, wind, and green hydrogen. With state-of-the-art steel manufacturing technology, Meranti can reduce GHG emissions by up to 3 million tons of carbon dioxide per year versus conventional technology and processes. This milestone project bears a conceptual design of GHG reduction truly integrated from the beginning and set to significantly enhance the national achievement on GHG reduction

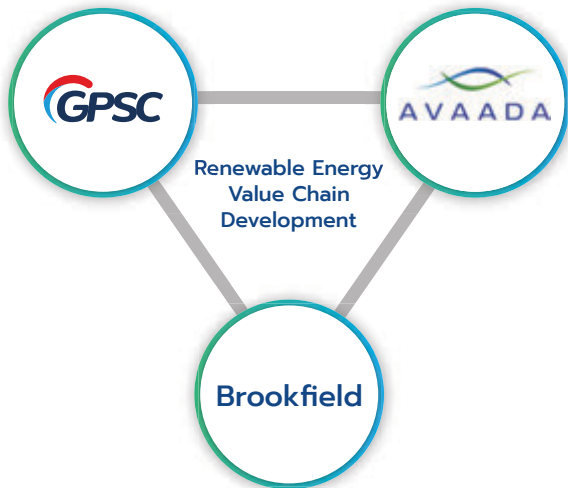





## Increasing share of power from renewable energy sources toward Net Zero GHG Emission

GPSC has set a target to generate power from renewable energy sources by over 50% by 2030, primarily from solar energy. With high-potential power generation from solar and available investment opportunities in India, the company invested through the share acquisition of Avaada Energy Private Limited (AVAADA), intended to support its business target. As one of the five top solar power generation countries, the geography and climate of India are considerably suitable for solar power generation. With the extremely high solar light intensity, averaging 300 days per year of solar time (solar light on the earth's surface), the power generation capacity could reach 3.5-4.5 kWh/kWp, thus providing good returns on investment.


The company's current power generating capacity in India stands at 9,525 MW (up from 4,364 MW in 2022 or by more than twice). This capacity can be constantly increased under India's national energy policy to generate more than 500 gigawatts of power from renewable sources by 2030 toward the fully integrated clean energy and generation of carbon credit in the future. In addition, GPSC entered investment cooperation with Brookfield Global Transition Fund (BGTF), a global investment fund with sizable invested assets related to renewables and climate change, and with Avaada Group to invest in the fully integrated clean energy businesses including solar, wind, hydrogen and ESS, as well as other business development projects related to the solar power value chain.




In addition to solar power, GPSC engaged in joint investment with Copenhagen Infrastructure Partners (“CIP”) through its wholly owned subsidiary Global Renewable Synergy Co., Ltd. (GRSC), on a 595-MW Changfang and Xidao (CFXD) offshore wind farm project, the company’s first investment project on offshore wind farms with this highly experienced wind farm developer. The project demands specific sets of expertise, particularly on EPC and project development suitable for the project environmental setting while maintaining safe power generation and distribution reliability without disruption. The project EPC was 88% completed at this year-end with partial operations. The COD is scheduled for Q1/2024. The company continues cooperation with CIP and other business partners to identify future investments for renewable power generation in Thailand.

Reduced GHG emissions  
by **723,000** tons  
of carbon dioxide equivalent from offshore  
wind farm project



Reduced GHG emissions by  
**4.70** Mtons of carbon dioxide  
equivalent from solar power projects



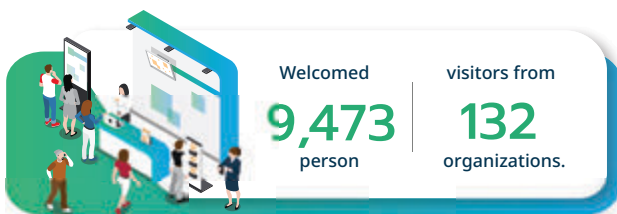
Added **4,089 MW** of power  
generated from renewable solar  
energy (equity interests)

## GPSC Waste-to-Energy Learning Center

Up to 25.7 million tons of waste was generated by Thais in 2023, equivalent to 70,411 tons/day or 1.07 kilograms/person/day. Only 8.8 million tons of this, or 34% of the total, were recycled, leaving the remainder for waste landfill and garbage burning, creating considerable air and water pollution and causing problems on limited landfill areas. Waste segregation is of prime importance for correct and proper waste management, especially for value-creation such as recycling and refuse-derived fuel (RDF). The segregation of waste from the origin, including households, should therefore be heavily promoted to reduce its volume and create a clean and sustainable environment. GPSC operates a 9.8-MW power generating plant from RDF in Rayong province with an international-standard incinerator and environmental management capable of handling up to 500 tons/day of household waste and garbage, the first fully integrated waste-to-energy model in the province. The project has significantly reduced waste management troubles for the community, particularly on efficiently limiting the size of landfill in an environmentally friendly manner. A waste-to-energy learning center was



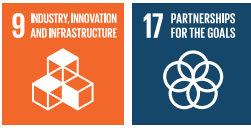
subsequently set up by the company as a source of knowledge on the proper management for each type of waste, through various types of easy-to-understand media from waste segregation, waste recycling, RDF development, to power-generation process. Several interfacing digital games were integrated to generate reality to the learning center, known as the RDF Virtual Exhibition, providing a virtual digital journey for the education of youths and the public without a physical visit to the plant. Visitors can, however, view the real operation from the exhibition hall, as the learning center building was beautifully designed with a unique architecture and situated with the waste segregation facilities. Viewing the actual waste segregation before power generation aids understanding of the waste-to-energy journey and value of waste, encouraging more learning and realizing the value of waste segregation from household to the community, which eventually helps reduce household and community waste, while increasing the share of power generation from waste in reality and in a sustainable way.



# ECONOMICS



# Being an Innovative Leader



## Value-Creation Process

### Critical Factors



Financial Capital



Human Capital



Intellectual Capital

## Business Drivers

The compound annual growth rate (CAGR) of global energy storage<sup>1</sup> is expected to be 14.2% between 2023 and 2032, with a market capitalization value of THB 5.8 trillion or 3.7 times that in 2022, based on general research. This phenomenal growth stems from higher power demand during the energy transition, especially toward EVs as a means of transport<sup>2</sup>, and a leap in demand for power from renewables in various sectors; both types of demand require energy storage as key attributes for efficiency and effectiveness. Moreover, innovation and digitalization are key enablers for new innovations, higher efficiency, and reliability<sup>2</sup> by reducing human errors, eliminating work duplications while increasing the efficiency and capacity of data storage and analytics, staff interface capability, and development of subsequent innovations that could continuously create more business opportunities and generate superior work performance. Modern technologies are key factors supporting more effective innovation management, and they have become less capital-intensive but with more varieties.

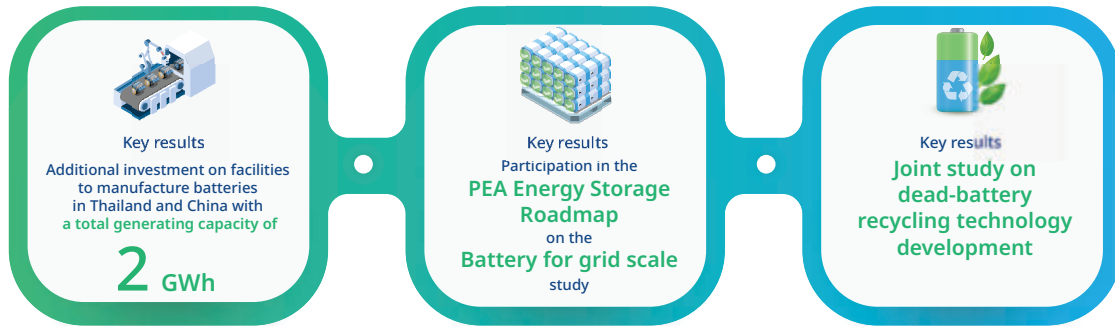
## Aspiration and Main Challenges

- Commitment to enhancing technology of energy storage systems (ESSs) and providing integrated smart energy services, as well as advancing from SemiSolid battery manufacturing to battery packs to serve diversified uses.
- Becoming a truly efficient organization with an innovative culture and digitally driven operational systems.
- Adherence to and alignment with the national policy to become a regional production hub of ESSs and EVs for ASEAN, with goals to produce a series of innovative products for the market to meet demand from industrial, commercial, and transport sectors, as well as promoting and developing new business models to better serve the national policy on the digital economy and clean energy.
- Being part of national socio-economic development, improving the quality of life with energy innovations.

<sup>1</sup> Precedence Research (2023), Energy Storage Market - Global Industry Analysis and Forecast 2023-2032 (<https://www.precedenceresearch.com/energy-storage-market> )

<sup>2</sup> International Energy Agency (2022), World Energy Outlook 2022 (<https://iea.blob.core.windows.net/assets/830fe099-5530-48f2-a7c1-11f35d510983/WorldEnergyOutlook2022.pdf> )





<b>Risks and Opportunities</b> 	<b>Strategic for Success</b> 
<ul style="list-style-type: none"> <li>Fostering the confidence of customers under aggressive competition among energy service providers through market expansion and penetration.</li> <li>Creating an embedded innovative culture and applying digital systems throughout the organization.</li> <li>Designing manufacturing processes with maximum flexibility to cope with rapidly changing technologies.</li> <li>Managing risks on upstream raw materials, the supply value chain, and manufacturing processes to prevent work disruption and production cost escalation in view of limited number of sourcing vendors and suppliers.</li> </ul>	<ul style="list-style-type: none"> <li>Pursue the S3 Strategy (S-Curve &amp; Batteries) for energy storage innovation and New S-curve business development.</li> <li>Operate through NUOVO PLUS (49% owned by GPSC) businesses related to the battery value-chain such as module/pack assembly and ESS battery system integration (SI).</li> <li>Develop batteries for electrical appliances for power generation for buildings, EVs, and others.</li> <li>Encourage research staff to jointly work with external agencies and promote experience-sharing within the organization.</li> <li>Invest in and cooperate with external agencies to steadily improve research capability on innovations and technologies.</li> <li>Establish an innovative culture and promote digitalization in the organization.</li> </ul>

## Strategic Implementation

Past	Present (2023)	Future
<ul style="list-style-type: none"> <li>Co-developed battery technology with 24M.</li> <li>Set up a SemiSolid energy storage production plant, the first in Southeast Asia.</li> <li>Founded NUOVO PLUS.</li> <li>Jointly researched on battery-swapping station.</li> <li>Invested in the AXXIVA battery manufacturing expansion project.</li> </ul>	<ul style="list-style-type: none"> <li>Jointly establish NV Gotion to expand battery production in Thailand.</li> <li>Jointly research on the Battery for Grid Scale project.</li> <li>Invest in the development of dead-battery recycling technology.</li> </ul>	<ul style="list-style-type: none"> <li>To become a regional hub of ESS production for Thailand and Southeast Asia.</li> <li>To become a truly innovation-driven and digitally-driven organization.</li> </ul>

# Outcomes

## Impact to stakeholders and value creation



Shareholders



Investors



Business Partners




Customers





Employees

Activity	Outcome in 2023	Goal	Progress
Capacity expansion of energy storage units	<ul style="list-style-type: none"> <li>Engaged in a joint venture between NUOVO PLUS and Gotion to establish NV Gotion Co., Ltd. for construction of a Module/Pack assembly plant with 1-GWh capacity</li> <li>Invested in AXXIVA through the Next-Gen EV Battery Manufacturing Project with 1-GWh capacity</li> </ul>	<ul style="list-style-type: none"> <li>Expansion of energy storage unit production to a giga-scale level to sustain commercial demand by 2025</li> <li>Expansion of energy storage unit production to 5-10 GWh by 2030</li> <li>Becoming Thailand's ESS industry leader</li> <li>Becoming a Southeast Asian regional ESS production hub</li> </ul>	
Pursuing production development and new business models to cope with future power business	<ul style="list-style-type: none"> <li>Undertook joint research with business partners on a battery-swapping project</li> <li>Undertook a joint study on a battery for grid-scale project, scaled-up project work under the PEA Energy Storage Roadmap</li> <li>Cooperated with PTT and Total Environmental Solutions Co., Ltd. (TES) in the development of dead-battery recycling technology in Thailand to promote fully integrated battery businesses in the future</li> </ul>	<ul style="list-style-type: none"> <li>Continuing high-quality and reasonably priced product development that can be bundled into an integrated energy-generating system, thus creating competitive advantages for the company in the power business market</li> <li>Creating new business models to meet future power business and customers' desire for more Zero Carbon Emission Products</li> <li>Founding an innovation center (R&amp;D Center) to study dead-battery recycling processes through the Circular Economy, consistent with the national policy and targets</li> </ul>	
Engaging in education on battery products among customers and suppliers	<ul style="list-style-type: none"> <li>Continuously educated customers and suppliers on battery products</li> </ul>	<ul style="list-style-type: none"> <li>Educating customers and suppliers on battery products*</li> </ul>	

Activity	Outcome in 2023	Goal	Progress
Pursuing digital transformation to become a digitally-driven organization	<ul style="list-style-type: none"> <li>Continuously pursued digital transformation programs to become a digitally driven organization</li> </ul>	<ul style="list-style-type: none"> <li>Becoming an innovation-driven and digitally-driven organization</li> </ul>	

\* Annual goal

Explanation:

-  Achieved
-  On target

National targets/directions/policies	Key Performance Indicators: KPIs
<ul style="list-style-type: none"> <li>20-Year National Strategies (2018-2037) <ul style="list-style-type: none"> <li>On nurturing national competitiveness</li> <li>On development and enhancement of human capital</li> <li>On growth with a quality of environmentally friendly life</li> </ul> </li> <li>13<sup>th</sup> National Economic and Social Development Plan (2023-2027) <ul style="list-style-type: none"> <li>Sustainability of natural resources and the environment</li> </ul> </li> <li>The 30@30 policy (the national promotional pathway for EVs)</li> </ul>	<ul style="list-style-type: none"> <li>Number of projects applying for permits concerning the New Business Value Chain*</li> <li>Battery capacity</li> <li>Progress on dead-battery recycling technology development</li> <li>Primary sources of raw materials for production</li> </ul> <p>*Corporate KPI</p>



## Highlight Projects

Technology R&D is a critical success factor for any organization. Envisioning a steady rise in demand for power and energy transition toward the Decentralized Power System, GPSC has defined the S3 (S-Curve & Battery) Strategy to cope with this rise in demand and provide more new business opportunities in response to the energy transition. These can be achieved only through the development of battery technology, a critical key to success for the decentralized power system, and businesses in the dynamic power business value chain, to maintain and enhance its capability to compete and grow sustainably.

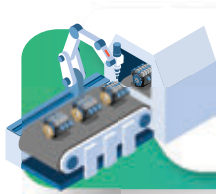


## Integrated Battery Innovation Development

At present, battery holds the key to success for renewable energy development, as it efficiently provides storage capacity for energy generated from renewables. With additional development, battery energy storage can be expanded into a large ESS that addresses related industries, including energy management and renewable energy. Battery also holds the key to the growth of EVs, a transport mode purely using batteries. Under the national 30@30 policy, initiated to support the Zero Emission Vehicle (ZEV) with a target of 30% share of EVs in the total vehicles manufactured in 2030, Thailand would become a global hub for EV assemblies and parts. In the future, the battery business is extremely promising. As an energy service provider and battery technology developer, GPSC has continuously viewed and invested in the entire battery value chain to achieve its target of becoming a fully integrated battery power provider, aligning with the national goals and policy on the automotive industry, energy storage, universal energy transition, and taking PTT Group to the helm of the EV industry before moving eventually into a low-carbon society.

## Battery Development for Future Energy

In 2023, GPSC entered a joint venture with Gotion Singapore Pte., Ltd. (Gotion), the leader of EV batteries and ESSs in China and a subsidiary of Gotion High-tech Co., Ltd., to set up NV Gotion Co., Ltd. to manufacture battery packs and modules in Thailand to address the rising battery business. Beginning with a production capacity of 1 GWh, the company can assemble lithium-ion-phosphate, high-quality lithium-ion batteries imported from Gotion's manufacturing plant in China, for 20,000 small EVs, and grow its capability to provide more EV services to the commercial transport industry and a large-scale ESS. Besides, GPSC invested in Anhui Axxiva New Energy Technology Co., Ltd. (AXXIVA) to expand its battery capacity to meet the steady rise in demand for EVs in China through the Next-Gen EV Battery Manufacturing Project, a fully integrated battery manufacturing project including the establishment of a cell and formation factory, a combined power station, and an R&D Building to provide technological R&D support. The project is set to commence with a 1-GWh manufacturing capacity in the 2<sup>nd</sup> quarter of 2024.



Participation in a battery production project to support the growth of EVs in Thailand and China with a total anticipated capacity of **2 GWh**



Collaboration and a milestone upgrading Thailand to **ASEAN's regional hub for battery production**




Participation in infrastructural development of the **dead-battery recycling technology**



Promotion of Circular Economy and net-zero GHG emission consistent with the **national sustainable development goal 0**

## Dead-battery recycling technology for better environment

GPSC has always given serious attention to manage dead batteries, recognizing that battery constituents can be retrieved after battery life cycles—and therefore recycling is the best option. It not only saves the cost of manufacturing, but also conserves rare natural resources. Recognizing this as a business opportunity, GPSC entered a joint venture with PTT Nuovo Plus Company and Total Environmental Solutions Company Limited (TES), the world's leading firm on electronic waste recycling, to conduct R&D on the dead-battery recycling technology, striving for fully integrated

battery products and services. With supplies of dead batteries and resources, including experts, a dead-battery recycling technology feasibility study will significantly enhance clean-technology goals of PTT Group and equip GPSC with competitive advantages to better meet customers' needs quickly at lower costs. This achievement will not only bolster its capability in renewable power businesses, but also support GPSC's Net Zero Emissions target and subsequently sustainable growth for Thailand.

# Capturing the Future Sustainability Market



## Value Creation Process

### Critical Factors



Financial Capital



Human Capital



Manufacturing Capital



Intellectual Capital

### Business Drivers

One notes a rising trend of power consumption, notably from renewable energy, coupled with behavioral change of consumers to prosumers, where consumers serve as both energy producers and users. This trend is consistent with the decentralization concept together with digitalization platforms to manage energy. All these represent key drivers transforming market opportunities into new revenue to match future energy consumption models.

### Aspiration and Main Challenges

- Products and services on smart and other energy consumption in the energy consumption chain that address consumers' needs
- Expansion of clean-energy consumption at affordable prices, using efficient energy management systems





## Risks and Opportunities



- Fostering customers' confidence for recognition due to increasing expansion and market penetration for energy services
- Control and easing of volatile production costs of solar panels and parts, including customer management
- Establishment of partnership with other agencies in battery development for EVs and other telecommunication industries
- Joint ventures with various start-ups to scale up energy technology and innovation
- Legal requirements on various applications, including smart grid and smart meter
- Development of virtual power plants
- Establishment of new business models to sustain future energy consumption

## Strategy for Success



- S4 (Shift to Customer-Centric Solutions) strategy, focusing on services that meet customers' needs, embracing energy consumption through technology and innovation
- Focus on achieving advantages in distributed-generation business, district cooling, and energy management services in the B2B format
- Additional strategy for B2C, which is an extension of energy innovation
- Participation in designing and testing energy innovation application with third-party agencies to pursue growth and real-life application fitting consumers' needs
- Support for employees' engagement in research with third-party agencies and sharing information inside GPSC to grow personnel's capacity in future clean-energy businesses

## Strategic Implementation

Past	Present (2023)	Future
<ul style="list-style-type: none"> <li>• Participation in the ERC Sandbox Project</li> <li>• Development of the Smart Cities Project</li> <li>• Development of smart energy systems for buildings</li> </ul>	<ul style="list-style-type: none"> <li>• Cooperation with PTT Digital in the Investigation &amp; Development of Energy Platform Project</li> <li>• Collaboration in developing the Smart Energy Innovation Project with SUT</li> <li>• Cooperation in the District Cooling &amp; Energy Management Development &amp; Investment Project</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated energy management systems for customers that suit their contexts and needs</li> </ul>

# Outcomes

## Impact on stakeholders and value creation



Investors



Public agencies



Customers



Shareholders



Suppliers/business partners



Joint venturers

Activity	Outcome in 2023	Goal	Progress
Development and design of new business models to promptly meet customers' needs	<ul style="list-style-type: none"> <li>Constantly monitored and improved business models consistent with energy needs</li> <li>Signed MOU with PTT Digital on the Investigation &amp; Development of Energy Platform Project to advocate clean energy and future power trading formats</li> <li>Collaborated with SUT in developing the Smart Energy Innovation Project to promote solar power generation for SUT's facilities and collaborated in solar energy R&amp;D</li> <li>Cooperated in the District Cooling &amp; Energy Management Development &amp; Investment Project</li> </ul>	<ul style="list-style-type: none"> <li>Design and development of new products that address customers' requirements better*</li> <li>Establishment of new business models for future power business* *Annual goals</li> </ul>	
		<ul style="list-style-type: none"> <li>Availability of more commercial products to sustain new-age power industry, including distributed generation via solar power generation in conjunction with ESSs and other public utility systems, including district cooling systems</li> </ul>	
		<ul style="list-style-type: none"> <li>Development of prototype projects on ESS technology and novel products for installation for customers in more diverse formats, including the real-estate and communication businesses and the EV industry</li> </ul>	
		<ul style="list-style-type: none"> <li>Integration of clean-energy installation and service in conjunction with applied innovation for carbon management in various models, including Renewable Energy Certificate (REC) and Carbon Credit on Digital Exchange Platform</li> </ul>	
		<ul style="list-style-type: none"> <li>Drafting of agreements and/or MOUs on formulation of projects with third-party agencies to investigate energy technology and innovation</li> </ul>	

\* Annual goal

Explanation:

- Achieved
- On target



## National targets/directions/ policies



## Key Performance Indicators: KPIs



- 20-Year National Strategies (2018-2037)
    - Fostering competitiveness
    - Growth based on environment-friendly quality of life
  - 13<sup>th</sup> National Economic and Social Development Plan (2023-2027)
    - Socio-economic opportunities and equality
    - Sustainability of natural resources and environment
  - Implementation of S4 entry and launch of products fulfilling customers' requirements\*
  - Efficiency and customers' satisfaction with new products
- \*Corporate KPI

## Highlight Projects

Recognizing critical energy situations, including consumers' behavioral changes of choices toward clean and green energy, as well as the increasing role of technology in energy management, GPSC envisions opportunities for developing products and services to relentlessly fulfill customers' needs. It relies on S4 (Shift to Customer-Centric Solutions) in power generation and smart-energy services.

## Energy Platform for Developing Clean Energy through Smart Innovations

Committed to energy business leadership that advocates clean energy and future power trading business models to elevate sustainable clean-energy business management practices, GPSC joined hands with PTT Digital (PTT Group's ICT service provider) in conducting energy platform R&D. Known as GAIA Platform, this technology enables operators to manage and plan energy trading on a real-time basis. The platform can also precisely forecast consumers' application and energy demand through machine learning and AI for maximum efficiency in energy management and planning.

GPSC also applies the platform to support supply & demand planning within the corporation to enable itself to efficiently plan capacity and distribution that are consistent with goals and prevailing power demand. The platform aids in planning and computing areal costs of power plants to enable the most cost-effective generation and distribution. In place is a project example (a solar farm) whose internal management was aided by the platform; this is because project locations do affect costs, which in turn is a function of consumers' distances (from grids).





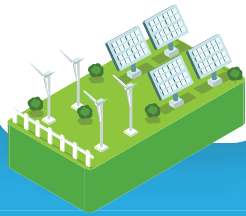
## Collaboration for Sustainable Energy

Since the consumption of renewable energy is crucial to the achievement of the Net Zero Emissions goal, GPSC values the development of innovations that lowers greenhouse gas (GHG) emissions while using more renewables. In 2023, GPSC collaborated with SUT in developing the Smart Energy Innovation Project by promoting power generation with solar cells on the compound of the university, with a total capacity of no less than 5.99 MW. Two installation modes were used: solar rooftop and solar floating. Solar energy application has been in use since February 2023. The project generated 8.5 million kilowatt-hours of renewables power for the university while lowering GHG emissions by 115,000 tons of carbon dioxide equivalent. Also, solar floating lowered reservoir water evaporation by more than 30,000 cubic meters this year.



GPSC also joined the development of a smart public utilities project in the Smart Park Industrial Estate. Supporting New S-Curve and First S-Curve industries, the estate has been modernized in industrial technology, communication systems, transport systems, energy systems, and environmental friendliness, consistent with the Eco Industrial Town concept. Here, GPSC collaborated with the Industrial Estate Authority of Thailand, B.Grimm Power Plc, Earth Electric Supply Co., Ltd. (EARTH), and Triple P Technology Co., Ltd. (PPP), which are agencies with proficiency in energy and power innovation and sustainability. GPSC's responsibility lies in energy management and services, including the estate's smart public utility system. It also facilitates coordination between land lessors and land lessees in the Smart Park Industrial Estate in a comprehensive way to accommodate growth of domestic industries and sustainable national development. Below are the six modules of our services.

**Green Energy and  
Energy Reliable System**



**Smart Data and  
Communication**



**Smart Energy and  
Microgrid Network**



**Retail Mixed  
Use Community**



**Smart Energy Factory**



**Integrated  
Operation  
Centre**



## The Smart Public Utilities Project in the Smart Park Industrial Estate should provide its first services by 2024



Collaboration in developing the Smart Energy Innovation Project in supporting GHG reduction

**by 115,000 tons**

# SOCIAL



# Employee-Focused Organization



## Value Creation Process

### Critical Factors



## Business Drivers

Employees represent a vital resource driving GPSC toward its vision, mission, and goals efficiently while adjusting GPSC to constantly dynamic circumstances. Employees grow in parallel with the company. GPSC's main challenges lie in strategic human resource management so that employees may command skills that prove consistent with business directions and global transformation, and in attracting as well as retaining competent personnel. To this end, GPSC must lay a foundation for a corporate culture and values that enhance unity, and must forge work inspiration while developing their new capacities. It must also advocate their physical wellbeing, welfare, and a good quality of life at work in addition to mapping out succession plans for business continuity and long-term corporate mission continuity.

## Aspiration and Main Challenges

- Work flexibility for employees' full potential
- Application of technology and digitalization in support of employees' work
- Fulfilment of individual employees' needs for growth capability in parallel with the company's growth
- Sustainable contentment for all employees throughout their services
- Stewardship of welfare under all circumstances
- Employees' awareness of the significance of climate change and assorted trends



Risks and Opportunities 	Strategy for Success 
<ul style="list-style-type: none"> <li>Establishing the Agile corporate culture in response to global trends and organizational strategy</li> <li>Broadening employees' horizons to keep up with global trends, e.g., knowledge about power plants fueled by renewable energy and other alternative energy, battery production plant, and development of battery and ESSs</li> <li>Grooming employees for executive roles with job rotation in response to GPSC's steady growth strategy</li> <li>Encouraging good employee experience that keeps up with global situations throughout their employment journey (from recruitment to dismissal)</li> <li>Application of the digital system that suit today's operations, the work-from-anywhere pattern, and flexible work hours</li> </ul>	<ul style="list-style-type: none"> <li>ACT SPIRIT: Promoting the corporate culture and values throughout the operations by organizing ACT SPIRIT promotional activities to ensure enthusiastic adoption as the way of work</li> <li>Succession Plan: Arranging succession plans for key positions to ensure business continuity</li> <li>SPARK Accelerator: Getting up-and-coming employees ready for business growth</li> <li>GPSC Academy: Fostering employee development to advocate business growth and new business plans in Thailand and abroad</li> <li>Implementing policies concerning human resource management, human rights, and non-discrimination</li> </ul>



## Results

Past	Present (2023)	Future
<ul style="list-style-type: none"> <li>Arranged succession plans for key positions</li> <li>Arranged activities to reduce employee turnover</li> <li>Arranged activities to foster employee engagement</li> </ul>	<ul style="list-style-type: none"> <li>Arranged succession plans for key positions</li> <li>Arranged activities to reduce employee turnover</li> <li>Arranged activities to foster employee engagement</li> <li>Ran the GPSC Academy Project</li> <li>Ran the SPARK Accelerator Management Trainee Program</li> </ul>	<ul style="list-style-type: none"> <li>Arranging succession plans for key positions</li> <li>Arranging activities to reduce employee turnover</li> <li>Arranging activities to foster employee engagement</li> <li>Running the GPSC Academy project</li> <li>Running the SPARK Accelerator Management Trainee Program</li> </ul>

Activity	2023 Performance	Goal	Progress
<p>Arranging succession plans to shape employees' career growth</p>	<ul style="list-style-type: none"> <li>Succession plans 100% completed for 34 current critical positions at the SVP and EVP levels, comprising 9 EVPs, 25 SVPs, with seven talents groomed for the EVP pool and 32 for the SVP pool (39 in total)</li> </ul>	<ul style="list-style-type: none"> <li>100% completion of the succession plans for critical positions</li> </ul>	
<p>Actions taken to reduce employee turnover and strengthen employee engagement comprising</p> <ul style="list-style-type: none"> <li>GPSC Career Facebook Page</li> <li>GPSC KM Day 2023</li> <li>Leadership Transformation training</li> <li>Core Competency Program</li> <li>Technical Academy</li> <li>GPSC TEX TALK</li> <li>Buddy Program</li> </ul>	<ul style="list-style-type: none"> <li>The employee turnover was 5.89%, lower than industry average of 8.30%</li> </ul>	<ul style="list-style-type: none"> <li>The employee turnover is lower than industry average*</li> </ul>	
	<ul style="list-style-type: none"> <li>Survey on employee engagement registered 61%; Thailand Market average to be announced in May 2024</li> </ul>	<ul style="list-style-type: none"> <li>Employee engagement on a par with or lower than the Thailand Market average by no more than 2%*</li> </ul>	
<p>GPSC Academy designed to enhance employees' competence and life-long learning</p>	<ul style="list-style-type: none"> <li>GPSC valued the development of the Functional Academy by designing a Power Principle Course from the Technical Academy and providing employees with such training as Onshore-Offshore Wind Energy and Business Global Acumen; and arranging GPSC TEX TALK as a venue for exchanging technical knowledge of power plants</li> </ul>	<ul style="list-style-type: none"> <li>Encouraging employees' learning and competency development to support functional work and new business in response to GPSC's strategy</li> </ul>	
<p>SPARK Accelerator Management Trainee Program carried out to groom future leaders with specific skills required for key company strategy</p>	<ul style="list-style-type: none"> <li>Equipping up-and-coming employees with knowledge in various fields and rotating them on critical jobs; the second batch of these talents started this year with seven individuals qualified</li> </ul>	<ul style="list-style-type: none"> <li>Developing and retaining high-flyers planned for taking up leading positions</li> </ul>	

\* Annual goal

Explanation:

-  Achieved
-  On target



# Flagship Projects

## GPSC Career Facebook Page

Cherishing its corporate image and reputation, GPSC promotes them among outsiders. The GPSC Career page was launched on Facebook in July 2023 as a hub for placing job vacancy announcements. Also presented on the page are exclusive contents on various topics to publicize GPSC. These topics include tips for job application, work environment, welfare, success stories from employees, talents' techniques to grow, and information about job positions.

The GPSC Career page currently has 1,200 followers. Sections under the main page that are popular include getting to know the outstanding welfare at GPSC and job vacancies as well as the student internship program. Video clip reels, in which current employees give interviews about their work experience, are also available.



## Access, Understanding, and Adherence to ACT SPIRIT

GPSC values the promotion of the ACT SPIRIT corporate culture, which aligns desired employee behaviors with business strategy, resulting in a strongly united workforce. After 2022, when GPSC communicated the desired behaviors under the ACT SPIRIT, namely learning, self-adjustment, agility, ambition, target challenging, commitment to sustainability, unity, trust, and respect for differences, a survey found that 90% of the workforce were aware of ACT SPIRIT, exceeding the expected 70%.

In 2023 GPSC toughened up the target for the employee survey from awareness to adherence to ACT SPIRIT. To this end, GPSC fostered employee engagement in ACT SPIRIT and provided easy access to it through various activities. For example, the ACT SPIRIT in Action activity was introduced with themes on different festivals to exhibit the corporate core values through such

themes. Employees were encouraged to know more about ACT SPIRIT by joining various activities, of which ‘Energize the Series’ served as the media. ‘Energize the Series’ presented the ‘hybrid’ work format, which has increasingly replaced the work-at-office format. ‘Energize the Series’ is a set of articles composed of ‘Energize Me’ and ‘Energize Together’ intended to ensure a smooth interface between oneself and the team. Contents about the corporate core values are subtly inserted in the articles. GPSC has also produced other media to present its core values, leveraging employees’ actual circumstances to ensure easy access, understanding, and adherence. The 2023 survey showed 72% of the workforce observed ACT SPIRIT, a high percentage for the first year of survey.



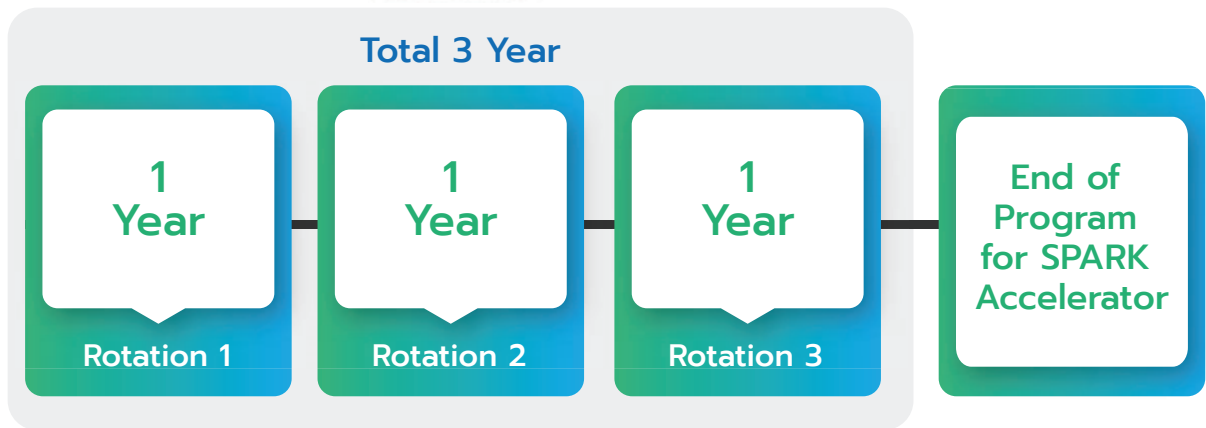
## SPARK Accelerator Management Trainee Program

GPSC has drawn up a principal strategy to create a ‘New S-Curve Business’, indicating that the development of future leaders is crucial to the organization. To this end, it initiated the SPARK Accelerator Management Trainee Program to underscore GPSC’s position as a leading innovator in the power business and smart energy among peer companies in PTT Group. This program will get high-flying employees prepared for future business growth by means of assorted challenging training mechanisms, both in Thailand and abroad. The program is widely open to employees and outsiders. Those joining the program will be rotated to five key corporate functions within three years, such as organization strategy and management of affiliates, business development, commerce, finance, and operation.

Four people were recruited to the first batch of the SPARK Accelerator Management Trainee Program, which started in July 2020. The second batch accepted seven talents and started in February 2023. Under the program, a mentor is provided to coach participants. Progress is to be routinely reported to senior management. GPSC also arranged other training programs to groom employees, including the leadership training program and the business online program.

The SPARK Accelerator Management Trainee Program is also designed for the retention of high-potential employees, who are considered fit for critical roles in driving key strategy, consistent with business growth.

PROGRAM TIMELINE: 



# Feedback from Stakeholders

## Shareholders

“To foster business sustainability, GPSC should leverage its caliber to scale up its business opportunities by evolving more business models consistent with today’s megatrends. After all, GPSC’s past successes may no longer be its future successes under traditional business, which is increasingly facing disruption.”

**Somchai Meesen**

Independent director / Chairman, Corporate Governance and Sustainability Committee / Member, Audit Committee (non-executive director)

## Investors

“GPSC belongs to a critical business sector for national growth and national achievement of the Carbon Neutral and Net Zero goals. Today, it is not only a leader and a role model for domestic and international sustainability operation, but also a company with a promising outlook for sustainable growth.”

**Supawit Chotiwit**

Senior Director and Investment Analytics Executive, Government Pension Fund

“As a national and international energy industry leader in sustainability operation, GPSC is also a role model for small and medium industries for applying lessons learned to their adjustment in line with global investors’ needs that increasingly value ESG data in support of their investment

**Warorit Jeerachon**

Head of Investment Research  
SCB Asset Management Co., Ltd.

## Public and Related Agencies

“GPSC’s business addresses the requirements and goals of Carbon Neutrality and Net Zero. Its cooperation with various public agencies, including our department, plays an instrumental role in driving Thailand toward its goals.

“Driving Thailand toward its climate change goals as well as sustainability development goals relies not only on the public sector’s leadership, but also on the cooperation of the public, private, and people sectors. To elaborate, the public and private sectors need to collaborate in educating and nurturing public confidence so that all may engage in driving our country together.”

**Pavich Kesvavong**

Department of Climate Change and Environment

## Partner

“As partners with a common vision, we aim to foster a collaborative environment that strengthens our relationship with GPSC through sharing of experiences in the sustainability arena. We eagerly look forward to a bright future our partnership holds.”

**Mr. Kishor Nair**

Chief Executive Officer and Director  
Avaada Group

## Customers

“A major power generator and distributor in Thailand, GPSC commands clear definition of goals and sustainability operation plans to contribute to national industrial development momentum. At the same time, it plays a part in the national achievement of greenhouse gas reduction goals while supporting all sectors’ benefit and development in unison.”

**Kasem Leewongcharoen**

General Manager  
GC-M PTA Co., Ltd., and Thai PET Resin Co., Ltd.

## Community Groups and Society

“Our community enterprise evolved from members’ trials and errors since we needed income while unemployed during the Covid-19 pandemic.

However, since GPSC assumed a coaching role for us in various aspects—education, technology, procurement of raw materials, markets for our products, and so on—we’ve exponentially thrived, with more production and sales that have given members income to look after themselves and their families.”

**Phayao Jitphook**

Head, Mum Din Agrofarm Community Enterprise



“GPSC’s key strength is its ability to educate surrounding communities about its business. Its readily accessible men on site coordinate between communities and the company. As a result, communities have developed faith and trust in GPSC’s operations.”

**Anusorn Kiatchananukul**

Director of Mapyangporn Health Center



## Data Coverage

Material issues					Economic / Governance				
					Governance, Risk Management and Compliance (GRC)	Customer Relationship Management	Maintaining Affordability and Reliability		
							Installed Capacity	Net Energy Generated	Other KPIs
Country	Subsidiaries & Associated companies	Association	Share holding	Operational control					
Thailand	Global Power Synergy Public Company Limited (GPSC)	GPSC	100%	Yes	●	●	●	●	●
	Combined Heat and Power Producing Company Limited	GPSC	100%	Yes	●	-	●	●	-
	Ratchaburi Power Company Limited	GPSC	15%	No	●	-	●	●	-
	Siam Solar Energy 1 Company Limited	GPSC	40%	No	●	-	●	●	-
	Nava Nakorn Electricity Generating Company Limited	GPSC	30%	No	●	-	●	●	-
	IRPC Clean Power Company Limited	GPSC	51%	No	●	-	●	●	-
	Bangpa-In Cogeneration Company Limited	GPSC	25%	No	●	-	●	●	-
	Business Services Alliance Company Limited	GPSC	25%	No	●	-	○	○	○
	Energy Recovery Unit Company Limited	GPSC	100%	Yes	●	-	●	●	-
	N.P.S. Star Group Company Limited	GPSC	50%	No	●	-	●	●	-
	World X Change Asia Company Limited	GPSC	50%	No	●	-	●	●	-
	P.P. Solar Company Limited	GPSC	50%	No	●	-	●	●	-
	Global Renewable Power Operating Company Limited	GPSC	50%	No	●	-	●	●	-
	GPSC Treasury Center Company Limited	GPSC	100%	Yes	●	-	●	●	-
	Glow Energy Public Company Limited (Glow)	GPSC	99.83%	Yes	●	●	●	●	●
	Glow IPP Company Limited	Glow	95%	Yes	●	●	●	●	●
	Glow SPP 2 Company Limited	Glow	100%	Yes	●	●	●	●	●
	Glow SPP 3 Company Limited	Glow	100%	Yes	●	●	●	●	●
	GHECO-One Company Limited	Glow	65%	No	●	-	●	●	●
	Glow SPP 11 Company Limited	Glow	100%	Yes	●	●	●	●	●
	Chonburi Clean Energy Company Limited	Glow	33.33%	No	●	-	-	-	-
	Sport Services Alliance Company Limited	GPSC	25%	No	●	-	○	○	●
	Sarn Palung Social Enterprise Company Limited	GPSC	10%	No	●	-	○	○	●
	Eastern Fluid Transport Company Limited	Glow	15%	No	●	-	○	○	●
	EurusPlus Company Limited	GPSC	51%	No	●	-	●	●	-
	BoreePlus Company Limited	GPSC	51%	No	●	-	●	●	-
Helios 1 Company Limited, Helios 2 Company Limited, Helios 3 Company Limited, Helios 4 Company Limited, Helios 5 Company Limited,	GPSC	50%	No	●	-	●	●	-	
Laos	Xayaburi Power Company Limited	GPSC	25%	No	●	-	●	●	-
	Nam Lik 1 Power Company Limited	GPSC	40%	No	●	-	●	●	-
	Houay Ho Power Company Limited	Glow	67.25%	No	●	-	●	●	-
USA	24M Technologies, Inc.	GPSC	14.17%	No	●	-	●	●	●
India	Avaada Energy Private Limited	GPSC	42.9%	No	●	-	●	●	●
Taiwan	Sheng Yang Energy Company Limited	GPSC	45%	No	●	-	●	●	●
	Ci Changfang Limited, Ci Xidao Limited	GPSC	25%	No	●	●	●	●	●
China	Anhui Axxiva New Energy Technology Company Limited	GPSC	10.31%	No	●	-	●	●	●

### Remarks

- The company applies relevant policy, guideline where sustainability performance data cover full scope
- The company partially applies relevant policy, guideline where sustainability performance data partially cover scope
- Not relevant to the company
- The company does not apply relevant policy, guideline where sustainability performance data does not cover in the reporting scope

	Environmental														Social				
	Environmental Management											Clean Energy Towards Net-Zero			Occupational Health and Safety (OHS)	Employee-Focused Organization	Sustainable Community		
	Energy Consumption	Water Consumption	Waste Disposal	Nox Emission	Sox Emission	Ash & Gypsum Waste	Direct Mercury Emission	Dust Emission	Hazardous Waste	SF6	GHG Scope 1	GHG Scope 2	GHG Scope 3	GHG Intensity (Scope 1 and 2)					
Supply Chain Management	Being an Innovative Leader	Capturing the Future Sustainability Market																	
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	-	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	○	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	○	●	●	●	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	●	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	●	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	●	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	●	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	●	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	●	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	●	●	●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



# ASSURANCE STATEMENT

## SGS (THAILAND) LIMITED'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED'S INTEGRATED SUSTAINABILITY REPORT FOR 2023

### NATURE OF THE ASSURANCE/VERIFICATION

SGS (Thailand) Limited (hereinafter referred to as SGS) was commissioned by Global Power Synergy Public Company Limited (hereinafter referred to as GPSC Group) to conduct an independent assurance of the Integrated Sustainability Report for 2023 and the Sustainability Report webpage (hereinafter referred to as the Report)

### INTENDED USERS OF THIS ASSURANCE STATEMENT

This Assurance Statement is provided with the intention of informing all GPSC Group's Stakeholders.

### RESPONSIBILITIES

The information in the Report and its presentation are the responsibility of the directors or governing body (as applicable) and the management of GPSC Group. SGS has not been involved in the preparation of any of the material included in the Report.

Our responsibility is to express an opinion on the text, data, graphs and statements within the scope of verification with the intention to inform all GPSC's stakeholders.

### ASSURANCE STANDARDS, TYPE AND LEVEL OF ASSURANCE

The SGS ESG & Sustainability Report Assurance protocols used to conduct assurance are based upon internationally recognised assurance guidance and standards including the principles of reporting process contained within the Global Reporting Initiative Sustainability Reporting Standards (GRI Standards) GRI 1: Foundation 2021 for report quality, GRI 2 General Disclosure 2021 for organisation's reporting practices and other organizational detail, GRI 3 2021 for organisation's process of determining material topics, its list of material topics and how to manages each topic, and the guidance on levels of assurance contained within the AA1000 series of standards.

The assurance of this report has been conducted according to the following Assurance Standards:

Assurance Standard Options	Level of Assurance
AA1000ASv3 Type 2 (AA1000AP Evaluation plus evaluation of Specified Performance Information)	Moderate

### SCOPE OF ASSURANCE AND REPORTING CRITERIA

The scope of the assurance included evaluation of quality, accuracy and reliability of specified performance information as detailed below and evaluation of adherence to the following reporting criteria:

Reporting Criteria Options	
1	GRI (In Accordance with)
2	AA1000 Accountability Principles (2018)

### SPECIFIED PERFORMANCE INFORMATION AND DISCLOSURES INCLUDED IN SCOPE

GPSC Group's the Report and on website content are adequately in line with GRI Standard and Electric Utilities Sector Disclosures (EUSD) to fulfill all the required content and quality criteria for the identified aspects data expressed numerically or in descriptive text form 01st January – 31st December 2023 listed as below:



The scope		The boundary
<b>GRI Reporting Standards</b>		
302-1	Energy consumption within the organization	
303-3	Water withdrawal	
303-4	Water discharge	GPSC Head office
303-5	Water consumption	Glow Head office
305-1	Direct (Scope 1) GHG emissions	GPSC Warehouse
305-2	Energy indirect (Scope 2) GHG emissions	Central Utility Plant 1 : CUP-1
305-3	Other indirect (Scope 3) GHG emissions (Upstream categories)	Central Utility Plant 2 : CUP-2
	3. Fuel and energy related activities	Central Utility Plant 3 : CUP-3
	4. Upstream transportation and distribution	Central Utility Plant 4 : CUP-4
	5. Waste generated in operations	Sriracha Power Plant
305-4	GHG emissions intensity	Glow IPP plant
305-7	Nitrogen Oxides (NOx), Sulfur Oxides (SOx), and other significant air emissions (Including direct Mercury emission, dust emission, SF6 emission)	Glow Energy Phase 1 plant
		Glow Energy Phase 2 plant
306-3	Waste generated	Glow Energy Phase 4 plant
306-4	Waste diverted from disposal	Glow Energy Phase 5 plant
306-5	Waste directed to disposal	Glow Energy CFB 3 plant
308-2	Negative environmental impacts in the supply chain and action taken	Glow Energy Solar plant
403-9	Work-related injuries	Glow SPP 2/Glow SPP 3 plant (Phase 3)
403-10	Work-related ill health	Glow SPP 11 Project 1 plant
405-2	Ratio of basic salary and remuneration of women to men	Glow SPP 11 Project 2 plant
414-2	Negative social impacts in the supply chain and actions taken	Glow SPP 11 Project 3 plant
<b>Electric Utilities Sector Disclosures (EUSD)</b>		
EU11	Average generation efficiency of thermal plants by energy source and by regulatory regime	GHECO-One Power Plant
EU30	Average plant availability factor by energy source and by regulatory regime	Combined Heat and Power Producing Company Limited
		Solar Private PPA – GPSC & Glow
		Refuse Derived Fuel (RDF) Power Plant

#### ASSURANCE METHODOLOGY

The assurance comprised a combination of pre-assurance research, interviews with the sustainable development team with responsibility for performance in the areas within scope, data owners & managers responsible for internal data collection and reporting databases, on-site visits (Glow Energy Phase 1, 2, Glow SPP 11 Phase 1, and Central Utility Plant 4 (GPSC CUP-4)); Review of the concept for data collection and estimation (application of appropriate methods), for analysis and consolidation of the sustainability data to be assured under the present assignment. Verification and confirmation of vouchers, review of related materials and records, and analytical procedures.

#### LIMITATIONS AND MITIGATION

Financial data drawn directly from independently audited financial accounts has not been checked back to source as part of this assurance process. Some statements and data within the scope were not assured due to lack of accessible records during the time scale allowed for assurance, and these are clearly marked throughout the Report.

Some statements and data within the scope were not assured due to lack of accessible records during the timescale allowed for assurance, for example, non-key-performance information, non-material-issue-related information or those not clearly marked in the index of the report.

#### STATEMENT OF INDEPENDENCE AND COMPETENCE

The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS affirm our independence from GPSC Group, being free from bias and conflicts of interest with the organisation, its subsidiaries and stakeholders.

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment, and comprised auditors and sustainability professionals specializing in the Environmental, Social and Governance (ESG), environmental and carbon fields.

#### ASSURANCE/VERIFICATION OPINION

Within the scope of the assurance activities employing the methodologies described above, nothing has come to our attention that caused us to believe that the information and data contained within the Report does not provide a fair and balanced description of the Organization's sustainability activities from 1 January 2023 to 31 December 2023. We believe that the Organization has chosen an appropriate level of assurance for this stage in their reporting.

#### ADHERENCE TO AA1000 ACCOUNTABILITY PRINCIPLES STANDARD (2018)

##### INCLUSIVITY

GPSC group has demonstrated a good commitment to stakeholder inclusivity and stakeholder engagement. A variety of engagement efforts such as survey and communication to employees, customers, investors, suppliers, sustainability experts, and other stakeholders are implemented to underpin the organization's understanding of stakeholder concerns.

##### MATERIALITY

The Organization identified double materiality issues by carefully considering the organizational context, social needs, and engaging in dialogue with external experts. Subsequently, the Organization has initiated necessary actions to address these issues across the entire organization and its relevant divisions through various business activities. Key Performance Indicators (KPIs) have also been established to monitor progress in addressing these identified issues. The Corporate Sustainability Committee also regularly reviews the process for identifying material topics.

##### RESPONSIVENESS

The Organization addresses the identified issues as the business activities. Direct dialogues with stakeholders are also conducted through types of communications. The details of these actions are disclosed through various media including the Report.

##### IMPACT

The results of responses to identified issues have been reported to stakeholders through a variety of media, such as the Report. It sets out benchmarks such as industry standards and other companies in the same industry to assess the impact of an organization's performance on society.

Signed:

For and on behalf of SGS (Thailand) Limited



Montree Tangtermsirikul

General Manager

100 Nanglinchee Road Chongnonsee Yannawa, Bangkok 10120 Thailand

13 March 2024

[WWW.SGS.COM](http://WWW.SGS.COM)



**AA1000**  
Licensed Report  
000-8/V3-TO81U





GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED

555/2 Energy Complex Building B, 5<sup>th</sup> Floor,  
Vibhavadi Rangsit Road, Kwang Chatuchak,  
Khet Chatuchak, Bangkok 10900.

Tel : 0 2140 4600 Fax. 0 2140 4601

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

