

GO GREEN
for Better Earth



ESG REPORT 2024

National Power Supply Public Company Limited



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MESSAGE FROM THE CHAIRMAN OF THE CORPORATE GOVERNANCE COMMITTEE



General Dr. Surapan Poomkeaw

Chairman of the Corporate Governance Committee
National Power Supply Public Company Limited

As Chairman of the Corporate Governance Committee, I place great importance on transparent, accountable, and verifiable corporate governance that is responsible to all stakeholder groups. The Company adheres firmly to the principles of good governance, ethics, and anti-corruption, supported by an effective internal control system, comprehensive risk management, and fair whistleblowing channels. These mechanisms are essential to strengthening trust and ensuring long-term sustainability.

Alongside strong governance, our organization continues to drive its business with a clear commitment to the development of renewable energy, including solar energy and biomass. These efforts support national energy security, reduce greenhouse gas emissions, and contribute to Thailand's transition toward a low-carbon society. We integrate environmental, safety, community, stakeholder, business, and governance dimensions in a balanced manner, while continuously advancing clean energy innovations that will propel the organization toward its future Net Zero goal.

In terms of organizational culture, we promote strict compliance with the Company's Code of Conduct among directors, executives, employees, and business partners to reinforce transparency and integrity throughout our operations. At the same time, we systematically enhance internal safety management, covering risk prevention and assessment, compliance with occupational health and safety standards, and emergency preparedness and response. These measures aim to protect the lives, health, and assets of employees, related parties, and surrounding communities, while upholding respect for human rights and fostering sustainable shared value with communities.

I firmly believe that strong corporate governance is the foundation of sustainability. The Company will continue to advance clean and renewable energy development alongside efficient energy management to achieve a balanced integration of business, society, environment, and governance, delivering sustainable value to the nation and future generations.

NPS continues to place strong emphasis on driving its business operations in alignment with the principles of sustainable development. The Company has further built upon and expanded its investments in renewable energy by developing a Floating Solar Farm power plant covering an area of more than 1,200 rai, which is regarded as one of the largest projects of its kind in Thailand. This project reflects the company’s capability and firm commitment to strengthening energy security, supporting the reduction of greenhouse gas emissions, and concretely advancing a low-carbon economy.

In this regard, NPS remains committed to its vision of “striving for excellence in production and quality development to contribute to building a bright and sustainable future.” The Company conducts its business in accordance with the principles of good corporate governance, transparency, and accountability to stakeholders, while continuously creating long-term value and maintaining a balanced approach across economic, social, and environmental dimensions. This underscores NPS’s role as an energy leader firmly grounded in ESG principles and ready to drive the nation’s energy transition toward a sustainable future.

Guided by its vision for sustainable development, the Board of Directors remains fully aware of its roles, duties, and responsibilities in setting sustainability policies and targets that comprehensively encompass economic, social, and environmental aspects. In 2024, the Company placed particular emphasis on extending and expanding renewable energy projects, together with strengthening transparent and sustainable corporate governance systems, in order to effectively address the growing significance of environmental risks and business ethics.

The Company’s sustainability policies and targets are translated into its Operational Plan and corporate Strategies, which focus on the efficient use of resources throughout the entire value chain, alongside investments to expand clean energy generation capacity. Particular emphasis is placed on the Floating Solar Farm project spanning more than 1,200 rai, which represents another important milestone in enhancing energy security, supporting greenhouse gas emission reductions, and contributing to the country’s Net Zero targets.

In addition to advancing clean energy operations, the Company is also committed to enhancing the quality of life of communities and all stakeholder groups through the implementation of social initiatives that emphasize the creation of continuous shared value. This includes the development of the capabilities of employees and business partners to ensure readiness for change in the low-carbon economy era. With a clear commitment, the Company stands ready to collaborate with all sectors to drive Thailand toward a clean and sustainable energy society over the long term.

Organizational Sustainability Strategy and Direction in Alignment with the United Nations Sustainable Development Goals (UN SDGs)



Strategic Direction

The organization is committed to driving its sustainability strategy across all three dimensions in order to progress toward becoming a comprehensive leader in energy and renewable energy.

Environmental Dimension

The organization focuses on the use of renewable energy, the reduction of greenhouse gas emissions, and the efficient management of resources, in parallel with compliance with environmental policies and the application of sustainability practices. In addition, the organization actively seeks and adopts new technologies to enhance environmental management performance.



Social Dimension

The organization promotes the quality of life of communities, develops work-force skills, and fosters collaboration with stakeholders. Priority is placed on occupational health and safety, respect for human rights throughout the supply chain, and the maintenance of harmonious relationships with society.

Economic and Governance Dimension

The organization conducts its business with transparency and fairness, aiming to create economic value alongside the development of innovation for sustainability. It also strengthens organizational resilience and maintains constructive relationships with stakeholders to support continuous and shared growth.

Environmental Dimension

The Company complies with environmental policies and integrates environmental sustainability practices into its business operations. This includes actively exploring and adopting new technological opportunities to enhance the efficiency and effectiveness of environmental management.



Achieve Net Zero Carbon Emissions

Commit to reducing carbon dioxide emissions from business operations to net zero.



Reduce Greenhouse Gas Emissions

Improve production processes and operational practices to reduce greenhouse gas emissions.



Reduce Hazardous Waste Generation

Develop efficient waste management systems and reduce



Reduce Water Consumption in Production

Enhance production processes to reduce water usage and promote water reuse.



Reduce Energy Consumption

Improve energy efficiency across all business operations.



Increase the Use of Renewable Energy

Increase the proportion of renewable energy used in business operations.



Legal Compliance

Strictly comply with all applicable environmental standards and environmental laws and regulations.



Social Dimension

The Company is committed to prioritizing the enhancement of employees' skills and capabilities, while placing strong emphasis on workplace safety and raising awareness of respect for human rights throughout the entire supply chain. At the same time, the Company remains dedicated to maintaining responsible relationships and fostering harmony with society and the wider community.

1 Enhance Employee Satisfaction and Engagement

Create a positive working environment and promote stronger employee engagement with the organization.

4 Support Employees' Quality of Life and Well-being at Work

Promote work-life balance and provide appropriate welfare and benefits.

7 Achieve Zero Community Complaints and Enhance Community Satisfaction

Build positive relationships with communities and respond appropriately to their needs and expectations.

2 Commit to Addressing and Mitigating Significant Impacts on Employees

Safeguard employees and prevent potential adverse impacts arising from work activities.

5 Reduce Workplace Accidents and Fatalities

Strengthen occupational health and safety measures and reduce operational risks.

8 Promote Human Rights Awareness and Initiate Human Rights Risk

Assessments Across the Organization Encourage respect for human rights in all business processes and operations.

3 Retain and Enhance Employee Knowledge and Capabilities

Continuously develop employees' skills and competencies.

6 Assess the Impacts of Business Operations on Communities

Monitor and evaluate potential impacts on surrounding communities.



Economic and Governance Dimension

The Company conducts its business with integrity, transparency, and fairness, taking into account the collective interests of all stakeholder groups. It strengthens organizational resilience to ensure readiness for adaptation and change in response to evolving circumstances, while maintaining high standards of product and service quality and fostering sustainable relationships with stakeholders.

Maintain and Increase Customer Satisfaction Levels

Enhance service systems to exceed expectations by actively listening to and thoroughly analyzing customer needs, thereby creating positive experiences and long-term customer loyalty.

Reduce the Number of Customer Complaints Related to Safety and Quality

Continuously improve production and service standards, and use customer feedback and complaints as a basis for operational improvements to strengthen customer trust.

Product Safety Impact Assessment

Conduct rigorous inspections and assessments of product safety, covering the entire lifecycle from design through actual use.

Increase the Proportion of Revenue from Sustainable Products and Services

Focus on the development of environmentally and socially responsible products and services to generate new and sustainable sources of revenue.



Zero Legal Cases, Particularly Those Related to Corruption

Uphold the principles of integrity and transparency, and strictly comply with all applicable laws and regulations across all areas of operation.

Driving and Enhancing Suppliers' Sustainability Performance

Strengthen partner networks and encourage suppliers to conduct business in a sustainable and responsible manner throughout the entire supply chain.

Effective ESG Risk Assessment and Risk Mitigation Planning

Establish a comprehensive ESG risk management framework and implement effective proactive mitigation measures.

Zero Incidents of Serious Cybersecurity Breaches and Data Leakage of Stakeholder Information

Continuously and systematically enhance cybersecurity systems and personal data protection measures.

Increase in Innovation to Improve Operational Efficiency

Promote a culture of innovation to develop sustainable technologies and processes that enhance operational efficiency and reduce environmental impacts.



Management of Impacts on Stakeholders across the Business Value Chain

Business Value Chain

Primary Activities

- **Inbound Logistics** – Management of raw materials, storage, and quality control
- **Operations** – Production processes and the transformation of raw materials into finished products
- **Outbound Logistics** – Distribution and delivery of products and services to customers
- **Marketing and Sales** – Sales promotion and brand development
- **Service** – Customer care and after-sales maintenance services

Support Activities

- **Human Resource Management** – Workforce management, capability development, and motivation enhancement
- **Financial Management and Liquidity Management** – Financial planning, cost control, and investment management
- **Information System Security Management** – Technology development, data management, and cybersecurity protection
- **Personal Data Protection** – Compliance with privacy laws and the safeguarding of personal data

Primary Activities

Inbound Logistics

(Management of Production Inputs)

The Group generates electricity from a diversified range of fuels, including biomass derived from agricultural residues, by-products from the pulp and paper manufacturing industry, and the co-firing of sub-bituminous coal with biomass. This diversified fuel mix enhances energy options and mitigates risks associated with reliance on oil or natural gas for power generation, thereby contributing to a reduction in the country's oil imports.

In addition, the Group undertakes continuous improvements and research and development on high-calorific-value energy crop seedlings that are particularly suitable for use as fuel. The Group also encourages farmers to cultivate energy crops in place of rice in low-yield areas, helping to transform farmers' livelihoods by increasing income while simultaneously promoting long-term environmental stewardship.

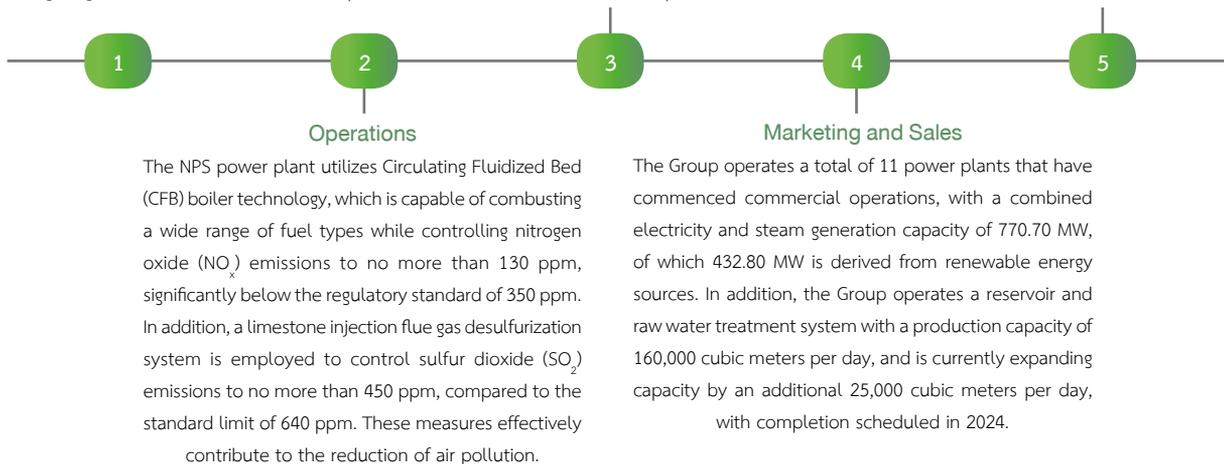
Distribution

The NPS Power Plant adopts Circulating Fluidized Bed (CFB) combustion technology, which is internationally recognized for its capability to efficiently combust a wide range of fuel types. The CFB system is able to control nitrogen oxides (NO_x) emissions to levels not exceeding 130 parts per million (ppm), significantly below the regulatory limit of 350 ppm. In addition, the system operates in conjunction with a limestone injection-based sulfur dioxide (SO₂) removal system, which effectively controls SO₂ emissions to no more than 450 ppm, compared with the regulatory standard of 640 ppm.

All fuels are combusted at an operating temperature of approximately 850 degrees Celsius under a complete combustion system. This process contributes to the reduction of nitrogen oxide formation and helps prevent air pollution, thereby enhancing overall environmental performance.

After-Sales Service

The Company places strong emphasis on maintaining and continuously strengthening relationships with customers, particularly major clients in the industrial sector. Priority is given to strict compliance with the terms and conditions stipulated in sales contracts, together with close cooperation in addressing and resolving any issues that may arise. This approach has resulted in long-standing trust and confidence from customers.



Support Activities

Human Resource Management

The Group supports business growth through continuous training and development programs to enhance employees' skills and capabilities. It provides fair compensation and benefits, while fostering a safe, healthy, and hygienic working environment.

Information System Security

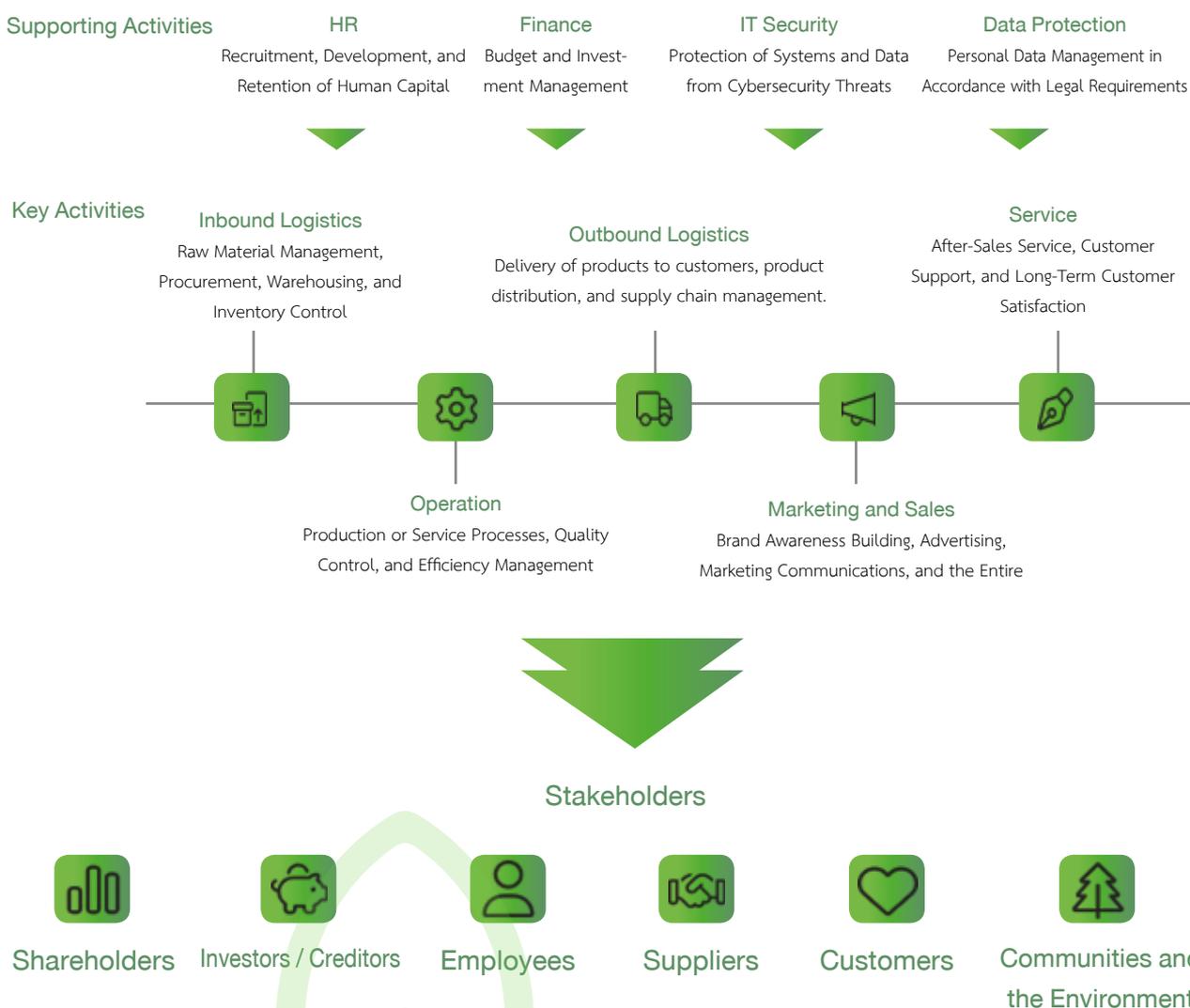
The Group has established policies and an operational framework for information system security in accordance with the international standard ISO/IEC 27001 for Information Security Management Systems. Regular cybersecurity incident response drills are conducted annually to enhance preparedness for potential cyber threats.



Stakeholders Across the Value Chain

The Company places strong emphasis on effective stakeholder management across its entire value chain, guided by the principles of **Customer-Centric and Stakeholder-Centric** engagement. This approach ensures that the needs, expectations, and impacts of stakeholders are considered in a comprehensive and equitable manner. The Company systematically analyzes its operating processes and key activities to identify both internal and external stakeholder groups and has established a wide range of engagement channels, both online and offline. Insights gathered from customers, communities, and business partners are actively utilized to enhance products, services, and innovations in a manner that genuinely responds to stakeholder needs.

At present, the Company has identified six key stakeholder groups: **shareholders, investors/creditors, employees, business partners, customers, and communities, including the environment**. Each of these groups plays a vital role in collectively driving the Company's long-term sustainability.



Stakeholder Group	Engagement Channels and Frequency	Needs and Expectations	Company Response
Shareholders	<ul style="list-style-type: none"> - Annual General Meeting of Shareholders (once per year) - Extraordinary General Meetings as required for significant agendas - Quarterly financial disclosures via the Company's website and the SEC - Annual Report 	<ul style="list-style-type: none"> - Strong financial performance and attractive dividend returns - Continuous business growth of the Group - Transparency in operations and good corporate governance - Effective risk management, joint investments, and innovation to enhance operational efficiency - Equal access to information 	The Group conducts its business with transparency and efficiency to create sustainable long-term value. It is committed to delivering strong performance and stable growth for the maximum long-term benefit of shareholders, while ensuring transparent, reliable, and timely disclosure of information.
Investors / Creditors	<ul style="list-style-type: none"> - Quarterly performance briefings - On-site visits - Participation in stakeholder assessment activities organized by banking groups - Annual Report 	<ul style="list-style-type: none"> - Strong financial performance - Continuous business growth - Transparency and good corporate governance - Business operations that integrate environmental, social, and governance (ESG) considerations - Joint investment and innovation to improve operational efficiency 	The Group operates transparently and efficiently to create sustainable value, with a focus on delivering solid performance and stable growth for investors and creditors. The Company ensures transparent and credible disclosure and strictly complies with contractual obligations and agreed terms with creditors and stakeholders.
Employees	<ul style="list-style-type: none"> - Regular communication through internal channels such as the Intranet and LINE Official Account - Employee satisfaction surveys (once per year) - Feedback and suggestion channels, including suggestion boxes, surveys, Morning Talks, and Town Hall meetings 	<ul style="list-style-type: none"> - Capability development aligned with the Group's strategic direction - Quality of life, well-being, and workplace safety - Competitive compensation and benefits, career opportunities, and advancement - Fair performance evaluation systems - Income security and equal treatment - Leadership development - Talent retention - Respect for human rights 	The Group treats all employees fairly and without discrimination, providing appropriate remuneration and benefits. Continuous skill and competency development is promoted through training, seminars, and development programs with equal access for all employees. The Company emphasizes occupational health and safety, employee well-being, and quality of life, while fostering compliance with laws, regulations, and anti-corruption policies, including strict prohibition of insider information misuse.
Business Partners (Suppliers)	<ul style="list-style-type: none"> - Supplier audits (on-site and online) at least twice per year - Raw material quality and management audits at least once per year - Supplier satisfaction surveys (once per year) - Training on the Company's supplier management system 	<ul style="list-style-type: none"> - Fair competition and non-discriminatory practices - Long-term partnerships and mutual growth - Transparent, efficient, and auditable procurement systems - Clear, fair, and transparent procurement policies - Compliance with contractual agreements without exploitation 	The Group applies fair and transparent supplier selection processes based on equal access to information and objective evaluation criteria. Fair and appropriate contract structures are established, with monitoring systems to ensure full compliance and prevent fraud or misconduct throughout the procurement process.



Stakeholder Group	Engagement Channels and Frequency	Needs and Expectations	Company Response
Customers	<ul style="list-style-type: none"> - Regular customer visits, market surveys, and meetings (online and on-site) - Close coordination throughout service delivery - Customer satisfaction surveys (once per year) - Open access for customers to visit production processes - Complaint and inquiry channels such as email, hotline, and LINE - Convenient, fast, and accessible communication channels 	<ul style="list-style-type: none"> - High-quality products and services delivered in accordance with contractual terms at fair, regulated prices - Stability and reliability of power generation and distribution systems - Prompt and effective response to customer needs by competent teams - Equal treatment of all customers in compliance with applicable laws - Technological development to reduce environmental impacts - Opportunities for joint business development 	The Company is committed to maintaining product and service quality and standards, responding comprehensively to customer needs, and fostering long-term customer satisfaction. Accurate and complete information is provided, secure complaint channels are maintained for timely resolution, and customer confidentiality is strictly protected.
Communities and the Environment	<ul style="list-style-type: none"> - Responsible operations with consideration of social and community impacts - Regular community engagement and site visits - Community development and livelihood enhancement programs - Annual community perception surveys - Feedback, emergency notification, and complaint channels via hotline and community LINE groups 	<ul style="list-style-type: none"> - Effective management of environmental impacts from operations - Safe and environmentally responsible business operations - Clear communication and understanding of Company operations - Job creation, income generation, and cost-of-living support - Ongoing community engagement and participation - Local employment opportunities - Efficient resource utilization and responsible water use - Sustainable co-growth of business, society, economy, and the environment 	The Group strictly complies with all applicable laws and regulations, promotes local employment and diverse livelihood programs, supports education, and prioritizes hiring from local communities based on suitability and competencies. The Company actively participates in environmental conservation, social development, and the preservation of local culture in areas where it operates.

Key Sustainability Issues

Identification of Sustainability Issues

The Company has established a process for assessing material sustainability issues in alignment with the Sustainability Reporting Standards (GRI Standards) of the Global Reporting Initiative (GRI). This process is designed to reflect issues that are material to the Company's economic, social, and environmental impacts, as well as their influence on the assessments and decision-making of stakeholders throughout the business value chain. The assessment also includes periodic reviews to capture changes in material issues relevant to the Company and its stakeholders, enabling effective management and response. The materiality assessment process consists of three key steps, as follows:

1. Identification of Issues Relevant to the Organization and Stakeholders

The Company considers and analyzes sustainability issues relevant to its business across economic, social, and environmental dimensions. This assessment is based on applicable international standards, requirements, and best practices, and is aligned with the Company's sustainability context, operational activities, and stakeholder expectations. The scope of sustainability issues is defined based on the impacts arising from operations across the entire value chain, covering both internal and external aspects of the organization.

2. Assessment of Materiality Level

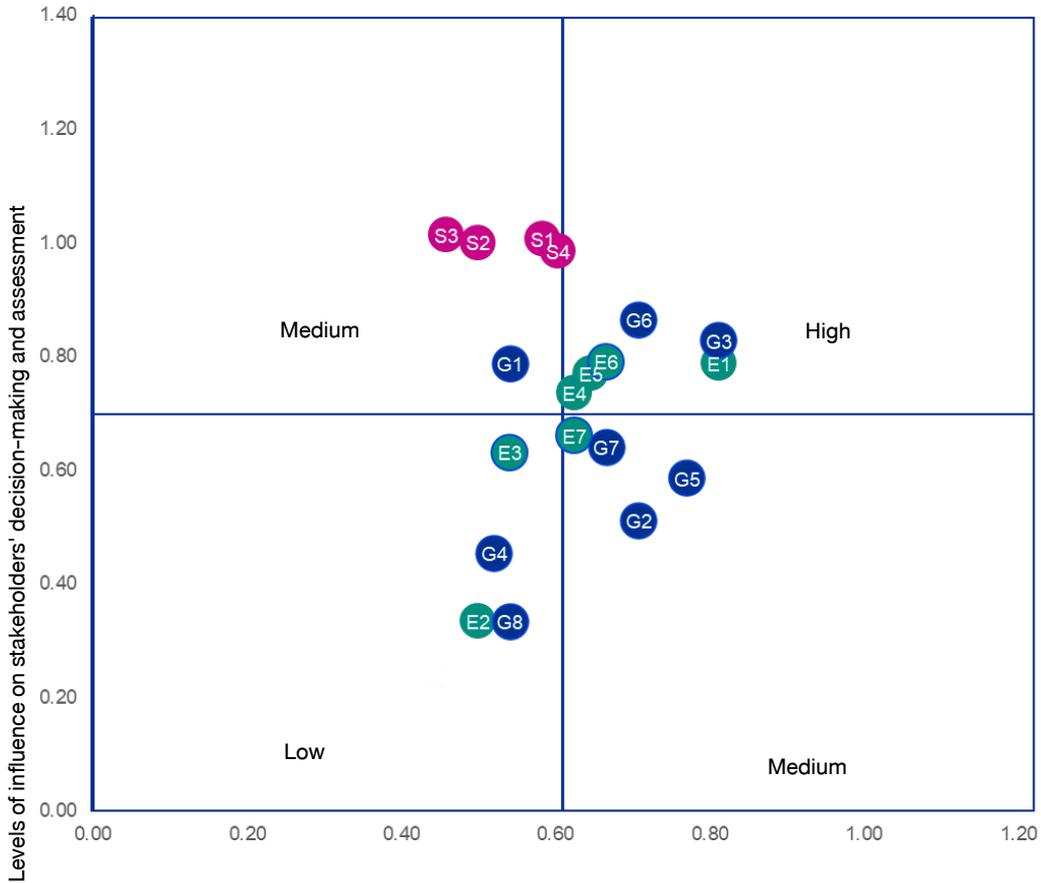
The assessment of the materiality level of key sustainability issues is conducted by considering opportunities and impacts on the Company's value creation across economic, social, and environmental dimensions. This also includes evaluating the level of stakeholder interest, the significance of impacts, and the importance of each issue to stakeholders.



3. Verification and Approval of Assessment Results

The results of the materiality assessment are reviewed for accuracy and completeness by the designated working team prior to being submitted to senior management for consideration, review, and endorsement. Final approval is granted to confirm the Company’s material sustainability issues.

Materiality Assessment Results



Significant impacts on the organization span across economic, governance, environmental, and social aspects

Economic and Governance Dimension	Environmental Dimension	Social Dimension
<ul style="list-style-type: none"> • G1 – Corporate Governance and Business Ethics • G2 – Supply Chain Management • G3 – Risk and Crisis Management • G4 – Cybersecurity and Personal Data Protection • G5 – Technology and Innovation • G6 – Sustainable Growth and Business Opportunity Creation • G7 – Product Quality Management • G8 – Customer Relationship Management 	<ul style="list-style-type: none"> • E1 – Greenhouse Gas Emissions and Climate Change Management • E2 – Water Management • E3 – Waste Management • E4 – Energy Management • E5 – Environmental Policies and Compliance with Environmental Standards • E6 – Air Pollution Management • E7 – Efficient Resource Use and Circular Economy Systems 	<ul style="list-style-type: none"> • S1 – Employee Care and Development • S2 – Occupational Health and Safety • S3 – Human Rights and Respect for Diversity, Equity, and Inclusion • S4 – Community Engagement, Development, and Social Responsibility



The Company places strong emphasis on conducting its business in a sustainable manner across three core dimensions: Environmental, Social, and Governance (ESG). The key issues and examples of implementation are summarized as follows:

Environmental

1. A Safety, Occupational Health, and Environment Committee has been established to oversee and monitor environmental impacts arising from business operations.
 2. The Company has obtained ISO certifications related to environmental management and safety, which are systematically applied across operational processes.
 3. Waste generated from production processes is reduced and resource efficiency is enhanced to promote responsible resource utilization and minimize environmental impacts.
 4. The Company calculates its organizational carbon footprint to prepare for long-term greenhouse gas emission management and potential participation in carbon credit mechanisms.
 5. Renewable energy projects are expanded to reduce dependence on fossil fuels and to support the transition toward clean energy.
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Social

6. Support stakeholder and local community engagement to promote community development in education, youth development, environment, health, and local traditions, including assistance during times of crisis. The Company also conducts regular meetings, listens to feedback, and continuously manages suggestions and complaints.
 7. Promote the development of employees' skills and capabilities through training programs, career development pathways, and volunteer activities, thereby enhancing knowledge and fostering social awareness in parallel.
 8. Enhance employee welfare and quality of life by prioritizing health, safety, and work-life balance. Well-being programs covering physical, mental, and financial aspects are implemented to improve overall employee well-being.
 9. Foster an organizational culture that respects human rights, equality, and diversity by promoting Diversity, Equity, and Inclusion (DEI) through human rights policies, extending such principles throughout the supply chain, and supporting diverse employee groups.
-

Governance

10. Improve and regularly review business ethics measures to promote responsible and transparent operations, and further enhance proactive initiatives such as anti-corruption training and transparent whistleblowing systems.
11. Conduct comprehensive risk assessment and management across strategic, financial, environmental, and operational dimensions, including the assessment of climate change risks that may have significant long-term impacts on the business.
12. Review and strengthen corporate governance systems to enhance effectiveness and support sustainable growth.
13. Prioritize cybersecurity and personal data protection to build trust among customers and stakeholders, while closely monitoring the increasing prevalence and sophistication of cyber threats.





ENVIRONMENTAL POLICY AND MANAGEMENT



ENVIRONMENTAL POLICY AND MANAGEMENT

The Company is committed to producing high-quality electricity and steam, while delivering services that ensure the highest level of customer satisfaction. At the same time, the Company is dedicated to conducting its business in an environmentally sustainable manner and to using resources efficiently. To this end, the Company has established environmental and safety policies, and has appointed committees and responsible departments to oversee and manage environmental performance.

In 2024, the Company's key environmental performance areas that were closely monitored are summarized as follows:

Category	Content
1. Environmental and Safety Management System	<ol style="list-style-type: none"> 1. Develop and enhance the environmental management system in compliance with ISO 14001 and applicable environmental laws and regulations. 2. Establish safety, occupational health, and working environment committees and operational units. 3. Assess risks related to quality, occupational health, environment, and quality management systems, and continuously implement risk mitigation measures. 4. Prepare and submit Environmental Impact Assessment (EIA) monitoring and mitigation reports.
2. Energy Management and Greenhouse Gas Reduction	<ol style="list-style-type: none"> 1. Establish an energy management working team and an internal energy management audit committee. 2. Develop and implement an energy conservation action plan (2023–2025), such as improving steam system efficiency through steam trap optimization. 3. Increase the proportion of clean energy use and transition electricity generation systems from coal to biomass. 4. Initiate the calculation of the organizational carbon footprint and establish a dedicated working team. 5. Set a target to achieve Net Zero Greenhouse Gas Emissions. 6. In 2024, conduct analyses of carbon emissions from production processes and water transportation, and define greenhouse gas reduction measures to support Net Zero targets.



Category	Content
3. Waste and By-product Management	<ol style="list-style-type: none"> 1. Reduce waste from production processes through research and development of technologies and innovations to utilize waste within the Company and across supplier networks. 2. Segregate waste types at operational sites and collaborate with external organizations for sustainable waste management. 3. Study industrial by-product management research to convert residues into organic fertilizer and utilize fly ash and other by-products as base materials for water retention ponds. 4. Establish systems for monitoring and reporting waste management and environmental impact reduction. 5. Implement measures to prevent unauthorized waste disposal and ensure proper waste transportation tracking. 6. Reuse fly ash from biomass power plants and cassava residue for soil improvement. 7. Develop waste management innovations in 2024, such as reusing ozone-treated wastewater in production processes to reduce raw water consumption and enhance wastewater management efficiency.
4. Air Emissions and Odor Control	<ol style="list-style-type: none"> 1. Use low-sulfur fuels to reduce sulfur dioxide emissions. 2. Install electrostatic precipitators to capture particulate matter from combustion processes. 3. Utilize limestone to capture sulfur dioxide, reducing air pollution and greenhouse gas emissions. 4. Construct sedimentation ponds for wastewater prior to treatment at the Industrial Estate 304 wastewater treatment system. 5. Install noise control systems in production processes to meet community-friendly standards. 6. Implement a road-sweeping vehicle rental project to reduce dust within factory premises. 7. Establish real-time odor monitoring plans around the facility and expand monitoring stations in 2024. 8. Annual average air quality monitoring results for 2024 remained within regulatory standards, with four monitoring stations located around the facility covering prevailing wind directions throughout the year.
5. Water Management	<ol style="list-style-type: none"> 1. Prepare water demand forecasts for customer groups to assess raw water supply risks. 2. Install modern and environmentally friendly water production systems. 3. Construct large reservoirs to store water for dry seasons and mitigate flooding risks in surrounding areas. 4. Establish sedimentation ponds prior to wastewater treatment within the industrial estate system. 5. Continuously monitor weather forecasts and local water conditions to assess water-related risks, while ensuring wastewater quality complies with legal environmental standards.
6. Management of Impacts on Surrounding Communities	<ol style="list-style-type: none"> 1. Install noise control systems in production processes in accordance with community-friendly standards. 2. Continuously monitor and report odor, noise, and dust levels. 3. Implement structured programs to receive and address community complaints and feedback. 4. Develop projects tailored to local contexts, such as dust and pollution management, waste management, and public health protection. The Company also emphasizes equitable access to clean energy by promoting accessible energy projects for remote communities, alongside providing education on energy conservation and environmental protection to foster responsible resource use.



Overall Environmental Performance Summary

Topic	Details
Number of complaints related to environmental law compliance	0 cases
Number of environmental law violations	0 cases
Biomass ash utilized as soil conditioner and sodium sulfate recovered	230,044 tons
Total greenhouse gas emissions	4,462,274 tCO ₂ e
Scope 1 Greenhouse Gas Emissions	2,189,591 tCO ₂ e
Scope 2 Greenhouse Gas Emissions	42,243 tCO ₂ e
Scope 3 Greenhouse Gas Emissions	2,230,440 tCO ₂ e
Greenhouse gas emission intensity	0.663 tCO ₂ e/MWh
Non-compliance incidents related to GHG and climate change policies	0 cases
Non-compliance incidents related to energy management policies	0 cases
Total water withdrawal	66,133.56 megaliters
Water withdrawal from water-stressed areas	66,133.56 megaliters
Non-compliance incidents related to water management policies	0 cases
Water consumption intensity	0.017 megaliters/MWh
Wastewater discharge intensity	0.0001 megaliters/MWh
Total waste generated	361,067.11 tons
Total waste reused	261,976.20 tons
Total waste disposed	99,090.91 tons
Non-compliance incidents related to waste management policies	0 cases
Nitrogen Oxides (NO)	112.90 ppm
Sulfur Dioxide (SO ₂)	40.35 ppm
Persistent Organic Pollutants (POP)	0 units/minute
Volatile Organic Compounds (VOC)	0 units/minute
Particulate Matter (PM)	40.24 ppm
Non-compliance incidents related to pollution management policies	0 cases

Compliance with Environmental Policies and Standards

The Company is deeply aware of the importance of complying with all applicable laws, regulations, and standards related to the environment, occupational health, safety, and operational quality. These factors have a direct and significant impact on the Company's long-term sustainability, as well as its image and credibility among all stakeholder groups. Accordingly, the Company regularly reviews its Quality, Environmental, Occupational Health, and Safety policies to ensure they remain aligned with and responsive to changes in legislation, international standards, and industry best practices. This approach enables the Company to effectively address emerging challenges and opportunities within a rapidly evolving business and social environment.

The reviewed policies emphasize building awareness and accountability among personnel at all levels, particularly in relation to the management of risks and opportunities that may have comprehensive impacts on the organization. Clear operational frameworks and appropriate performance standards are established to ensure that all processes are safe, environmentally responsible, and in strict compliance with applicable requirements.



Management Approach

The Company is committed to developing and maintaining its environmental and safety management systems in full compliance with the international standard ISO 14001 and relevant legal requirements. To this end, the Company has established a Safety, Occupational Health, and Environment Committee, together with quality system functions, to closely and effectively oversee, monitor, and manage operations across all sites.

These committees and functional units play a key role in planning, inspecting, and controlling safety, occupational health, and environmental protection measures. Such measures include accident prevention, chemical and hazardous material management, pollution emission control, and the preservation of environmental quality in the workplace. This ensures that operations do not adversely affect the health of employees or surrounding communities, while also preventing non-compliance with applicable laws and standards.

In addition, the Company conducts regular assessments of risks related to quality, occupational health, the environment, and quality management systems. These assessments cover a wide range of risk dimensions, including potential accidents leading to work stoppages, risks associated with chemical and hazardous material handling, fire hazards, and toxic substance leakage. Appropriate control and mitigation measures are defined for each risk scenario, with quarterly monitoring and evaluation to ensure effectiveness and continuous improvement in line with actual operating conditions.

With respect to fostering an organizational culture, the Company places strong emphasis on enhancing knowledge, understanding, and engagement among employees at all levels through training programs, seminars, and continuous communication. These initiatives aim to raise awareness of safety and sustainability, while promoting ethical conduct and social responsibility. The Company seeks to ensure that all employees recognize the importance of these issues and work collaboratively to achieve environmental and safety objectives in a sustainable manner.

Projects and Activities Implemented in 2024

- 1.The Company underwent certification audits for the ISO 14001:2015 Environmental Management System conducted by United Registrar of Systems (Thailand) Ltd. (URS).
- 2.Preparation of Environmental Impact Assessment (EIA) Monitoring Reports and Code of Practice (CoP) Monitoring Reports.
- 3.Installation of additional online Continuous Emission Monitoring Systems (CEMS) in compliance with legal requirements.
- 4.A study on the proportion of fine particulate matter (PM2.5) relative to Total Suspended Particulates (TSP) emitted from industrial facility stacks, conducted in collaboration with the Department of Industrial Works.
- 5.Implementation of 5S activities to support sustainable development.
- 6.The “Waste-to-New-Life” project, aimed at raising employee awareness of waste segregation and recycling, while generating funds to support CSR activities.

Performance Results

Topic	Details
Development of the Sustainability Policy	Implemented for the first year
Review of Quality, Environmental, Occupational Health, and Safety Policies	Conducted on a continuous basis
Number of environmental law violations subject to monetary penalties	0 cases
Number of environmental law violations not subject to monetary penalties	0 cases
Number of complaints related to compliance with environmental laws	0 cases



Topic	Details
Total amount of fines paid for environmental law violations	THB 0
Total budget allocated to activities related to environmental policy implementation and legal compliance	Total of THB 35.58 million, comprising: <ul style="list-style-type: none"> – EIA Monitoring and EIA Revision audits – Environmental support activities – Environmental projects – ISO system certification audits – Standard system-related activities

Efficient Resource Management and Circular Economy

Efficient and sustainable resource utilization is a core principle of business operations under the ESG framework, particularly in the environmental dimension, which requires careful consideration of the impacts of raw material and fuel consumption on ecosystems. The Company continuously develops and enhances its policies to promote transparent, responsible, and effective use of resources.

Management Approach

- Minimize the use of non-renewable natural resources by improving and optimizing production processes to reduce waste generation, while promoting the use of renewable and alternative resources, such as biomass fuel derived from agricultural residues.
- Advance circular economy practices, including:
 - Utilizing biomass ash as a soil conditioner for eucalyptus plantations, which serve as a renewable feedstock that can be reused as fuel for the Company.
 - Separating sodium sulfate from ash for reuse in production processes.
- Promote the use of low greenhouse gas-emission fuels by reducing reliance on coal and increasing the proportion of renewable energy within the energy mix.
- Support research and development of clean technologies to enhance combustion efficiency, reduce air pollution, and lower the Company's carbon footprint.
- Systematically manage environmental risks through regular assessments and continuous improvement of control measures to prevent leakage, improper waste handling, or environmental incidents.

Operations in 2024

1. Projects to Increase the Use of Renewable Fuels or Adopt New Technologies

- A study on the effects of ambient temperature on the electricity generation efficiency of floating solar panels.
- Development of eucalyptus hybrids between *Eucalyptus camaldulensis* and *Eucalyptus deglupta* for pilot cultivation and selection of suitable varieties for use as fuelwood (2023 – Year 2).
- Trial plantation of seedlings from new genetic sources for inclusion in the improved energy tree breeding genetic base (2022 – Year 3).
- Assessment and identification of measures to reduce carbon dioxide emissions throughout the procurement, production, and distribution processes of raw water and industrial water.

2. Research and Development Collaboration Projects with Academic Institutions and Communities

- Development of methods for analyzing phosphorus (P) content in soil for field application in eucalyptus plantations.



- Assessment of nitrogen content and chlorophyll levels in eucalyptus leaves from parent trees for field application.
- Study of aquatic ecosystems in the Emerald Pond and their impact on industrial water production efficiency.
- Forecasting seasonal rainfall in raw water reservoir areas to support industrial water production planning.

“Waste to New Life” Project

The “Waste to New Life” project aims to reduce landfill waste, raise awareness of environmental protection and climate change, and extend positive impacts to households. The project reflects the Company’s strong commitment to ESG principles and aligns with SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action).

As a result of the project, 164,868 recyclable items were segregated, generating THB 29,179 in revenue and reducing greenhouse gas emissions by 4,208 kgCO₂eq.

Operational Performance in 2024

Category	Performance Results
Volume of Waste Reused	230,044 tons
Proportion of Waste Reused (%)	68.89% (reused waste compared to total waste generated)
Types of Waste Reused	- Biomass ash - Coal fly ash - Sodium sulfate recovered from RB ash - Used lubricating oil - Empty chemical containers
Circular Economy Approaches / Projects	- Process improvements to minimize waste generation - Breeding improvements and technology development for energy crops - Study of industrial wastewater treatment using ozone technology for water reuse
Environmental Outcomes from Waste Reuse (Savings / Pollution Reduction)	- Reduction in waste requiring disposal: 224,076 tons - Reduction in CO ₂ equivalent emissions: 519,856 tons (avoided landfill disposal; emission factor of 2.32 kgCO ₂ e/kg)

Climate Change and Greenhouse Gas Emissions Management

At present, the world is facing an environmental crisis arising from the impacts of climate change, which are increasingly evident through more frequent and severe natural disasters such as floods, wildfires, intense storms, and droughts. These events reflect the consequences of global warming, primarily driven by the accumulation of greenhouse gases resulting from human activities, particularly the consumption of fossil fuels.

To avoid severe future impacts, stakeholders across the globe have collectively committed to limiting the increase in the global average temperature to no more than 1.5°C above pre-industrial levels, and well below 2.0°C, in line with the Paris Agreement. The energy sector, in particular, plays a critical role as a key mechanism for reducing greenhouse gas emissions across the entire value chain.

As an electricity producer with coal-based generation as part of its energy mix, the Company recognizes its significant role and responsibility in addressing global warming in a concrete and proactive manner. Accordingly, the Company has established long-term goals to transition its business toward becoming a **100% clean energy organization** and to achieve **Net Zero Greenhouse Gas (GHG) Emissions**. This commitment encompasses actions to reduce both direct emissions (Scope 1) and indirect emissions (Scope 2 and Scope 3) through improvements in production processes, increased utilization of renewable energy, a transition from fossil fuels to biomass, and the continuous development of advanced technologies and more efficient energy management systems.



Increasing the Share of Clean and Renewable Energy

The Company has continuously implemented and planned initiatives to increase the proportion of clean energy in its energy portfolio in order to support an environmentally friendly economy and meet the growing demand for clean energy among industrial customers. In this regard, the Company plans to expand its floating solar power capacity from **60 MW**, which commenced operations during **2023–2024**, to **157 MW** by 2025. In addition, the expansion of **PP12**, which will utilize **100% biomass fuel**, is currently under construction.

Furthermore, to support the gradual phase-out of coal, the Company is undertaking studies and progressively increasing the proportion of biomass fuel at power plants that currently rely primarily on coal, thereby facilitating a transition toward cleaner energy sources.

Performance Results

Item	Performance in 2024
Scope 1 GHG Emissions	2,189,591 tCO ₂ e
Scope 2 GHG Emissions	42,243 tCO ₂ e
Scope 3 GHG Emissions	2,230,440 tCO ₂ e
GHG Emissions Intensity	0.663 tCO ₂ e/MWh

NPS Floating Solar Power Plant Project (Solar Floating)

Under its clean energy transition strategy, the NPS Group is committed to developing sustainable power generation sources to reduce environmental impacts and increase the proportion of renewable energy within the Group's operations. The Floating Solar Farm project has therefore been developed as a model that integrates advanced technology with the efficient use of water resources, reflecting NPS's long-term commitment to balancing economic growth with environmental responsibility.

Project Background and Concept

National Power Supply Public Company Limited (NPS) has developed a fully integrated floating solar power plant with the objective of serving as a green alternative energy source, reducing reliance on fossil fuels and imported energy, while simultaneously conserving water resources and protecting the environment.

This project is regarded as a benchmark floating solar power plant in Thailand and the Southeast Asian region. The floating and mooring systems have been designed to operate effectively on various types of water surfaces, maximizing land and solar energy utilization, reducing water evaporation losses, and enhancing overall cost efficiency in energy production.

To ensure the sustainable implementation of the project, NPS established **NPS Solar Co., Ltd.** on 17 March 2021, with a registered capital of THB 2,699.33 million. NPS holds a 99.99% equity stake in the subsidiary, which was established specifically to develop solar energy projects.

Project Details and Scope

- **Project Name:** NPS Floating Solar Power Plant
- **Location:** 206 Moo 4, Tha Tum Subdistrict, Si Maha Phot District, Prachinburi Province
- **Total Installed Capacity:** 157.09 MWpdc
 - Phase 1: 30 MWpdc
 - Phase 2: 30 MWpdc
 - Phase 3: 97.09 MWpdc
- **Installation Area:** Located on 48 land title deeds, covering approximately 1,692.90 rai (1,336,470 square meters)



Project Status

- **Phase 1–2 (total 60 MWp):** Commercial Operation Date (COD) commenced in October 2023
- **Phase 3 (97.09 MWp):** Planned COD as follows:
 - IRR Lake: 29.95 MWpdc – September 2024
 - Green Lake Sondon: 20.36 MWpdc – March 2025
 - Ponds 3, 4, and 9 (total 46.77 MWpdc) – within Q4 of 2025

Operations in 2024

In 2024, the Company continued to develop and enhance its floating solar power generation system to improve clean energy production efficiency and maximize the utilization of water surface areas within the industrial estate. An additional **97.09 MW** of installed capacity was added, increasing the total capacity of the Solar Floating project to **157.09 MW**.

Improvements were made to the **mooring system** and floating structures to withstand wind and wave forces in accordance with IEC 61702 standards. In parallel, the **SCADA and data monitoring systems** were further developed to integrate production data from all three phases into a centralized control center, enabling real-time monitoring of electricity generation from the central control building.

Risk Management and Environmental Management

The project conducted risk assessments based on **Environmental Impact Identification (EIA Screening)** principles and the **Code of Practice (CoP) for Floating Solar Power Projects B.E. 2562 (2019)**. Risks were classified into three main categories:

1. Environmental

Impacts on water quality, air quality, noise, and the reservoir ecosystem were assessed. Adequate spacing beneath the solar panels was maintained to allow proper air circulation and light penetration. In addition, oil leakage and waste prevention systems were implemented in accordance with industrial standards.

2. Technical and Occupational Health & Safety (OHS)

High-voltage electrical systems were designed with comprehensive protection devices, including surge protection devices (SPD), grounding systems, and protection relays. Occupational health and safety measures were strengthened through Job Safety Analysis (JSA) training and the provision of complete personal protective equipment (PPE) at all operational areas.

3. Social and Community

Information was communicated with local authorities to build understanding of the project, and opportunities were provided for community participation in activities such as the maintenance and care of areas surrounding the reservoir.

ESG Dimensions

Environment (E)

- Reduction of greenhouse gas emissions from fossil fuel use
- Utilization of water surface areas instead of land, reducing encroachment on agricultural or forest areas
- Reduction of water evaporation by approximately **30–40%** per year



- Floating panels reduce operating temperatures by **5–10°C**, increasing generation efficiency by **5–15%**
- Regular water quality monitoring (pH, DO, BOD, COD, TSS) confirmed that all parameters remained within acceptable standards

Social (S)

- Supply of clean energy to more than **30 factories** within the 304 Industrial Estate
- Job creation for local labor and operations and maintenance (O&M) teams
- Implementation of CSR activities such as “Solar Energy for Education” and “Tree Planting Around the Reservoir” with more than **2,000 trees planted**

Governance (G)

- Full compliance with power generation and factory operation licenses under the **CoP 2019**
- Semi-annual reporting to relevant government authorities
- Comprehensive **All Risks insurance coverage** and real-time performance monitoring through the SCADA system

Long-Term Vision

The NPS Solar Floating project is not only an investment in clean energy, but also serves as a “**green power plant model for Thai industry.**” The project optimizes the use of water surface areas, increases the share of renewable energy in the national power system, and enhances long-term energy security for local communities and industries in a sustainable manner.

Research and Development to Enhance Production Efficiency and Energy & Environmental Sustainability

Production Process Optimization

- **Analysis and optimization of industrial water pipeline pressure using EPANET 2.0 modeling**
Mathematical models were developed to optimize pipeline systems and water pressure, reducing energy losses and improving water delivery efficiency.
- **Scale reduction in steam boilers**
Fuel selection and combustion process optimization were implemented to reduce scale formation, extend boiler lifespan, and lower maintenance costs.
- **Improving water production efficiency by identifying factors contributing to colloidal silica formation**
Studies were conducted to identify silica formation factors and improve production processes, reducing chemical usage and enhancing industrial water quality.

Greenhouse Gas (GHG) Emissions Improvement

- **Assessment and development of CO₂ reduction measures in industrial water production and distribution**
Carbon emissions from water production and transportation were analyzed, and mitigation measures were defined to support the Company’s Net Zero targets.

Fuel Management

- **Selection of appropriate fuels to reduce costs and scale formation risks**
Fuel quality was assessed to identify suitable fuel types for power plants, reducing scaling issues, lowering costs, and improving energy efficiency.



Innovation and New Technologies

- **Development of coating technologies to enhance solar panel efficiency**
Coating materials were tested to reduce dust and residue accumulation on solar panels, improving efficiency and reducing maintenance costs.
- **Application of Electronic Nose (e-nose) technology for odor detection and prediction**
E-nose systems were installed within factory areas to enable real-time odor detection and data-driven analysis to prevent environmental and community impacts.

Water Management

- **Study of aquatic ecosystems in the Emerald Pond and their impact on water production efficiency**
Water quality and ecosystem conditions were monitored to improve water management practices and enhance production sustainability.
- **Enhancement of industrial water production efficiency**
Water production processes were optimized to meet customer demand while emphasizing efficient water use and waste reduction.

Waste Management

- **Development of nano-cellulose water filtration fibers**
Production waste (lignocellulosic materials) was converted into nano-fibers for water filtration applications, reducing the use of virgin materials and adding value to waste.

Green Fiber Product Development

- **Improvement of Green Fiber Board (tempered board) production processes**
Thermal oven technology was introduced to reduce energy consumption and improve product quality.

Wastewater Management

- **Study of ozone-based wastewater treatment for reuse**
Ozone-treated wastewater was reused in production processes, reducing raw water consumption and improving wastewater management efficiency.

Energy Crop Improvement

- **Selection and development of eucalyptus varieties for energy use**
Eucalyptus varieties were improved to enhance quality and suitability for specific planting conditions.
- **Trial cultivation of energy crops from new genetic sources**
New energy crop varieties were tested to identify high-yield and site-appropriate strains.
- **Study of eucalyptus varieties suitable for the Eastern and Northeastern regions**
Varietal performance was analyzed based on regional climate and soil conditions to improve biomass productivity.

Tissue Culture

- **Tissue culture propagation of eucalyptus for energy seedlings**
Tissue culture techniques were applied to produce high-quality and uniform seedlings to support commercial-scale cultivation.



Sustainable Eucalyptus Plantation Systems

- **Study of combined chemical and organic fertilizer application in eucalyptus plantations**
Integrated fertilizer use was researched to improve yields while maintaining soil balance.
- **Study of optimal planting density in the Eastern and Northeastern regions**
Appropriate planting spacing was identified to enhance growth, productivity, and plantation sustainability.

Plant Disease Research

- **Research on disease and pest resistance in eucalyptus**
Eucalyptus varieties were tested for resistance to diseases and pests, and preventive approaches were developed to minimize damage and reduce chemical usage.

Energy Management

In 2024, demand for energy and natural resources continued to increase. NPS recognizes the importance of effective energy management as both a challenge and an opportunity to build sustainable competitiveness while reducing environmental impacts. Accordingly, the Company is committed to responsible energy use, supporting the **clean energy transition**, and enhancing production efficiency. These efforts focus on reducing greenhouse gas emissions in alignment with the goal of limiting global temperature rise to **no more than 1.5°C** under the **Paris Agreement**, and supporting Thailand's pathway toward achieving **carbon neutrality by 2050**.

Energy Management Policy

The Company operates under the guiding principle of “**Energy for a Sustainable Future**” and has established an energy policy as a key operational framework. In 2024, the Company accelerated the implementation of this policy through concrete actions, including:

- Enhancing energy efficiency in electricity and steam generation processes to reduce energy losses and maintain effective cost control.
- Promoting the use of renewable energy through the continued development of the **Floating Solar Farm project** with a total installed capacity of **157 MW** (90 MW completed and already supplying electricity to the grid, with the remaining **67 MW** under construction and scheduled for progressive completion by mid-2024).
- Commencing commercial operations of a **biomass power plant using rubberwood fuel** with a capacity of **115 MW**, reducing reliance on coal and increasing the share of environmentally friendly energy.
- Initiating the preparation of the **Carbon Footprint of Organization (CFO)** report to enable systematic monitoring and management of greenhouse gas emissions.
- Conducting training programs and awareness-building activities on energy conservation for employees and stakeholders at all levels.

Implementation Plan

In 2024, the Company placed strong emphasis on improving energy efficiency and accelerating the transition toward clean energy. Dedicated energy working teams and system audit committees were established to oversee and monitor operations in compliance with legal requirements and organizational targets. At the same time, the Company expanded investments in renewable energy projects, including the **Floating Solar Farm** and **biomass power plants**, which play a critical role in reducing coal dependency and increasing the proportion of environmentally friendly energy.



In addition, the Company initiated the preparation of the **Carbon Footprint of Organization (CFO)** report as a key tool for systematic greenhouse gas management. The Company also advanced **Green Logistics** initiatives by investing in **electric trucks (EV trucks)** and establishing EV charging and battery swapping stations to support low-carbon transportation. These initiatives are complemented by continuous employee training and awareness campaigns on energy conservation across all levels of the organization.

Energy Management and Conservation within the Organization

The Company emphasizes systematic energy management to promote sustainability, reduce environmental impacts, and enhance operational efficiency, with the following key approaches:

1. Equipment Improvement and Efficiency Enhancement

The Company implemented measures to improve the efficiency and sustainability of critical equipment, including:

- **Overhaul of Raw Water Pump Motors**
Upgrading pump motors to improve efficiency, reduce energy consumption, and minimize breakdown risks associated with aging equipment.

- **Replacement of Steam Traps**

Enhancing steam system efficiency and reducing energy losses.

- **Increased Cleaning Frequency of Air Filters at HEX Units**

Improving heat transfer efficiency and reducing energy consumption.

- **Improvement of Vent Valves and Steam Traps in Steam Distribution Systems**

Reducing steam losses from vent valves, steam traps, and leaking steam pipelines.

- **Replacement of Air Conditioning Units**

Reducing electricity consumption in office buildings.

- **Air Heater Pipe Replacement Project**

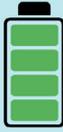
Restoring heat exchange surfaces of air heaters to improve heat transfer efficiency.

2. Knowledge Building and Energy Awareness

The Company conducts continuous training and awareness programs to promote energy consciousness, with key examples including:

- **Energy Conservation Awareness in the Organization**

Enhancing understanding and motivation among employees across all departments regarding the importance of energy conservation.



การจัดการและการอนุรักษ์ พลังงานในองค์กร



การจัดการพลังงานอย่างมีประสิทธิภาพสามารถ
ลดต้นทุน เพิ่มประสิทธิภาพ และสร้างความยั่งยืน
ให้แก่องค์กร

1. การปรับปรุงอุปกรณ์และเพิ่มประสิทธิภาพ

- การ Overhaul Motor Raw Pump และเพิ่มประสิทธิภาพของมอเตอร์ ซึ่งจะ
ช่วยลดความเสี่ยงที่อุปกรณ์จะเสียหายหรือ Breakdown ได้
- การเปลี่ยน Steam Trap เพื่อปรับปรุงประสิทธิภาพของระบบไอน้ำให้ดียิ่งขึ้น
- เพิ่มความถี่ในการทำความสะอาดแผ่นแลกเปลี่ยนความร้อน (HEX) เพื่อ
เพิ่มประสิทธิภาพในการถ่ายเทความร้อน



2. ฝึกอบรมและ สร้างจิตสำนึก



การจัดอบรมการใช้พลังงานอย่างมี
ประสิทธิภาพ

- การอนุรักษ์พลังงานในองค์กร
- การบำรุงรักษาเชิงป้องกัน
- การใช้เครื่องจักรอย่างถูกวิธี

3. เข้าร่วมสัมมนาและ แลกเปลี่ยนความรู้

- เข้าร่วม Thailand Energy
Executive Forum
- แลกเปลี่ยนความรู้กับหน่วยงาน
และชุมชน



4. การพัฒนาอย่างต่อเนื่อง

- พัฒนาพลังงานทดแทน
- ใช้วิศวกรรม 4.0 ในการจัดการพลังงาน
- ตรวจสอบติดตามและแลกเปลี่ยนความรู้เพื่อความยั่งยืน





- **Energy Reporting Training**

Developing maintenance staff capabilities in collecting and analyzing energy consumption data.

- **Basic Energy Conservation Techniques for Commercial Buildings**

Introducing practical approaches to reduce energy consumption in offices and commercial buildings.

- **Energy Management Monitoring and Assessment**

Developing internal audit teams to assess energy efficiency and propose improvement measures.

- **Energy Awareness Campaigns and Communications**

Such as promoting the use of adjustable-flow showerheads, reducing electricity consumption, and engaging employees through environmental quizzes and activities.

3. Participation in Seminars and Knowledge Exchange

- Participation in national-level energy seminars, such as the **Thailand Energy Executive Forum**, to stay informed of emerging technologies and international best practices.

- Encouraging employees to exchange knowledge and best practices on energy conservation with other organizations and local communities.

Energy Type	Unit	2024
Coal	tons	704,407.68
↳ Coal Intensity	GJ/ton	26
Biomass	tons	1,662,627
↳ Biomass Intensity	GJ/ton	15
Black Liquor (Rubber Oil)	tons	1,015,646.89
↳ Black Liquor Intensity	GJ/ton	42
Diesel Oil	liters	1,752,889.78
↳ Diesel Intensity	GJ/liter	0.0386
Fuel Oil	liters	2,998,585.00
↳ Fuel Oil Intensity	GJ/liter	0.0407
NGV (Compressed Natural Gas)	tons	18,374
↳ NGV Intensity	GJ/ton	49
LNG (Liquefied Natural Gas)	tons	1,585
↳ LNG Intensity	GJ/ton	55

Efficient Water Management

In 2024, water resource challenges continued to intensify, including both water scarcity and flooding, driven by increasingly severe climate change. These conditions have led to fluctuations in both the quantity and quality of water, affecting industrial operations, ecosystems, and the quality of life of surrounding communities.

As a provider of raw water supply and industrial water production services, NPS recognizes these risks and has implemented efficient and sustainable water resource management practices. The Company focuses on controlling water quality, minimizing environmental impacts, complying with applicable legal requirements, and continuously monitoring water conditions to comprehensively assess water-related risks across environmental, social, and governance dimensions.



Water Management Policy

In 2024, the Company integrated its **Water Management Policy** into its **Quality, Environmental, Occupational Health, and Safety (QHSE) Policy**, with the objective of producing industrial water that meets quality standards under the **ISO 9001:2015** management system. The Company also complies with customer requirements, relevant laws, and regulatory standards, while communicating policies and performance internally and disclosing relevant information to stakeholders in an appropriate and transparent manner.

Operational Objectives

1. Use water efficiently and reduce reliance on natural water sources.
2. Control wastewater quality and increase the proportion of water reused through water recycling.
3. Strengthen preparedness for water-related risks, including droughts and floods, to ensure business continuity.

Implementation Plan

To manage water resources effectively, the Company has adopted a proactive approach to address both drought and flood risks. Close coordination between operations teams and customers enables accurate water demand forecasting, reduction of water losses, and decreased reliance on natural water sources in high-risk areas. In parallel, the Company promotes water reuse within industrial water production processes to increase the proportion of recycled water and maximize resource efficiency.

The Company continuously monitors weather forecasts and local water conditions to assess water-related risks, while ensuring that wastewater quality remains within legally prescribed environmental standards. Performance is reported to relevant government authorities in strict compliance with regulations. In addition, training programs and internal communications are conducted to raise awareness and encourage active participation among employees and stakeholders in the efficient and sustainable use of water.

Operations in 2024

Industrial Water Production System

The Company's industrial water production and distribution operations begin with the procurement of raw water into the Company's reservoirs from natural sources, including rainfall, the Prachinburi River, and public canals. Raw water is then processed using modern, environmentally friendly **Pore Controllable Filter (PCF)** technology. This technology employs longitudinally aligned fine fibers as the filtration medium, creating small pore spaces capable of removing suspended solids of **0.1 microns** and above, prior to supplying industrial water to customers.

Reservoir Development

The Company has constructed large-scale reservoirs under its ownership to enhance water management security. These reservoirs enable the diversion and storage of water during the rainy season, thereby helping to mitigate flooding risks in surrounding areas. During the dry season, the Company can utilize stored water for its operations without disrupting water usage for domestic consumption, agricultural activities, or saline intrusion prevention.



NS304 Industrial Water

Item	Unit	2024
Total water withdrawal from water sources	megaliters	66,133.56
Total water consumption	megaliters	66,133.56
Total wastewater discharged	megaliters	134,865
Volume of water reused / recycled	megaliters	79,566.18

Power Plants

Item	Unit	2024
Total water withdrawal from water sources	megaliters	11,071.774
Total water consumption	megaliters	8,361.3686
Total wastewater discharged	megaliters	4,869.6981
Volume of water reused / recycled	megaliters	0

Waste Management

In 2024, NPS continued to place strong emphasis on the effective management of waste generated from electricity generation processes and other organizational activities. The Company strictly complies with applicable environmental laws and standards in order to mitigate environmental risks, protect community health and safety, and prevent non-compliance with legal requirements. All categories of waste—including hazardous waste, non-hazardous waste, and by-products from coal and biomass combustion—are managed systematically to minimize landfill disposal and maximize opportunities for reuse and value recovery.

In addition, the Company recognizes opportunities to create added value through waste utilization. Research and development initiatives have been undertaken to recycle and beneficially use by-products such as **fly ash** and **bottom ash**, which can be applied in the construction industry. These initiatives help reduce waste disposal while generating supplementary revenue and reinforcing the Company's credibility in sustainable business operations.

Waste Management Policy

The Company manages waste in accordance with **ISO 14001:2015** and its **Quality, Environmental, and Occupational Health and Safety (QEHS) Policy**, placing emphasis on the proper handling of both hazardous and non-hazardous waste in full compliance with legal requirements and industry standards.

In 2024, the Company adopted the principles of **Zero Waste** and **the Sustainable Development Goals (SDGs)**, focusing on reducing the volume of waste sent to landfill, increasing reuse and recycling rates, and promoting waste management knowledge among employees and stakeholders. These efforts aim to foster an organizational culture centered on efficient resource use and environmental responsibility.

Implementation Plan

The Company is committed to enhancing waste segregation and management processes for waste generated from power generation and industrial operations, ensuring proper handling in accordance with waste classifications and strict compliance with environmental laws and standards. In parallel, the Company continues to research and develop methods for the beneficial use of by-products, such as fly ash and bottom ash, to increase reuse in the construction industry and reduce reliance on landfill disposal.



The Company engages licensed contractors approved by the Department of Industrial Works to collect, transport, and dispose of waste in compliance with regulatory requirements. Waste management performance is monitored and reported through the Department of Industrial Works' tracking systems, and compliance with environmental measures is reported via **EIA Monitoring Reports** to relevant authorities on a semi-annual basis. In addition, real-time waste transportation tracking technology is utilized to reduce the risk of unauthorized disposal. Ongoing communication with surrounding communities is maintained to receive feedback and address complaints in a timely and transparent manner.

Projects Implemented in 2024

“Waste to New Life” Project

To promote a sustainable waste management culture within the organization, the Company implemented the “Waste to New Life” project during November–December 2024. The project focused on enhancing employees' knowledge, understanding, and skills in proper waste segregation through awareness-raising activities and the establishment of recycling collection points in the workplace. These efforts encouraged active participation and behavioral change, shifting waste disposal practices from mixed waste to systematic waste segregation for recycling.

The project not only reduced the volume of waste sent to landfill, but also delivered significant qualitative outcomes, including increased employee awareness of environmental and climate change issues, the extension of waste segregation practices to households, inclusive participation across all employee levels, and a clear demonstration of the Company's commitment to ESG principles.

The project is aligned with **SDG 12: Responsible Consumption and Production** and **SDG 13: Climate Action**, supporting efficient resource utilization and the reduction of greenhouse gas emissions associated with waste.

As a result of the project, **164,868 recyclable items** were collected and recycled, generating **THB 29,179 in revenue** and reducing greenhouse gas emissions by **4,208 kgCO₂e**.

โครงการขายขยะไปเกิดใหม่ (กิจกรรม แยก แลก ลุ้น)

ระยะเวลาดำเนินกิจกรรม : พ.ค.- ธ.ค. 2567

วัตถุประสงค์กิจกรรม : เพื่อให้พนักงานในองค์กรตระหนักถึงความสำคัญ รู้จักและเข้าใจปัญหาขยะ รวมถึงร่วมมือคัดแยกขยะรีไซเคิลออกจากมูลฝอยทั่วไป โดยการให้ความรู้การคัดแยกขยะที่ถูกวิธี

สถานะ : จำนวนขยะรีไซเคิลที่แยกได้ **164,868** ชิ้น

รายได้จากการขายขยะ **29,179** บาท

 ลดการปล่อยก๊าซเรือนกระจกได้ **4,208 kgCO₂e**



รายได้ทั้งหมด สมทบทุนกิจกรรมCSR

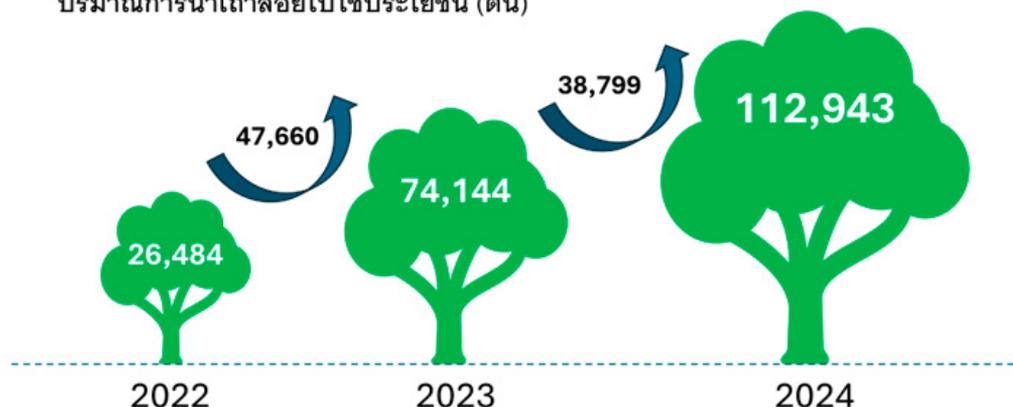
Fly Ash–Based Cementitious Materials

The Company sells fly ash as a supplementary material to replace cement in ready-mixed concrete, utilizing both coal fly ash and biomass ash. At present, coal fly ash is commercially supplied to cement manufacturing plants, as fly ash from coal-fired power plants possesses quality characteristics and coloration comparable to conventional cement, ensuring consistent product quality and enabling continuous sales.



Biomass ash, however, is currently under research and development to further improve its quality. In parallel, the Company is providing technical knowledge and information to cement manufacturers, as concerns remain regarding the darker coloration of biomass ash, which may affect quality control in standard cement applications.

ปริมาณการนำถ้ำลอยไปใช้ประโยชน์ (ตัน)



Operational Performance Results

Power Plant

Item	Unit	2024
Total waste generated	tons	307,708
↳ Total waste intensity	kg/MWh	97.66
Total hazardous waste generated	tons	137
↳ Hazardous waste intensity	kg/MWh	0.04
Total non-hazardous waste generated	tons	307,572
↳ Non-hazardous waste intensity	kg/MWh	97.62
Total waste utilized	tons	240,489
Hazardous waste utilized	tons	6
Non-hazardous waste utilized	tons	240,483
Non-hazardous waste utilized for other purposes (e.g., soil improvement)	tons	186,779
Total waste disposed	tons	72,329
Total hazardous waste disposed	tons	93
↳ Incineration with energy recovery	tons	0
↳ Incineration without energy recovery	tons	0
↳ Other disposal methods	tons	93
Non-hazardous waste disposed	tons	72,542
↳ Landfilled	tons	72,329

Operational Performance Results

SNST

Item	Unit	Year 2024
Total waste generated	tons	20,233
↳ Total waste intensity	tons/ton of starch	1,906.43
Total hazardous waste generated	tons	0
↳ Hazardous waste intensity	tons/ton of starch	0.00
Total non-hazardous waste generated	tons	20,232.95
↳ Non-hazardous waste intensity	tons/ton of starch	1,906.43
Total waste utilized	tons	20,199.41
Hazardous waste utilized	tons	0
Non-hazardous waste utilized	tons	20,199.41
Non-hazardous waste utilized for other purposes (e.g., soil improvement)	tons	0
Total waste disposed	tons	33.54
Total hazardous waste disposed	tons	0
↳ Incineration with energy recovery	tons	0
↳ Incineration without energy recovery	tons	0
↳ Other disposal methods	tons	0
Non-hazardous waste disposed	tons	33.54
↳ Landfilled	tons	33.54

Operational Performance Results

Industrial Water Business

Item	Unit	2024
Total waste generated	tons	15.54
↳ Total waste intensity	tons/m ³	4.43 ×10 ⁻⁷
Total hazardous waste generated	tons	0.11
↳ Hazardous waste intensity	tons/m ³	3.14×10 ⁻⁹
Total non-hazardous waste generated	tons	15.43
↳ Non-hazardous waste intensity	tons/m ³	4.40×10 ⁻⁷
Total waste utilized	tons	0
Hazardous waste utilized	tons	0
Non-hazardous waste utilized	tons	0
Non-hazardous waste utilized for other purposes (e.g., soil improvement)	tons	0



Item	Unit	2024
Total waste disposed	tons	15.54
Total hazardous waste disposed	tons	0.11
↳ Incineration with energy recovery	tons	0
↳ Incineration without energy recovery	tons	0
↳ Other disposal methods	tons	0.11
Non-hazardous waste disposed	tons	15.43
↳ Landfilled	tons	15.43

Waste Management Complaints

In 2024, there were no complaints related to waste management.

Pollution Impact Management

In the energy industry—particularly electricity generation from coal and biomass—air, water, and noise pollution are unavoidable challenges that may affect the health and quality of life of employees and surrounding communities. The Company places strong emphasis on systematic pollution management, aiming to control impacts within acceptable levels while strictly complying with applicable laws and international standards, in order to ensure safety and long-term business sustainability.

Pollution Impact Management Policy

The Company continuously prioritizes environmental and pollution management by adhering to internationally recognized standards for safety, occupational health, and the environment, including OSHA, NFPA, ISO 45001:2018, and ISO 14001:2015. Clear pollution management policies have been established to serve as an operational framework for all personnel. In addition, the Company has established a Safety, Occupational Health, and Environment Committee and appointed environmental officers at all levels to oversee, supervise, and continuously monitor pollution management practices. These efforts cover air and water quality management as well as industrial waste management, ensuring full compliance with applicable standards and legal requirements.

In 2024, the Company implemented several key measures, including air pollution control through high-efficiency combustion technologies, noise control to minimize impacts on surrounding communities, and comprehensive dust management—particularly for PM2.5—across all operational stages. These measures include controls during material handling, water spraying, the use of enclosed systems, and the installation of dust-capturing equipment from combustion processes. Limestone is also utilized to capture sulfur dioxide, thereby reducing air pollutants and greenhouse gas emissions.

Furthermore, the Company enhanced its real-time pollution and odor monitoring systems (E-nose) around the plant to strengthen transparency and build trust with local communities. Regular community communication measures and complaint-handling channels have been established to ensure timely information disclosure in the event of any disruption to pollution control systems. This report presents details of our progress and performance in pollution management, as well as proactive measures adopted to address emerging challenges and to achieve sustainable reductions in pollutants arising from our production processes.



Performance results

Safety, Occupational Health, and Environment Committee: A Key Mechanism for Sustainable Pollution Management

The Company places strong emphasis on comprehensive governance of safety, occupational health, and environmental matters. This includes the appointment of SHEQ function leaders, the establishment of a Safety, Occupational Health, and Environment Committee, and the designation of safety officers and environmental officers at various levels. This committee plays a critical role in overseeing, controlling, and continuously improving pollution management operations, ensuring that air quality, water quality, and industrial waste management comply with established standards and align with the Company's policies.

In addition, the committee is responsible for assigning internal units to prepare Environmental Impact Assessment (EIA) Monitoring Reports for submission to the Board of Directors, tripartite meetings, and relevant government agencies, including the Department of Industrial Works. The Company also engages qualified external organizations with expertise in standardized pollution monitoring and allocates annual budgets for air and water quality monitoring. These actions are undertaken to provide the highest level of environmental assurance to communities surrounding the Company's operations.

Operations in 2024

Pollution Control through Combustion Technology

The primary source of air pollution arising from power generation operations is fuel combustion. Accordingly, the Company has implemented pollution control measures through the application of high-efficiency, low-temperature combustion technologies to reduce the formation of nitrogen oxides (NO_x). In addition, high-quality fuels with low sulfur content are selected to minimize sulfur dioxide (SO₂) emissions. Electrostatic precipitators are installed to capture particulate matter generated from combustion processes, and limestone is utilized to absorb sulfur dioxide, thereby reducing air pollutants and greenhouse gas emissions.

Noise Pollution Management

The Company has installed noise control systems to ensure that noise generated from production processes within the plant remains within community-friendly regulatory standards. Environmental quality monitoring measures are also implemented to enhance confidence among all stakeholder groups. To date, the results of the Company's environmental management system monitoring have consistently complied with the applicable regulatory requirements.

Particulate Matter Management Measures

The Company recognizes the impacts of particulate matter—particularly PM2.5—on air quality, community health, and the surrounding environment. Preventive and control measures have therefore been systematically implemented to comprehensively manage dust emissions at all stages of operations, as outlined below:

1. Material Handling and Transportation Control

- Wet loading and unloading methods are employed, with the installation of dust curtains and mandatory covering of materials during transportation.
- Truck speeds are limited to a maximum of 30 km/hour, and designated parking areas are established to minimize dust dispersion.
- All vehicles are required to wash wheels and vehicle bodies before exiting the premises.



2. Water Spraying and Cleaning Measures

- Regular water spraying is conducted in open yards, on roads, and in material handling areas, with increased frequency during dry weather conditions.
- Road-sweeping vehicles are used to clean roads and operational areas daily or several times per week.
- High-risk areas prone to dust accumulation are continuously cleaned during both day and night shifts.

3. Infrastructure and Equipment Improvements

- Closed systems are adopted for conveyor belts, loading points, and fuel storage areas.
- Dust collectors and wet scrubbers are installed, maintained, and operated at 100% efficiency.
- Dust curtains, walls, and protective barriers are repaired or installed around operational areas to prevent dust dispersion.

4. Operational and On-Site Control Measures

- Material stockpiling and dumping procedures are strictly controlled, particularly during strong winds or dry seasons, to prevent dust emissions.
- Direct loading systems are used, and crushing or grinding processes are controlled in conjunction with dust-capturing systems.
- Fuel handling and storage are continuously supervised to ensure that materials remain fully enclosed at all times.

5. Monitoring and Performance Evaluation

- Regular monitoring of particulate matter concentrations, including PM2.5, is conducted, and results are disclosed to stakeholders.
- The most recent average PM2.5 levels are within national air quality standards, and particulate emissions from all power plants remain below established control limits.

Real-Time Odor Monitoring Plan

In 2024, the Company implemented an environmental quality surveillance program through the continuous development of an electronic nose (E-nose) system, which has been in operation since 2024 and continues to the present. Four monitoring stations have been installed around the plant, covering the prevailing wind directions throughout the year, to ensure comprehensive monitoring and tracking of environmental quality.

The system is capable of monitoring the following parameters:

- Odor intensity
- Particulate matter (PM10 and PM2.5)
- Noise intensity levels

All parameters are monitored in real time and integrated with wind direction data to assess potential correlations with emission sources from the plant. In the event that abnormal readings are detected, the system immediately issues alerts, enabling prompt investigation of root causes and timely corrective actions.

This initiative not only helps mitigate risks associated with environmental and community impacts, but also plays a significant role in:

- Enhancing trust and confidence among surrounding communities
- Providing assurance to investors that the Company's operations prioritize environmental stewardship and long-term sustainability



- Promoting effective environmental management to reduce social and environmental impacts over the long term

Furthermore, the system supports the Company's commitment to assuring communities that robust and highly effective measures are in place to respond to chemical leakage incidents or instances where pollution levels do not meet regulatory standards.

Item	Unit	2024
Nitrogen oxides (NOx)	ppm	112.90
↳ NOx intensity	ppm/MWh	151.52
Sulfur oxides (SOx)	ppm	40.35
↳ SOx intensity	ppm/MWh	113.30
Particulate matter (PM)	ppm	40.24
↳ PM intensity	ppm/MWh	20.62
Number of community complaints	cases	9





SOCIAL PERFORMANCE



SOCIAL PERFORMANCE

Social Policy and Management Approach

In conducting its energy and renewable energy businesses, the Company recognizes that its operations are inherently and directly interconnected with society, both internally through its employees and externally through the communities in which it operates. This interconnectedness is reflected in the Company's operational activities, including the employment of local personnel, engagement with communities and key stakeholders—particularly those located in the vicinity of its plants—the safeguarding of employee health and safety, and the continuous development of employee skills and capabilities. These efforts contribute to sustainable momentum and long-term stakeholder participation, in alignment with the Company's corporate vision. Accordingly, the Company places strong emphasis on community engagement and social responsibility and has established a Corporate Social Responsibility (CSR) Policy to serve as a guiding framework for the effective management of its social and environmental initiatives, in alignment with the principles of the new ESG Report.

Social Responsibility Policy



Over the past year, the Company has emphasized responsible operations by focusing on human rights, respect for diversity and inclusion, the care and development of human capital, and the promotion of occupational health and workplace safety. In parallel, the Company actively supports community participation and continuously undertakes social responsibility initiatives to create shared value and strengthen long-term relationships with stakeholders.

Performance Targets

The Company has set a target to reduce the number of work-related accidents resulting in lost-time injuries by at least **50%** compared with the previous year.



Management Approach

Category	Management Approach
1. Human Capital Development	<ul style="list-style-type: none"> - Upskilling and Reskilling the Workforce: Provision of internal and external training programs, including guest lectures by external experts and suppliers, to enhance employee knowledge and capabilities. - Continuous enhancement of training curricula to strengthen essential competencies such as digital skills, data analytics, and automation. - E-Learning Platform (NPS Academy): Implementation of an e-Learning system to support employee development and expand learning opportunities anytime and anywhere. - Establishment of a program inviting retired employees to serve as advisors for knowledge transfer. - Implementation of Supplier Training Programs to enable suppliers to share specialized product knowledge with employees. - Adoption of the 70:20:10 Learning and Development Model across the organization. - Annual implementation of Certification and Position Advancement Assessments (Certify Level). - Introduction of a Mentorship System to support the onboarding and adaptation of new employees through a structured onboarding program.
2. Employee Welfare and Quality of Life	<ul style="list-style-type: none"> - Provision of employee benefits aligned with the diverse needs of employees. - Promotion of employee well-being and work-life quality through the “Happy Workplace” initiative.
3. Occupational Health and Safety	<ul style="list-style-type: none"> - Operations conducted in accordance with ISO 45001:2018 and applicable domestic laws and regulations. - Continuous enhancement of quality, environmental, occupational health, and safety policies through the SHE Culture Program and the 5S system. - Establishment of a Safety, Occupational Health, and Working Environment Committee. - Quarterly risk assessments related to occupational health and safety. - Development of procedures for reporting and investigating work-related incidents. - Preparation of safety manuals and provision of regular safety training for employees and external parties. - Establishment of complaint channels related to occupational health and safety.
4. Human Rights and Good Governance	<ul style="list-style-type: none"> - Establishment of a Corporate Social Responsibility Policy and Code of Business Ethics incorporating human rights considerations for employees and communities. - Monitoring and assessment of risks related to human rights violations within the organization and in society. - Establishment of reporting and whistleblowing channels.
5. Community and Social Responsibility	<ul style="list-style-type: none"> - Establishment of a Community Relations Unit to enhance community engagement and participation. - Allocation of an annual budget for community and social development activities. - Assessment of potential risks affecting surrounding communities and development of appropriate mitigation measures. - Implementation of community development activities in areas such as education, health, religion, culture, and environmental conservation.

Performance Results

Category	Item	2024
Workforce Information	Total number of employees	2,504 persons
	Number of non-employee workers	343 persons
	Total workforce	2,686 persons
	Number of new employees recruited in 2023	557 persons
	Number of employees who resigned in 2023	652 persons
	Number of employees who took maternity leave and returned to work after leave	14 persons (100%)
	Number of employee complaints	0 cases
Training and Development	Average training hours per employee per year	64%
	Training and development budget	THB 7,337,385.98
	Percentage of employees receiving career development	100%



Category	Item	2024
Occupational Health and Safety	Employees and workers covered by the occupational health and safety system	2,847 persons (100%)
	Employees and workers subject to internal OHS audits	2,847 persons (100%)
	Employees and workers subject to external OHS audits	2,847 persons (100%)
	Number of employee fatalities from work-related incidents	0 cases
	Number of worker fatalities from work-related incidents	0 cases
	Total employee working hours	2,093,340 hours/year
	Total worker working hours	511,357 hours/year
	Employee injury rate ®	1 case
	Worker injury rate (IR)	0 cases
	Lost Time Injury Frequency Rate – Employees (LTIFR)	3.34
	Lost Time Injury Frequency Rate – Workers (LTIFR)	1.96
	Occupational Disease Rate (ODR)	2 cases
	Occupational health and safety complaints in 2023	0 cases
	Community Relations	Percentage of operations with community participation in planning
Number of communities negatively affected by operations		20 communities
Number of communities benefiting from organizational engagement		20 communities (100%)
Significant community complaints		0 cases

Operations in 2024

Human Capital Care and Development

Amid rapid and continuous changes—ranging from economic uncertainty and evolving workforce skill requirements to intensified competition in the labor market—the care and development of employees have become increasingly critical in today’s business environment. These factors have also emerged as key considerations for individuals when evaluating potential employers.

In response, the Company is committed to conducting its business while actively supporting employees at all levels to acquire the skills necessary for personal development and to effectively adapt to change. The Company recognizes that employee retention is not driven solely by compensation and benefits. Accordingly, it places strong emphasis on enhancing employees’ overall quality of life and well-being in a holistic manner, with the aim of attracting talent, strengthening employee engagement, and fostering long-term commitment to the organization. Through these efforts, the Company seeks to collectively drive sustainable organizational growth. This approach is guided by the Company’s core belief that “employees are the most valuable asset of the organization,” and therefore must be nurtured and retained over the long term.

Policy and Management Approach to Human Capital Care and Development

The Company has assigned the Human Resources Department to assess and analyze various risks, including employee turnover rates, professional skill gaps, and dependency on key personnel. Mitigation plans are developed to reduce potential impacts related to employee retention and development, and identified risks are reported to the Company’s Risk Management Committee.



Following the risk assessment, the Company evaluates training and learning needs to develop appropriate knowledge and skill sets tailored to each position. In 2024, the Company introduced an e-learning system, offering core training programs for employees at all levels and across all functions, as well as role-specific skill enhancement courses. This approach enables employees to learn independently and flexibly while promoting lifelong learning. Such initiatives form a key pillar of the Company's sustainable human capital development and retention strategy.

Emerging Risks

In an increasingly dynamic business environment characterized by economic slowdown, rising interest rates, and higher operating costs, stagnant or outdated employee skill sets may pose risks to both the organization and its workforce. These risks can undermine operational effectiveness amid emerging challenges and limit the Company's ability to adapt to change.

Furthermore, the transition toward an aging society represents a significant risk faced by many countries worldwide. A declining working-age population may lead to difficulties in recruiting suitably skilled personnel and could adversely affect workforce productivity, potentially slowing business growth.

Recognizing these emerging risks, the Company has implemented initiatives to address and mitigate their impacts. These include targeted upskilling and reskilling programs focused on critical technical and professional competencies essential to business operations, as well as structured knowledge transfer from retiring employees to the current workforce. These measures aim to strengthen workforce stability, continuity, and long-term organizational resilience.

Employee Skills Development

The Company has established annual training plans and programs to continuously support employee learning and skills development. Training programs are categorized into two main types, as follows:

1. Employee Training Programs Aimed at Skills Development Training programs designed to enhance both professional competencies (hard skills) and behavioral or competency-based capabilities (soft skills).

1.1 Internal Training Programs

Topic	Description
Case: Boiler and Turbine were tripped due to during PA fan A trip by human error (Plan to stop ID fan A)	Analysis of the incident in which the boiler and turbine tripped due to a PA Fan A trip caused by human error during a planned shutdown of ID Fan A. The course covers root cause analysis with a focus on human error, assessment of impacts on power plant production and safety, emergency response planning and management for PA/ID fan trip scenarios, and learning preventive measures and improvements to Standard Operating Procedures (SOPs) to reduce risks arising from human error.
Case Study: HP Blower Start Resulting in Busbar Damage	Analysis of the incident involving busbar damage during HP blower start-up. The course includes root cause analysis, assessment of equipment damage, planning for repair and recurrence prevention, and practical training on safe operational procedures for HP blower start-up.
Case: Turbine is tripped by loss of cooling system (Mistake from operator isolate power system wrong unit) Mistake from operator isolate power system to cooling wrong unit.	<ul style="list-style-type: none"> • Understanding the causes and impacts of a turbine trip resulting from incorrect isolation of the cooling system. The course emphasizes analysis of operator error and decision-making in isolating the wrong electrical unit, training on preventive measures and corrective procedures to reduce risks to the turbine system, and development of verification and confirmation skills prior to executing electrical and cooling system operations.
Behavior-Based Safety (BBS) Program: Safety Behavior Development	<ul style="list-style-type: none"> • Understanding the concepts and principles of Behavior-Based Safety (BBS); identification of at-risk and safe behaviors; analysis of root causes of unsafe behaviors; practice in safety communication and constructive feedback; and fostering a strong safety culture within the organization.



Raw Materials and Supporting Materials Control in the Production Process	<ul style="list-style-type: none"> Learning procedures for inspection and acceptance of raw materials and supporting materials; understanding storage and inventory control processes; training on documentation management and material tracking systems; application of quality inspection techniques prior to production; and development of skills to reduce material losses and improve resource efficiency.
Quality Control in the Production Process	<ul style="list-style-type: none"> Learning quality concepts and manufacturing standards; techniques for quality inspection and product quality analysis; process control to ensure compliance with standards; problem-solving and defect prevention methods; and continuous improvement of production processes.

1.2 External Training Programs

Sample Training Topics	Number of Participants / Training Hours
<ul style="list-style-type: none"> Consolidated Financial Statements Workshop 	1
<ul style="list-style-type: none"> Financial Model 1 Fundamentals of Finance 	1
<ul style="list-style-type: none"> Principles of Product Carbon Footprint Assessment 	2
<ul style="list-style-type: none"> Carbon Credits: Criteria and Certification under the T-VER Program 	3
<ul style="list-style-type: none"> Risk Accounting and Risk Management for Accountants 	1

In addition, the Company provides employees with the right to take educational leave to further their academic knowledge, with a guarantee of re-employment upon completion of such leave.

In 2024, there were no employees who applied for educational leave or pursued further studies under this program.

2. Training Programs to Enhance Employee Skills for Adapting to Change

Training Program	Sample Training Topics	Performance Results
Pre-Retirement Planning Program for Employees Preparing for Retirement	Financial planning with The Money Coach	67

Pre-Employment Readiness Program

The onboarding program for new employees is designed to support effective job performance and smooth integration into the organizational environment. A structured onboarding process is used as a tool to monitor and evaluate employee performance during the initial employment period. In addition, a mentorship system is established to enable new employees to seek guidance and advice on work-related matters. This approach facilitates efficient adaptation and enhances collaboration between employees and the organization.

Succession Planning and Key Position Development Program

The Company has adopted an **Individual Development Plan (IDP)** based on the **70:20:10 development framework** to enhance employee capabilities in terms of knowledge and skills aligned with current responsibilities and future leadership roles. The program also aims to strengthen competencies and operational effectiveness in preparation for career advancement, with quarterly performance evaluations conducted to monitor development progress.

Through this process, the Company has identified that the development of technical skills alone is insufficient to ensure sustainable organizational growth. Management skills must also be developed in parallel, requiring continuous and long-term investment, typically over a period of no less than three years.



Accordingly, the Company has established the “NPS Management Trainee Program” to systematically develop high-potential employees for future key positions. This initiative supports business continuity and enables structured succession planning by clearly defining the required skills, knowledge, experience, competencies, and attributes for each role. As a result, employees gain a clear understanding of career pathways and development directions within the organization.

Annual Certification and Promotion Assessment Program (Certify Level)

This program aims to establish clear career pathways and formally recognize employees’ knowledge, skills, and competencies. Employees who successfully pass the certification assessment are eligible for additional remuneration and receive professional certifications aligned with their experience, competencies, and expertise. These certifications support long-term career development and advancement within the organization.

Re-Employment of Retired Employees as Advisors

The Company has implemented a program to re-employ retired employees as advisors and trainers to transfer institutional knowledge and professional experience to the current workforce. This initiative mitigates the risk of critical skill shortages while enabling retired personnel to generate income and continue contributing their accumulated expertise in a meaningful manner.

Employee Care and Well-Being

The Company places strong emphasis on employee retention and operates under a strategy that promotes happiness and well-being in the workplace. Comprehensive welfare benefits and compensation systems are provided to both permanent employees and contract workers to enhance productivity and foster employee engagement and organizational commitment.

“Happy Workplace” Initiative (Program Progress and Cumulative Outcomes)

HappyMoney

This initiative promotes financial well-being by encouraging effective income and expense management, debt reduction, responsible financial planning, and appropriate investment strategies tailored to individual needs. As part of this initiative, the Company piloted an advance savings withdrawal program through the Mula x NPS application, which helps reduce reliance on informal lending while enhancing employees’ monthly liquidity and financial stability.

HappyHeart

This initiative encourages kindness, mutual support, and positive relationships among employees to foster a harmonious working environment. The Company organized the “NPS Freshy Day 2023” for employees who joined in 2023, providing a warm welcome and team-building activities to help new employees understand the Company’s core values (“PRIDE+D”), build workplace relationships, and adapt effectively to the organizational culture.

HappyBody

This initiative promotes physical health and well-being through activities designed to strengthen relationships and encourage employee participation. One such activity was the annual **NPS Football Tournament 2023**, which aimed to enhance teamwork, reduce generational gaps, and promote unity across the organization.



In addition, the Company promotes employee health by providing appropriate welfare benefits. The Human Resources Department has introduced additional fitness-related benefits to encourage employees to engage in physical activity during their leisure time, supporting both health improvement and stronger organizational engagement.

Other Recreational Activities

- Activities are organized to motivate employees to actively participate in improving their work environments and to foster organizational unity. Examples include 5S activities conducted at PP7, PP8, and PP9 in June 2023, featuring slogan contests, 5S area competitions, and interactive games with prizes. These activities promote continuous workplace improvement and provide opportunities for interaction between management and employees.
- The Company also organizes activities on special occasions such as New Year celebrations, retirement events, and birthday activities to promote employee happiness and demonstrate the Company's care and appreciation for its workforce.

Performance Results

Data Item	Unit	2024
Total number of employees	persons	2504
Total number of non-employee workers	persons	343
Total workforce	persons	2847
Number of new employees	persons	557
Number of employees who resigned	persons	652
Number of employees who took maternity leave	persons	14
Percentage of employees returning to work after maternity leave	%	100
Number of employee complaints	cases	0
Average training hours per employee per year	hours/person/year	60.28
Investment in training and employee development	THB	7,337,385.98
Percentage of employees receiving career development	%	100%

Occupational Health and Safety

The Company places strong emphasis on occupational health and safety throughout its operations, recognizing it as a critical factor affecting business continuity and employees' quality of life. The Company has established policies and developed management systems in accordance with ISO 45001:2018 across multiple operational sites, while strictly complying with all applicable laws and regulations. These measures aim to prevent workplace accidents, promote a safe working environment, and reduce labor-related risks.

In addition, the Company encourages employees to be aware of their right to refuse unsafe work and has established clear risk notification and reporting mechanisms. These practices help foster a strong safety culture within the organization and reflect the Company's commitment to conducting business in a responsible and sustainable manner, with continuous emphasis on safety as a shared responsibility.



“Employees have the right to refuse to perform work that lacks appropriate safety measures. Such refusal may be reported to a supervisor or manager if unsafe conditions or unsafe work practices are identified. Employees are encouraged to notify their supervisors so that corrective actions can be taken to restore safe working conditions before work is resumed.”

Emerging Risk

At present, the global economic slowdown has led to rising living costs across all sectors, including households, government, charitable organizations, and the business sector, where operating costs have increased significantly. In response to these risks, many organizations have begun implementing cost-reduction measures, such as cutting expenditures related to employee health, well-being, and safety. As a result, safety training may become insufficient, personal protective equipment may become outdated, employee health promotion activities may be reduced, and maintenance activities may be delayed.

These factors collectively pose risks to employees’ health and safety and may lead to an increase in workplace accidents. Such incidents can result in higher compensation claims, while unsafe working conditions may also give rise to increased insurance claims. Consequently, these circumstances may lead to higher insurance premiums and increased operating costs for the Company.

The Company recognizes that conducting business in a safe manner and providing a healthy working environment for employees and relevant stakeholders are critical to organizational performance. Accordingly, the Company operates in alignment with the ISO 45001 standard and other relevant international standards. This includes conducting occupational health and safety risk assessments, implementing hazard identification processes, investigating work-related incidents, and establishing appropriate risk mitigation measures to reduce occupational health and safety risks across the organization.

In addition, the Company organizes activities to promote employees’ health and well-being, thereby strengthening stakeholder confidence and enhancing the effectiveness of its occupational health and safety management system.

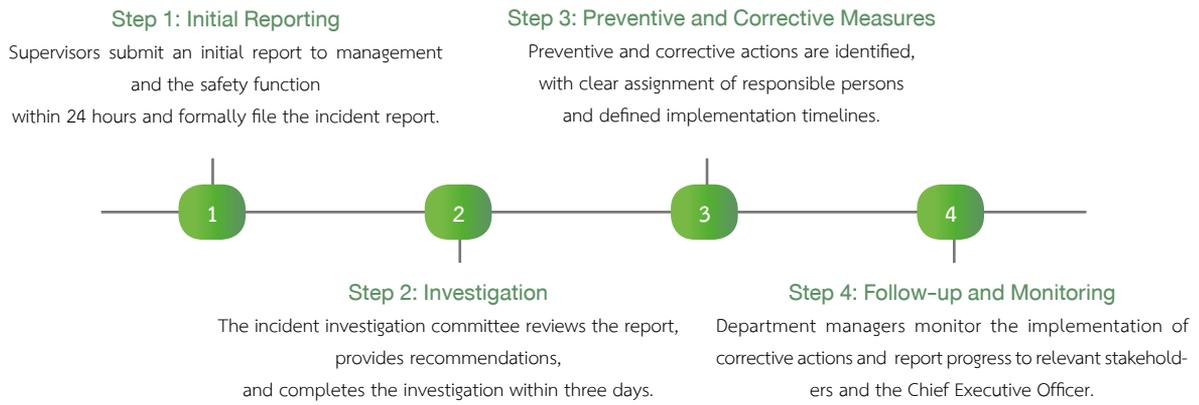
Occupational Health and Safety Risk Managementx

The Company places strong emphasis on the management of occupational health and safety (OHS) risks. Comprehensive risk assessments are conducted covering work-related accidents, heavy machinery operations, fuel transportation, fire incidents, and chemical leaks. Control measures are established and their effectiveness is evaluated on a quarterly basis. The risk assessment process is carried out in accordance with ISO 45001, encompassing hazard identification, risk analysis, development of control plans, and regular monitoring. Responsibilities are clearly assigned at all levels, from supervisors to executive management, with annual reviews and consideration of emerging risks to prevent loss of life and property.

Work-Related Incident Investigation Process

The Company has established clear procedures for reporting and investigating work-related incidents. Supervisors are required to report incidents to management and the safety department within 24 hours, together with incident details and supporting photographic evidence. An incident investigation committee reviews the preliminary report and conducts an investigation within three days to identify root causes, categorized as unsafe acts or substandard conditions. Comprehensive corrective and preventive measures are then defined, including responsible persons and implementation timelines. Follow-up and corrective action status are reported in weekly or monthly meetings to ensure organization-wide awareness and continuous monitoring of progress.





Operational Objectives

The Company is committed to reducing the rate of employee lost-time injuries compared with the previous year. To achieve this objective, the following key performance indicators (KPIs) have been established:

Quality objectives	Unit	Planning actions to achieve objectives	Resource
1. Injury Frequency Rate (IFR)	Persons	1) Compile accident statistics for comparison with the previous year 2) Classify and prioritize reported incidents 3) Analyze incident data and identify preventive measures	Personnel, equipment, and budget
2. Injury Severity Rate (ISR)	Days	1) Compile accident statistics for comparison with the previous year 2) Classify and prioritize reported incidents 3) Analyze incident data and identify preventive measures	Personnel, equipment, and budget
3. Availability of Fire Protection Systems	%	1) Prepare layout plans for fire protection equipment 2) Conduct monthly inspections 3) Implement corrective actions based on inspection findings	Personnel, equipment, and budget
4. Number of Non-Compliance Issues with Occupational Safety Laws (Compliance)	Cases	1) Establish and maintain a legal register and assess compliance status 2) Summarize assessment results 3) Implement corrective actions for identified non-compliances	Personnel, equipment, and budget
5. Occupational Diseases	Persons	1) Compile statistics on workplace incidents and medically certified sick leave to identify work-related illnesses 2) Classify and prioritize identified cases 3) Analyze data and establish preventive measures	Personnel, equipment, and budget

Action plan

The Company continues to place strong emphasis on strict compliance with occupational safety laws and standards, while regularly reviewing and updating its Quality, Environmental, Occupational Health, and Safety policies to align with sustainable management principles. Recently, the Company has strengthened its work permit system to enhance rigor and control, covering the screening of personnel who have completed required safety training through to verification of all necessary permits. All personnel must undergo verification and receive formal authorization from the Company prior to entering any plant area.

In addition, the Company has continuously established Occupational Health, Safety, and Working Environment Committees at each operational site. These committees are responsible for monitoring, inspecting, and managing incidents or unsafe events, including accidents, occupational illnesses, chemical leaks, and fire incidents. Monthly meetings are held to review safety performance, assess emerging risks, and regularly improve safety measures.



The Company has further strengthened the functions of its Safety, Occupational Health, Environment, and Quality Management units. In addition to supporting policy development and monitoring compliance with legal requirements, the Company has established clearer operational frameworks and performance indicators to enhance enterprise risk management. These efforts also support effective internal communication and raise safety awareness across the organization, encouraging greater employee participation at all levels and fostering a sustainable safety culture.

Governance of Responsibilities Related to Quality, Environmental, Occupational Health, and Safety Policies

The Company has established a governance structure for the oversight of its Quality, Environmental, Occupational Health, and Safety (QEHS) policies to ensure effective implementation and continuous improvement of related performance. All employees are required to participate in and comply with these policies as part of their responsibilities. The key bodies responsible for policy governance are as follows:

1. Board of Directors

The Board is responsible for overseeing and approving QEHS policies, setting strategic direction, and reviewing the effectiveness of the quality, environmental, occupational health, and safety management systems.

2. Corporate Governance Committee

The Corporate Governance Committee is responsible for reviewing, assessing, and providing recommendations on policies, practices, and initiatives related to quality, environmental, occupational health, and safety performance. The committee comprises members of the Board and senior executives with expertise in operations management, compliance, and the review of adherence to applicable legal, environmental, occupational health, and safety requirements.

3. Occupational Health, Safety, and Environment Committee

This committee is responsible for monitoring, inspecting, and managing incidents and unsafe conditions affecting employees within the Company's areas of responsibility, such as workplace accidents, chemical leaks, flooding, or fire incidents. Sub-committees are established at each operational site and include employee representatives responsible for site-specific operations.

4. Safety, Occupational Health, and Environment Function

This function supports the development of QEHS policies and regularly monitors compliance with occupational safety and health regulations. It is also responsible for the continuous development of environmental management systems and occupational health and safety systems. In addition, the function leads the establishment of operational frameworks, key performance indicators, and action plans aligned with Company policies and enterprise risk management, provides relevant information to the governing committees, and promotes internal communication, awareness, and employee engagement across the organization.

Occupational Health and Safety Training

The Company places strong emphasis on continuously enhancing employees' occupational health and safety capabilities. Safety training is provided to employees at all levels, including basic fire-fighting and evacuation drills, chemical spill response, and confined space safety. A training matrix is established based on job positions, and post-training evaluations are conducted for every program. In addition, comprehensive occupational health, safety, and environmental manuals are developed to ensure employees can perform their duties safely and effectively.



No.	Legal Reference	Training Program	Hours	Frequency	Target Group	Key Topics
1	Occupational Safety Act B.E. 2554 / Ministerial Regulation B.E. 2565	Safety Officer (Supervisor Level)	12	As required	Supervisors / Section Managers and above	Safety responsibilities, hazard identification, accident prevention
2	Occupational Safety Act B.E. 2554 / Ministerial Regulation B.E. 2565	Safety Officer (Management Level)	12	As required	Management / Deputy Department Managers and above	Safety management, oversight and monitoring, incident reporting
3	Communicable Diseases Act B.E. 2562	Occupational Health Diseases	6	Annually	All employees	Health risk factors, prevention and control measures, health surveillance
4	Fire Prevention Ministerial Regulation B.E. 2555	Firefighting and Evacuation	6	As required	All employees	Fire extinguisher use, evacuation procedures, emergency drills
5	Machinery and Crane Ministerial Regulation B.E. 2564	Crane Operation Control	18	Every 2 years	Crane operators	Crane operation, signaling, load rigging, safe work practices
6	Hazardous Chemicals Notification B.E. 2565	Chemical Safety Training	6	As required	Chemical-handling employees	Chemical storage and use, accident prevention, personal protective equipment (PPE)
7	Working at Height Ministerial Regulation B.E. 2564	Working at Height Safety	6	As required	Employees working at heights ≥ 2 meters	Safety harness use, equipment inspection, fall prevention
8	Scaffolding Requirements	Scaffolding Techniques	-	As required	Maintenance staff responsible for scaffolding	Scaffolding installation, stability inspection, accident prevention
9	Confined Space Ministerial Regulation B.E. 2562	Confined Space Work	15	Every 5 years	Operations and maintenance staff at all levels	Risk assessment, respiratory protection equipment, emergency response
10	Electrical Safety Ministerial Regulation B.E. 2558	Electrical Safety	3	As required	Electrical workers	Electrical shock prevention, tool usage, electrical system inspection
11	Noise, Light, and Heat Ministerial Regulation B.E. 2559	Hearing Conservation	2	Annually	Employees exposed to noise ≥ 85 dB	Noise assessment, PPE use, hearing loss prevention
12	PPE Ministerial Regulation	PPE Usage and Maintenance	1	Annually	All employees	PPE selection and usage, care and inspection
13	Fire Prevention Ministerial Regulation B.E. 2555	First Aid and CPR	6	As required	All employees	Basic life support, first aid, emergency response
14	Electrical Safety Ministerial Regulation B.E. 2558	Work Permit and LOTO	6	As required	Operations and maintenance staff	Work permit issuance, Lock Out/Tag Out, electrical hazard prevention
15	Fuel Control Act B.E. 2552	LPG Control Worker Training	12	As required	LPG operators	LPG storage, handling, leak prevention
16	Occupational Safety Act B.E. 2554	Contractor Safety / Fuel Transportation Safety	3	Every 6 months / Annually	Contractors / Fuel transportation employees	Worksite safety, chemical risk prevention, regulatory compliance



Occupational Health and Safety Communication

The Company regularly communicates occupational health and safety (OHS) information to employees through multiple channels, including announcements on policy updates and invitations to participate in activities via corporate email and the Company's Line Official Account. Daily safety communication is also conducted during morning meetings, along with safety talks held whenever production processes are temporarily shut down for maintenance activities. The Human Resources function is assigned as the coordinating body to encourage employee participation in Company-organized activities.

Occupational Health and Safety Programs and Activities

1. Fire Check Point – Fire Risk Area Inspection

The Safety and Occupational Health team conducts on-site inspections of fire risk areas to develop preparedness plans for unexpected incidents and to establish fire prevention measures. These activities form part of the annual fire prevention planning and fire drills, including inspections of fire-fighting equipment to support decommissioning plans and the replacement of equipment with units that are ready for use.

2. One Voice One More Safety – Employee Safety Improvement Suggestions

Employees at all levels, including supervisor-level safety officers, are encouraged to participate in identifying and proposing improvements for workplace risk areas. The Safety and Occupational Health team reviews these suggestions and collaborates with operational personnel to implement appropriate risk management measures, supporting the development of a strong safety culture.

3. KYT (Kiken Yochi Training) – Hazard Prediction Before Work

Each department is required to regularly discuss and analyze potential risks and prepare appropriate personal protective equipment before commencing work, reinforcing awareness of personal and co-worker safety.

4. Safety Talk – Safety Knowledge Sharing

The Safety team conducts on-site engagements with supervisors and employees to discuss, exchange information, and provide guidance on workplace safety management.

5. SHE Moment – SHE Knowledge and Experience Sharing

Safety, Health, and Environment (SHE) updates or experience sharing sessions are conducted at the beginning of all meetings to promote awareness and engagement.

6. 5S for All – Workplace Organization Program

The program begins with employee training and on-site assessments conducted by external specialists during the kick-off phase, followed by performance evaluations, scoring, and recognition awards in 2024.

7. SHE Culture Program

Training and assessments are conducted to evaluate organizational safety culture, identify gaps, and define targets and strategies to strengthen the Company's safety culture.

8. Emergency Response Drills

- a. Fire evacuation drills
- b. Chemical spill response drills
- c. Oil spill response drills
- d. Confined space emergency drills
- e. Boiler emergency drills
- f. Earthquake response drills



9. SHEQ Day

Recreational and engagement activities are organized for employees to enhance participation and awareness, together with annual safety education.

10. White Factory Program – Drug Testing

The Company implements the White Factory Program by conducting quarterly drug testing for employees. By year-end, all employees are required to undergo drug testing to promote a drug-free workplace and to enhance the protection of employees’ safety and the Company’s assets.

Safety Talks Activities



Risk Area Inspection Activities



Risk Area Inspection Activities



SHEQ Day



One Voice One More Safety 2024

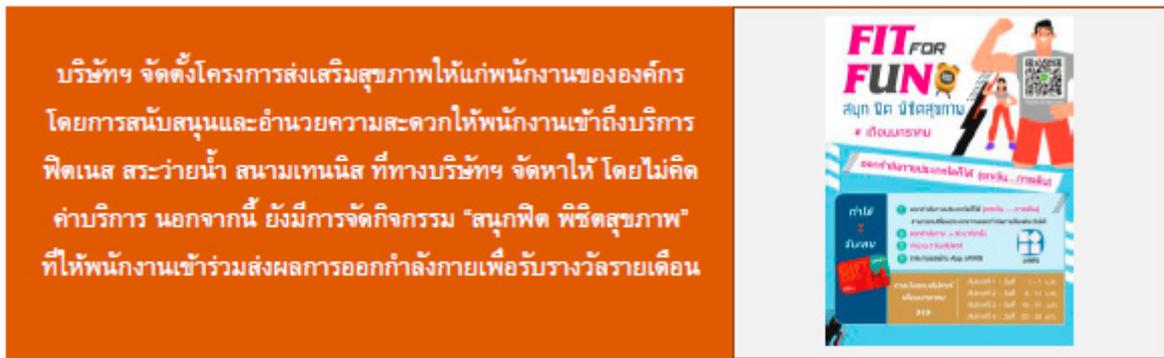


White Factory Program – Drug Testing 2024



5S Activity 2023 and Award Presentation in 2024





The Company allocated an annual budget of THB 25,061,625 for 2024 to support occupational health and safety initiatives for employees and workers across the organization. The budget was used for industrial hygiene monitoring, emergency response drills, improvements to safety equipment, statutory inspections and legal compliance, safety support activities, and the implementation of occupational health and safety programs.

Performance Results

Item	2024
Number and percentage of employees and workers covered by the occupational health and safety management system	2,508 (100%)
Number and percentage covered by the system and subject to internal audits	2,508 (100%)
Number and percentage covered by the system and subject to external audits	2,508 (100%)
Number of work-related fatalities (employees)	0 cases
Number of work-related fatalities (contractors/workers)	0 cases
Total employee working hours	4,291,357 hours
Number of employee injury cases (IR)	9 cases
Lost Time Injury Frequency Rate (LTIFR)	2.1
Occupational Disease Rate (ODR)	0 cases
Number of occupational health and safety complaints	0 cases

Occupational Health and Safety Grievance Mechanism for Employees

The Company assigns supervisors as the primary point of contact for receiving occupational health and safety (OHS) complaints. Supervisors are responsible for reporting such complaints to the Occupational Health, Safety, and Working Environment Committee for incident and risk assessment, review, and the development of appropriate management plans. Material issues are escalated and reported to the Board of Directors and the Corporate Governance Committee in accordance with their respective charters. The Company also monitors the progress and effectiveness of the management of material complaints that may have a significant impact on business operations.

OHS grievance performance: No occupational health and safety complaints were reported during the reporting period.

Human Rights and Respect for Diversity and Inclusion

The Company is committed to respecting human rights and embracing diversity and inclusion both within and outside the organization, covering employees, communities, and the supply chain. Operations are guided by internationally recognized principles and frameworks, including:

- UDHR (Universal Declaration of Human Rights): Establishes fundamental rights and freedoms for all



individuals.

- UNGP (UN Guiding Principles on Business and Human Rights): Defines the State duty to protect human rights, the corporate responsibility to respect human rights, and access to remedy for affected parties.
- ILO Declaration: Sets out fundamental principles and rights at work, including freedom of association, non-discrimination, and the elimination of child labor and forced labor.
- FPIC (Free, Prior and Informed Consent): Requires obtaining free, prior, and informed consent from affected communities—particularly Indigenous Peoples—before undertaking projects or activities that may impact their rights.
- UNDRIP (United Nations Declaration on the Rights of Indigenous Peoples): Recognizes the rights of Indigenous Peoples to land, resources, culture, and self-determination.

The Company recognizes that respect for human rights is a fundamental business responsibility and a key criterion for sustainability assessments at both national and international levels. Failure to uphold these principles may adversely affect corporate reputation, stakeholder trust, and business opportunities.

Policies and Approach

The Company has established a human rights policy within its Code of Business Conduct and operates in compliance with applicable laws and international standards, promoting equality, diversity, and respect for human dignity.

Key Implementation Practices

- Respect for Rights and Equality: Treats all employees and stakeholders fairly, without discrimination based on race, religion, gender, beliefs, skin color, language, or social status.
- Prevention of Human Rights Violations: Conducts business activities in a manner that avoids direct or indirect adverse impacts on the rights of stakeholders.
- Risk Assessment and Management: Identifies, assesses, and monitors human rights risks and impacts on an ongoing basis, with appropriate corrective actions and remediation measures.
- Promotion and Collaboration: Works with business partners and stakeholders to elevate human rights standards in line with international principles.
- Communication and Awareness: Continuously provides education and builds awareness on human rights for employees, business partners, and communities.
- Monitoring and Reporting: Maintains vigilance and does not tolerate human rights violations, supported by transparent and auditable whistleblowing and grievance channels.
- Protection of Vulnerable Groups: Places particular emphasis on safeguarding the rights of children, persons with disabilities, women, minorities, migrants, migrant workers, Indigenous Peoples, local communities, LGBTQ+ individuals, and the elderly across all Company activities.

Emerging Risks

The Company recognizes that its business operations—covering production, service provision, procurement, and transportation—may give rise to human rights risks if not properly managed, particularly with respect to child labor, forced labor, and vulnerable groups. The Company also considers the rights of stakeholders to access good health, clean water, and a safe environment as a key responsibility.



In addition, the Company faces cybersecurity risks related to the protection of personal data and the privacy of employees, business partners, and other stakeholders. Accordingly, the Company has developed and implemented robust cybersecurity measures, supported by continuous risk assessment and monitoring.

The Company has assigned relevant functions to be responsible for managing these risks in line with its Code of Conduct and corporate policies, and has established grievance and whistleblowing channels to enable timely, effective, and transparent investigation and remediation of any identified issues.

Action Plans

The Company has integrated the monitoring and oversight of human rights violation issues into the responsibilities of its Human Resources, Community Relations, and Corporate Governance functions. Each function is responsible for monitoring complaints from employees, contractors, communities, and other relevant stakeholders. In cases where a human rights violation involves an employee, the Human Resources Department receives the complaint directly from the affected employee and follows up through the relevant supervisor to conduct an investigation. The findings are then reported to management for consideration and determination of appropriate disciplinary actions.

For other stakeholder groups, the Company has established grievance and whistleblowing channels through multiple avenues, including:

1. Written correspondence addressed to the Chairman of the Audit Committee, National Power Supply Public Company Limited, 206 Moo 4, Tha Tum Subdistrict, Si Maha Phot District, Prachinburi Province 25140. Upon receipt, the Chairman of the Audit Committee will forward the matter to the Chairman of the Corporate Governance Committee for further action.
2. Electronic mail sent to mondob_r@doublea1991.com or CIA@npp.co.th, or submissions made through the Corporate Governance Committee via the Secretary to the Corporate Governance Committee.
3. Telephone contact via +66 85-835-0482 or LINE ID: 085-835-0482.
4. The Company's website at www.npsplc.com, or direct reporting through supervisors or the Human Resources Department. The Company has designated HR Business Partners for each function, enabling employees to report human rights violations safely and confidentially without the need to go through their direct supervisors.

The Human Resources Department is responsible for assessing and investigating reported cases and submitting the findings to management for consideration of disciplinary measures against offenders, as well as ensuring appropriate remediation and remedies for affected individuals.



Community Engagement and Social Responsibility

The Company recognizes that its role in today's world extends beyond ensuring a stable supply of electricity. It also serves as a key driver of sustainability across economic, environmental, and social dimensions. Accordingly, the Company is committed to developing and supplying environmentally friendly energy while creating shared value with communities surrounding its operations, based on the principles of transparency, equality, and



stakeholder participation. Under the guiding principle of “Ensuring energy security while strengthening communities,” the Company has expanded its corporate social responsibility approach to enhance community resilience amid global changes and to minimize operational impacts through systematic management aligned with good governance and international sustainable development principles.

Emerging Risks

In 2024, the Company faced increasingly prominent emerging risks, including intensified environmental issues such as PM2.5 air pollution and drought affecting shared water resources, as well as disparities in quality of life and the rights of vulnerable groups within communities. The Company acknowledges its important role in advancing sustainable development across economic, social, and environmental dimensions. During the year, the Company strengthened its social and environmental risk management approach, emphasizing transparent communication, continuous community engagement, and the development of initiatives tailored to local contexts, such as dust and pollution management, waste management, and community health and well-being.

In addition, the Company places importance on equitable and inclusive access to clean energy by promoting energy projects that are accessible to remote communities, alongside providing education on energy conservation and environmental protection to foster responsible resource use. The Company also considers the rights of vulnerable groups, particularly children and youth, through initiatives focused on improving quality of life, supporting education and well-being, and promoting social equality and opportunities in all dimensions. Performance across these areas is closely monitored and evaluated to enhance effectiveness and build long-term trust under the principle of Social License to Operate.

Action Plans

The Company has established a Community Relations function responsible for engaging with surrounding communities throughout communication and implementation processes. Activities include vocational skill development programs and social initiatives, supported by an annual budget of more than THB 1.5 million for community and social development.

Social responsibility risk assessment has been designated as one of the material risks to be managed on an annual basis. Measures for managing complaints and organizational risks include:

- Conducting on-site monitoring of environmental impacts in surrounding communities at least twice per month, or more frequently during periods of community impact.
- Implementing social projects on a monthly basis, as appropriate, in alignment with community needs and relevant government agencies.
- Establishing communication channels to share Company information, report irregularities, or notify potential community impacts to enable timely preventive and corrective actions, including the use of digital platforms such as LINE groups and the Company website to enhance outreach.

Education and Youth Development Activities

The Company is committed to promoting education and youth development in communities surrounding its operations through a range of initiatives. These include the “Nong Im Tong, Phi Im Jai” program, which provides recreational activities, knowledge on renewable energy, and lunch for students; the “Energy Conservation Mentorship” program to educate youth on clean energy and environmental conservation; and the improvement of electrical systems at Wat Bu Yai Bai School to enhance safety. Additional activities include promoting reading in collaboration with the Provincial Learning Promotion Office, the Back to School program providing school supplies, free haircut services for students, and volunteer painting and school landscape improvement projects.



All initiatives are aligned with the United Nations Sustainable Development Goals (SDGs), particularly Quality Education (SDG 4), Affordable and Clean Energy (SDG 7), and Reduced Inequalities (SDG 10). The Company also provides ongoing educational scholarships to children of community leaders to continuously support youth potential development in local areas.



“Nong Im Tong, Phi Im Jai” Program



“Energy Conservation Mentorship” Program



“Improvement of Electrical Systems at Wat Bu Yai Bai School”



Project “Reading Promotion Activity”

Community Health and Well-being Initiatives

The Company places strong emphasis on promoting the health and well-being of communities surrounding its operations through a wide range of initiatives. These include mobile medical units, which provide medical equipment to improve access to healthcare services for local residents; youth sports promotion programs such as Muay Thai and badminton to enhance physical health and athletic skills; and anti-drug sports programs that encourage young people to use their free time constructively.

In addition, the Company supports road safety initiatives by distributing safety helmets to enhance community safety. The Company also provides support to health system development foundations and charitable organizations to assist underprivileged groups. Through the “NPS Energy Care, Community Well-being” project, the Company distributes care packages containing essential consumer goods to the elderly, bedridden patients, and persons with disabilities within the community.



“Mobile Medical Unit Activities”



“Youth Skill Development Promotion Activities”



Further initiatives include the construction of pétanque courts, donations of essential goods to low-income households, and support for sports equipment and budget allocations for the improvement of community sports facilities. The Company also donates medicine cabinets and waiting chairs to local health-promoting hospitals to enhance the quality of healthcare services in the area.

All these initiatives are aligned with the United Nations Sustainable Development Goals (SDGs), particularly Good Health and Well-being (SDG 3), Reduced Inequalities (SDG 10), and Sustainable Cities and Communities (SDG 11).

Sports Activities



“Anti-Drug Sports Activities”



“NPS Energy Conservation, Building Community Well-being”

Religion, Culture, and Tradition

The Company supports and preserves local culture, traditions, and religious practices in communities surrounding its operations by sponsoring and participating in key traditional events such as Songkran, Kathin ceremonies, Loy Krathong, and temple gilding activities. These initiatives aim to strengthen community unity and preserve local cultural heritage.

In addition, the Company supports the “116 Years of Royal Handwriting” event, an annual district event in Si Maha Phot, which focuses on the conservation of historical sites and the promotion of cultural and heritage tourism to generate income and long-term sustainability for the community.



These activities align with the Sustainable Development Goals (SDGs), particularly cultural heritage preservation (SDG 11) and community well-being.

Environmental Activities

The Company places strong emphasis on environmental conservation and the promotion of clean energy through the development of various renewable power generation projects, including floating solar power plants, biomass power plants, and rubberwood oil power plants. In addition, the Company utilizes electric trucks (EVs) powered by solar energy to reduce carbon dioxide emissions.





The Company also organizes activities to release fish and shrimp back into natural water sources to help restore local aquatic ecosystems. Furthermore, the “Biomass Ash to Home Gardens for Children” project promotes the sustainable use of by-products within communities, while the provision of waste segregation bins to schools helps raise awareness of proper waste management practices.

All of these initiatives align with the Sustainable Development Goals (SDGs), particularly affordable and clean energy (SDG 7), climate action (SDG 13), and the conservation of aquatic ecosystems (SDG 14).

Biomass Ash to Home Gardens for Children Project at Wat Lang

Tham Wittayakarn School, Tha Tum Subdistrict, Si Maha Phot District, Prachinburi Province

The Company implemented the “Biomass Ash to Home Gardens for Children” project at Wat Lang Tham Wittayakarn School, with employee volunteers participating in knowledge sharing on the use of biomass ash and jointly planting home-grown vegetables with students. The project aims to enhance practical skills and knowledge, promote the productive use of vacant land, and enable students to grow vegetables for their own consumption. This initiative also helps reduce food costs for school lunch programs while fostering environmental awareness and self-sufficiency among students.

Environmental and Ecosystem Conservation Activity: Release of Aquatic Species into Natural Waterways

In celebration of the Birthday Anniversary of Her Majesty Queen Suthida Bajrasudhabimalalakshana, the Company organized an environmental and ecosystem conservation activity by releasing aquatic species back into nature. A total of 1,000,000 fish and shrimp were released into the Prachinburi River at the pier of Wat Aranyapraisri, Ban Tham Subdistrict, Si Maha Phot District, Prachinburi Province.

This activity aimed to restore and enhance the aquatic ecosystem in the local community, support biodiversity conservation, and promote environmental awareness among employees and community members.



Performance Results

Item	2024
Percentage of operations incorporating community engagement (%)	100
Number of communities benefiting from engagement (communities)	20 (100%)
CSR budget (THB)	1,557,000
Community satisfaction (%)	92
Remarks	No significant complaints reported





**ECONOMIC PERFORMANCE AND
CORPORATE GOVERNANCE**



ECONOMIC PERFORMANCE AND CORPORATE GOVERNANCE

The Company places strong emphasis on good corporate governance as a key mechanism to enhance transparency, accountability, and fairness in business operations, which forms a fundamental foundation for sustainable organizational development. The Company has established a Corporate Governance Policy and a Code of Business Ethics to serve as guidelines for employees at all levels across the entire value chain, thereby strengthening credibility and trust among all stakeholder groups.

In 2024, the Company further strengthened its corporate governance framework through revisions to policies to align with the Securities and Exchange Commission (SEC) principles of good corporate governance and internationally recognized ESG practices. The Company also closely monitored implementation and promoted a governance-driven corporate culture, including:

- Communicating business ethics and anti-corruption principles to employees at all levels
- Enhancing secure and confidential whistleblowing channels
- Conducting regular performance evaluations of the Board of Directors and senior management
- Strengthening personal data protection and cybersecurity measures
- Expanding ESG risk assessments to suppliers across the value chain

Corporate governance operations during the year covered key areas including corporate governance and business ethics, risk management, supply chain management, sustainable business opportunities, personal data protection, innovation and technology, product quality management, and customer relationship management.

For 2025, the Company aims to further elevate its corporate governance standards through the following key initiatives:

- Developing digital systems to monitor compliance with the Code of Conduct
- Providing continuous training and regular reviews of corporate governance principles
- Integrating governance risk assessments into strategic decision-making processes
- Enhancing stakeholder engagement in the development of policies and practices

The Company remains committed to conducting business with transparency and accountability to create long-term shared value for society and all stakeholders.



Management Approach

Category	Management Approach
1. Policies and Code of Conduct	<ul style="list-style-type: none"> - Establish and regularly review the Corporate Governance Policy and Code of Business Conduct. - Require directors, executives, and employees to acknowledge and sign the Code of Conduct. - Require business partners and suppliers to formally acknowledge and strictly comply with the Code of Business Conduct. - Conduct annual disclosure of conflicts of interest.
2. Anti-Corruption and Grievance Mechanisms	<ul style="list-style-type: none"> - Establish and continuously improve secure channels for whistleblowing and grievance reporting related to governance and corruption. - Communicate and provide training on the Code of Conduct and anti-corruption to directors and employees at all levels.
3. Risk Management and Business Continuity	<ul style="list-style-type: none"> - Develop policies for enterprise risk management and business continuity. - Appoint a Risk Management Committee.- Regularly review the risk management charter and policies. - Apply COSO ERM and ISO 31000 as risk assessment frameworks. - Define Key Risk Indicators (KRIs), Risk Appetite, and Risk Tolerance. - Promote a risk management culture across the organization and maintain a crisis management plan.
4. Supplier and Supply Chain Management	<ul style="list-style-type: none"> - Implement supplier management practices in compliance with applicable laws and ISO 9001. - Ensure fair procurement contracts and conduct random quality inspections. - Establish raw material traceability systems. - Plan raw material sourcing to mitigate fuel and supply risks. - Consider potential impacts on surrounding communities.
5. Circular Economy and Sustainability	<ul style="list-style-type: none"> - Operate in alignment with the BCG Economy model and sustainable economic principles.
6. Cybersecurity and Personal Data Protection	<ul style="list-style-type: none"> - Establish cybersecurity and data protection management in compliance with legal requirements and international standards. - Appoint a Cyber Security and Disaster Recovery Planning (DRP) working team in coordination with the Risk Management function. - Develop cyber incident response and emergency preparedness plans. - Provide employee training on cyber threats and vulnerabilities. - Collect and assess cybersecurity risk data at least once a year.
7. Technology and Innovation	<ul style="list-style-type: none"> - Continuously invest in research and development of innovation. - Encourage employee-driven innovation initiatives. - Disseminate beneficial innovations to society. - The Board of Directors promotes innovation to enhance efficiency and value creation. - Apply technology to improve the efficiency of electricity and water production.
8. Product Quality and Customer Service	<ul style="list-style-type: none"> - Continuously improve product and service quality. - Develop product strategies aligned with customer needs. - Comply with relevant standards such as ISO 9001, ISO 14001, TIS 18001, OHSAS 18001, and CSR-DIW. - Subsidiaries develop innovative raw materials. - Establish end-to-end processes from delivery to after-sales services. - Provide technical training to CRM personnel. - Conduct customer satisfaction and feedback surveys annually and quarterly. - Organize regular customer relationship-building activities.



Performance Results

Category	Indicator	2024
1. Promotion of Business Ethics	New employees receiving business ethics training (%)	100%
	Number of violations of the business ethics code or laws	11
	Business partners acknowledging and signing the Code of Conduct (cases)	25
2. Corruption Risk Assessment	Percentage of activities assessed for corruption risk (%)	100%
	Corruption risk training programs (plans)	2
3. Supplier Management	Number of new suppliers (cases)	25
	Number of key suppliers critical to the business (cases)	105
	Environmental and social screening criteria in place (status)	1
4. Cybersecurity and Personal Data Protection	Cyber Security User Awareness training sessions (times)	0
	Cyber incident response drills (times)	0
	Number of complaints related to cybersecurity or personal data	0

Corporate Governance and Business Ethics

The Company is committed to conducting its business with transparency, fairness, and accountability, guided by the principles of good corporate governance and business ethics. This commitment aims to enhance organizational credibility and reduce risks arising from misconduct that may result in negative impacts, such as corruption, legal violations, or conflicts of interest, which could adversely affect the Company's reputation, stakeholder trust, and long-term revenue.

Corporate Governance Structure

The Company has established a comprehensive corporate governance structure covering all aspects of its operations, based on the Good Corporate Governance Principles for Listed Companies B.E. 2560 (2017) issued by the Securities and Exchange Commission (SEC) of Thailand. These principles comprise eight key practices that the Board of Directors adopts as guidelines to ensure effective governance and ethical oversight of the organization.

Key Policies and Practices

The Company has implemented key policies and guidelines related to corporate governance, including:

- Good Corporate Governance Policy
- Anti-Corruption Policy
- Corporate Social Responsibility Policy
- Conflict of Interest Prevention Policy
- Code of Business Ethics for Directors, Executives, and Employees

The Board of Directors has assigned the Corporate Governance Committee to oversee and closely monitor compliance with these policies. Key practices include:

- Requiring all directors, executives, and employees to acknowledge and sign the Code of Business Ethics

Additional details of the Corporate Governance and Business Ethics policies are available for further reference.



- Requiring all business partners to acknowledge and sign the Supplier Code of Conduct and strictly comply with its requirements
- Conducting conflict of interest disclosures on an annual basis and whenever reportable circumstances arise
- Providing whistleblowing and grievance channels through the Company's website and internal units, with defined investigation procedures and reporting to the Board of Directors
- Supporting continuous communication and training on corporate governance to foster an organizational culture grounded in integrity and ethical conduct

Emerging Risks Related to Business Ethics

In 2024, risks related to business ethics became more evident and showed an increasing potential to directly affect stakeholder confidence. In particular, risks arising from the distortion or misuse of information through digital media may adversely impact the Company's image and credibility. This also includes non-transparent sustainability reporting or exaggerated disclosures, which are subject to heightened scrutiny as investors and society place greater emphasis on transparent and verifiable business practices.

In addition, human rights issues within the supply chain remain a significant risk. Companies face growing expectations to conduct thorough due diligence and exercise effective oversight over raw material sourcing and business partners to prevent human rights violations. Moreover, intensified economic pressure has increased the risk of fraudulent behavior and financial misrepresentation, which could undermine business sustainability in both the short and long term.

Accordingly, the Company places strong emphasis on continuously reviewing its business ethics measures and risk management practices, alongside establishing robust systems for monitoring and verifying critical information. Regular risk assessments are conducted to enhance preparedness for evolving challenges. These actions reflect the Company's commitment to upholding high standards of transparency, accountability, and sustainable business operations in all dimensions.

In 2024, the Company received complaints related to corporate governance and violations of business ethics, including breaches of applicable laws, totaling two (2) cases.

Type of Complaint	2024
Corruption and Fraud (cases)	2
Conflict of Interest (cases)	0
Discrimination or Unfair Treatment (cases)	0
Others	0

Following the investigation, a total of two cases related to violations of corporate governance and/or the business code of conduct, including legal non-compliance, were identified. The details are as follows:

Type of Complaint	2024
Corruption and Fraud (cases)	2
Conflict of Interest (cases)	0
Discrimination or Unfair Treatment (cases)	0
Others	0



Enhancing Awareness and Preventing Risks of Corruption

In addition, to enhance awareness and prevent risks of corruption, the Company has implemented the following measures:

1. Policy Communication and Guidelines

- o Regularly communicate the anti-corruption policy and related guidelines to the Board of Directors, executives, and employees at all levels.
- o Publish supporting documents such as the Code of Conduct, anti-corruption policy, and whistleblowing channels.

2. Training and Awareness Building

- o Provide anti-corruption training for employees at all levels, both online and on-site.
- o Training covers corruption risks, types of corruption, whistleblowing procedures, and preventive measures.
- o Systematically monitor training participation to ensure employees acquire knowledge and understanding comprehensively.

3. Promoting an Ethical Organizational Culture

- o Encourage employees to voice concerns regarding behavior that violates the Code of Conduct.
- o Foster a transparent, accountable organizational culture that does not tolerate any form of corruption.

Operational Goal

- Continuously reduce complaints related to breaches of business ethics, corruption, and asset loss, aiming to achieve zero complaints by 2025.

Good Corporate Governance (GCG) Action Plan

The Company places high importance on Good Corporate Governance, which serves as a foundation to build stakeholder confidence and ensures business operations are transparent, ethical, and socially and environmentally responsible. To implement effective and verifiable governance, the Company has established the following approaches and mechanisms:

- The Governance Committee oversees overall corporate governance operations to ensure alignment with policies, laws, and relevant standards.
- Employees at all levels are required to acknowledge and comply with the Code of Conduct whenever it is reviewed or updated, reaffirming their commitment to ethical practices.
- Continuous reporting of potential conflicts of interest is conducted, including annual reporting in December and/or whenever events arise that may create conflicts during the year.
- Conduct surveys to assess employees' knowledge and understanding of the Code of Conduct and compliance behaviors, identifying strengths and risk areas, and planning measures to enhance effective adherence.
- Provide online training on business ethics and anti-corruption for all new employees within 30 days of joining, ensuring understanding from the outset of employment.
- Enhance tracking and evaluation of governance and ethics awareness through the HRD system to inform policy and planning for the following year.



Budget Allocation for Corporate Governance and Business Ethics

The Company has allocated a budget for corporate governance and business ethics activities under administrative expenses, covering costs associated with the following activities:

No.	Description	Remarks / Estimated Budget
1	Expenses related to corporate governance and business ethics, knowledge communication and training, data monitoring, and case reporting	Depends on the number of cases (provide a budget range)
2	Expenses for investigation and fact-finding	
3	Expenses for on-site visits, filing police reports, litigation, legal defense, and other related activities	

Performance Results

Indicator	2024
Employees trained on business ethics (%)	100%
Cases of business ethics or legal violations (cases)	11
Departments assessed for corruption risk (departments / %)	100%

Sustainability Risk Management

ability Risk Management

In 2024, the Company continued to strengthen sustainability risk management to ensure comprehensive and timely responses to rapidly changing economic, social, environmental, and regulatory conditions. The Company recognizes that sustainability risks are increasing in magnitude and are interconnected with all aspects of business operations, including climate change risks, human rights risks in the supply chain, and risks arising from government energy and environmental policies.

To address these, the Company focuses on integrating sustainability risk management into corporate strategy and enhancing governance structures by establishing an independent risk management function. This ensures transparent, holistic, and effective risk assessment and monitoring.

Additionally, the Company promotes a risk-aware culture (Risk Culture) across all organizational levels and raises ESG awareness among employees, enabling timely identification and response to risks, which supports business continuity, stability, and long-term sustainability.

Risk Governance Structure and Policy

The Company has reviewed and updated its Risk Management Policy and Business Continuity Policy to align with international standards such as COSO ERM and ISO 31000, addressing both internal and external changes, including emerging risks.

- The Risk Management Committee sets direction, monitors, and advises on sustainability risk management, with mechanisms for regular risk monitoring and reporting to the Board of Directors.
- The Risk Management Working Group, representing various business units, evaluates, analyzes, and develops proactive risk response plans and reports key risk status to management and stakeholders.
- In 2024, the Company has enhanced risk monitoring systems and integrated ESG data for comprehensive enterprise-level risk analysis and developed approaches for disclosing material risks in sustainability reports in line with GRI and TCFD standards.



Enterprise Risk Assessment Process

The Company systematically assesses and manages organizational risks based on COSO-ERM 2017 and ISO 31000 frameworks, covering internal and external factors that may impact operations and strategic objectives.

Risk assessment includes identification, analysis, control planning, monitoring, measurement, and quarterly reporting to management and the Risk Management Committee. Key risk categories include:

- Strategic Risk – e.g., inability to adjust electricity tariffs to reflect fuel costs.
- Financial Risk – e.g., currency fluctuations, liquidity constraints, or limited access to financing.
- Operational Risk – e.g., uncertainty in sourcing biomass, coal, or other fuels.
- Compliance Risk – e.g., electricity supply contracts or regulatory requirements.
- Environmental, Social, and Governance (ESG) Risk – linked to sustainable business operations.
- Reputational Risk – risks affecting the organization’s image and credibility.

Risk Management Tools

The Company has developed tools to closely monitor and manage risks effectively:

1. Key Risk Indicators (KRIs)

Used to track factors or events signaling potential risks affecting the organization, such as deviations in average energy production costs (Conversion Cash Cost) from budgeted plans.

2. Risk Appetite

Represents the level of risk the organization can accept without affecting its ability to achieve objectives, e.g., production costs within the annual budget plan.

3. Risk Tolerance

Defines the acceptable deviation of indicators from the Risk Appetite level, which may differ by one level from the defined Risk Appetite.

Risk Factor	Key Risk Indicator (KRI)	Risk Appetite / Tolerance
Increased fuel costs due to supply uncertainties	Average fuel cost per unit of electricity production (THB/unit)	Risk Appetite: ≤ 0.95 THB/unit Risk Tolerance: ≤ 1.00 THB/unit
Excessive energy consumption above energy-saving targets	Total energy consumption per unit of production (kWh/unit)	Risk Appetite: $\leq 3\%$ annual reduction target Risk Tolerance: $\leq 5\%$ deviation from target

1. Quantitative Risk Indicators (Financial Aspect)

The key quantitative risk indicators for financial risk are as follows:

No.	Indicator	Unit / Measurement Criteria
1.1 Liquidity	Current Ratio = Current Assets / Current Liabilities	Ability to meet short-term obligations
	Quick Ratio = (Current Assets – Inventory) / Current Liabilities	Ability to pay obligations without relying on inventory
	Cash Conversion Cycle (CCC)	Time required to convert raw materials → cash
1.2 Debt	Debt to Equity Ratio (D/E)	Level of debt relative to equity
	Interest Coverage Ratio = EBIT / Interest Expense	Ability to pay interest
1.3 Profitability	Net Profit Margin	Net profit relative to sales
	Return on Assets (ROA)	Return from asset utilization
	Return on Equity (ROE)	Return to shareholders’ equity



No.	Indicator	Unit / Measurement Criteria
1.4 Volatility Risk	Earnings Volatility	Variance of net profit per quarter
	Value at Risk (VaR)	Maximum potential loss in investment portfolio
1.5 Receivables / Payables	Days Sales Outstanding (DSO)	Time required to collect receivables
	Days Payable Outstanding (DPO)	Time required to pay payables
1.6 Cost of Capital	Weighted Average Cost of Capital (WACC)	Weighted average cost of total capital

2. Qualitative Risk Indicators (Non-Financial Aspect)

The key qualitative risk indicators are as follows:

No.	Indicator	Unit / Measurement Criteria
2.1 Compliance Risk	Number of non-compliance events	e.g., failure in external audits
	Number of regulatory complaints	Reflects the level of regulatory risk
2.2 Human Capital Risk	Turnover rate of key employees	Especially for critical positions
	Time required to replace employees	Excessive time may impact operations
2.3 Reputation Risk	Number of negative news reports	e.g., online media, newspapers, social media
	Customer Satisfaction Score	Significant drop may serve as an early warning
2.4 Operational Risk	Number of process errors	e.g., data errors, delivery delays
	Number of WI or SOP not updated over 1 year	Reflects outdated internal controls
2.5 IT & Cyber Risk	Number of system outages / failures	Reflects IT system stability
	Number of cyberattack attempts	Even if unsuccessful, indicates security vulnerabilities
2.6 ESG / Sustainability Risk	Incidents violating human rights / environmental regulations	e.g., breaches of labor or environmental laws
	Delay in ESG / Sustainability Report preparation	Reflects readiness and data management systems

Risk Level Assessment

After defining the Key Risk Indicators (KRIs), the Company uses a Risk Matrix to assess key risks by considering two factors:

- Impact – the severity of consequences if the risk occurs
- Likelihood – the probability of the risk occurring

Each type of risk is then prioritized and managed with different levels of intensity according to the Risk Matrix, as shown below:

Likelihood Rating (โอกาส)	5	1x5	2x5	3x5	4x5	5x5
	4	1x4	2x4	3x4	4x4	5x4
	3	1x3	2x3	3x3	4x3	5x3
	2	1x2	2x2	3x2	4x2	5x2
	1	1x1	2x1	3x1	4x1	5x1
		1	2	3	4	5
		Impact Scale (ผลกระทบ)				



Color	Risk Level	Acceptability	Mitigation / Action
Red	Very High	Unacceptable	• Report to management immediately • Implement urgent risk reduction plan • Risk owner must closely monitor
Orange	High	Unacceptable	• Implement urgent risk reduction plan • Risk owner must closely monitor
Yellow	Medium	Acceptable	• Develop risk reduction plan • Risk owner must monitor regularly
Blue	Low	Acceptable	• No formal plan required • Monitor to ensure risk remains within acceptable level
Green	Very Low	Acceptable	• Insignificant / no action required

Key Performance and Achievements

1. Policy and Awareness Building

The Company reviewed its enterprise risk management policy and communicated risk assessment approaches, including operational risk management at both corporate and operational levels. Risk management training and workshops were conducted, and a dedicated risk management curriculum for executives has been integrated into the regular training plan. (Include risk training or workshop images where relevant.)

2. Reporting

Quarterly risk reports were submitted to the Risk Management Committee and the Board of Directors to ensure ongoing oversight.

3. Enterprise Risk Management

The Company identified and monitored emerging risks and operational changes throughout the year. Risk management practices were reviewed in Risk Management Committee meetings, and KPIs were established for each section or business unit.

Emerging Risks

1. Climate Change and Carbon Reduction Pressure

In 2024, climate conditions continued to affect the energy sector, particularly for operations still reliant on coal as a primary fuel. Although the Company has increased the use of biomass and clean energy, key risks remain:

- Financial institutions are applying stricter ESG criteria for credit evaluation, creating financial cost and funding access risks.
- Global electricity markets continue to reduce coal demand, with increased adoption of carbon taxes and internal carbon pricing mechanisms.
- Industrial customers and partners increasingly require low-carbon and clean energy solutions.

To mitigate these risks, the Company has:

- Expanded renewable energy projects, such as the Solar Floating Farm.
- Supported energy crop cultivation to secure biomass raw materials.
- Registered Carbon Footprint Products and Carbon Footprint Organization.
- Progressed toward concrete implementation of RE100 targets.



2. Drought and Extreme Weather

Thailand experienced a severe El Niño in 2024, resulting in prolonged droughts and government restrictions on water withdrawals from natural sources. Key operational risks include:

- Insufficient water reserves for electricity and steam production.
- Potential failure to deliver products to industrial customers per contractual obligations.

The Company has proactively addressed these risks by:

- Constructing a new water treatment plant and reservoir (WTP7) with 14.2 million m³ capacity.
- Implementing water-saving initiatives and improving process water efficiency.
- Developing an integrated water management system to respond to long-term climate variability.

3. Geopolitical and Global Trade Policy Risks

The inauguration of U.S. President Donald Trump in late 2024 signaled a return to “America First” policies, emphasizing reduced reliance on international trade and promoting domestic production. This creates high uncertainty and volatility in global supply chains, especially for commodities, energy, and critical industrial raw materials.

To manage these risks, the Company:

- Closely monitors geopolitical developments.
- Explores regional sourcing and domestic procurement options.
- Manages foreign exchange and currency risks in parallel with procurement strategies.

4. Limitations of Electric Vehicle Technology

Commercial electric trucks face limitations in driving range per charge and charging time, which may affect operational schedules. Mitigation measures include:

- Strategic route planning aligned with battery performance.
- Establishing charging stations at key rest points.
- Implementing real-time fleet monitoring and management systems to optimize efficiency, reduce charging downtime, and enhance operational continuity.
- Introducing battery swap technology capable of servicing 6–10 trucks per hour, with an average swap time of ≤5 minutes per vehicle, improving fleet circulation and supporting sustainable logistics and carbon reduction objectives.

Crisis Management

Aligned with the Company’s Business Continuity Management policy, the Company has developed comprehensive crisis response plans covering all operational processes. Key measures include:

- Conducting emergency assessments, including fire risk evaluation.
- Performing evacuation drills for each site at least once per year.

Strengthening Risk Culture

Beyond ongoing risk and crisis management, the Company emphasizes cultivating a strong risk culture, recognizing that all employees are integral to the organization and that effective risk management requires collaboration at all levels. Key initiatives include:

- Developing a Risk Management Manual to communicate risk principles to supervisors and managers across all functions.



- Providing supporting materials for risk assessment, including examples for each major risk category.
- Establishing cross-functional risk management teams with representatives from each department to evaluate operational risks and control process-related risks.
- Including risk topics as standing agenda items in key meetings to ensure continuous awareness and proactive management.

Performance	Details
Development of Risk Management Training Plan for 2024	Designed and implemented a comprehensive risk management training program for internal personnel in 2024.
Development of Risk Management Manual for Internal Communication	Reviewed and updated risk indicators and risk assessment criteria to better reflect the organization's increasingly diverse activities.



Supply Chain Management

Suppliers are a critical part of the Company's business operations. The Company emphasizes managing and supporting suppliers with the same level of importance as other stakeholders, ensuring respect, fairness, transparency, and equity. A strong supplier relationship is considered a foundation for long-term business partnerships.

The Company also promotes supplier capacity development by implementing quality development standards, ensuring both suppliers and the Company can grow sustainably together.

Supplier Management Policy and Approach

The procurement process is categorized into three main groups to support business operations:

1. Spare parts and chemicals
2. Biomass fuel
3. Coal fuel

Supplier Management and Procurement Policy

Each supplier category has specific policies and procedures aligned with the nature of the activities and the materials supplied. All suppliers must comply with legal requirements and ISO 9001 quality management standards.

Overall Procurement Guidelines:

- Joint Business Policy: Ensures mutual cooperation and alignment with company goals.
- Supplier Selection Procedures: Defines criteria for fair and transparent supplier evaluation.
- Code of Conduct for Suppliers: All suppliers must sign and strictly adhere to the Code, which includes:
 - Conduct business ethically and transparently
 - Maintain quality standards in product delivery
 - Be socially and environmentally responsible
 - Comply with legal requirements

Monitoring and Evaluation:

- On-site and online inspections are conducted regularly:
 - Spare parts and chemicals: corporate entities every 2 years, individuals every 1 year
 - Fuel procurement: at least twice per year



- Additional random inspections are carried out to verify the quality of materials, products, and services, ensuring compliance with contracts and timely delivery.

Customer Selection Process



The Company has established a procedure for sourcing new business partners, divided into three main steps as follows:

1. Preliminary Qualification Check of Partners

The Company conducts an initial qualification check of prospective partners, considering criteria such as:

- Clear identification of partner name and location
- Registered business operation for more than 1 year
- Verifiable history and track record



2. Registration and Presentation of Partner Information

After the preliminary qualification is deemed suitable for selection, the Company contacts the partner to present pricing or provide information about the new partner. The Central Procurement Department conducts contact via online systems (e.g., Zoom) or on-site visits when feasible, to support pricing evaluation and partner selection.



3. Approval for Partner Registration

Once the partner passes the pricing and selection process, the Company requests formal approval for partner registration. Upon completion of this step, the partner is officially registered as a Company-approved partner.

Operational Plan

The Company applies the ISO 9001 quality management system as a guideline for managing procurement processes. All partners are required to sign and acknowledge the partner business code of conduct. Fair contracts are used, and systems are in place to monitor proper contract compliance, preventing corruption and misconduct throughout the procurement process. The Company strictly adheres to the terms of contracts between the Company and its partners.



Item	Year 2024 (2567)
Total number of partners	3,314
Number of partners critical to business operations (Critical Tier-1)	1,847
Number of new partners in the year	676

Sustainable Growth and Business Opportunities

The Company emphasizes continuous and sustainable growth, taking into account environmental, social, and governance (ESG) impacts, as well as preparing for global trends and business risks. The Company believes that sustainable growth requires collaboration with all stakeholders to drive the business while reducing negative impacts and creating positive value in all dimensions.

Over the past year, the Company implemented strategies for sourcing and developing diverse fuel raw materials to reduce fuel shortage risks and support sustainable clean energy production, particularly through research and development of renewable energy sources as biomass fuel substitutes. The Company also promotes community-based cultivation to generate income and employment for Thai farmers, reflecting responsible participation in the supply chain.

From 2024 onward, the Company will build on these initiatives by enhancing ESG Risk Management and expanding collaboration with partners and communities to use more responsible raw materials. The Company will also intensify monitoring and reporting of sustainability impacts transparently.

Additionally, the Company aligns operations with the Bio-Circular Green Economy (BCG) and Sustainable Economy concepts by utilizing biomass and by-products from production processes for energy, reducing reliance on fossil fuels, and creating added value from existing resources. Key projects include:

- Expanding electricity production from biomass to replace coal
- Solar Floating projects to reduce greenhouse gas emissions and increase renewable energy share
- Transitioning vehicle usage from natural gas fuels (LNG/NGV) to electric vehicles (EVs) alongside installation of EV Charging Stations
- The Company aims for balanced growth between business expansion and environmental and social impact reduction, while strengthening Good Corporate Governance standards to enhance stakeholder confidence and support stable, long-term sustainable operations.

Emerging Risks

Geopolitical conflicts, such as the Ukraine–Russia war, crises in the Middle East and Red Sea, and tensions in the Asia-Pacific region, have caused severe fluctuations in global energy and logistics prices. This increases risks for fuel, spare parts, and chemicals needed for power plant operations in Thailand. Meanwhile, industrial operators exporting to Europe face CBAM requirements, mandating low-carbon energy use and emissions monitoring. This pressures energy providers in Industrial Estate 304 to accelerate investment in renewable energy, flexible fuel sourcing, and ESG solutions to maintain competitiveness and customer trust across the value chain.

Operational Plan

The Company is committed to transitioning electricity production from coal to biomass, targeting a total cultivation area of over 312,500 rai within 10 years to support the production of approximately 6 million tons of



biomass fuel per year from end-of-life plant species. The Company has also planned to strengthen fuel security in parallel, including enhancing the operational efficiency and maintenance systems of power plants to ensure optimal performance, implementing fuel raw material management systems covering quantity, quality, and logistics to maintain risks at an acceptable level, conducting Carbon Footprint calculations, and considering participation in carbon credit market mechanisms to comply with international environmental requirements. Additionally, the Company prepares to analyze sustainability impacts and risks across environmental, social, and governance (ESG) dimensions. These plans will enable the Company to secure energy supply, reduce dependence on coal imports, and build confidence among both domestic and international stakeholders.

Performance Results

- EV trucks in 2024

Type	Quantity (EA)	Proportion (%)	Remarks
Newly imported vehicles	211	98.14	Entered into system in 2024
Converted vehicles	4	1.86	Converted from ICE to EV
Total	215	100.00	

2024 CFO emission

	Emission	unit
Direct GHG emissions (Scope 1)	2,189,591	tonCO ₂ e/year
Energy Indirect GHG emissions (Scope 2)	42,243	tonCO ₂ e/year
Total	2,231,834	tonCO ₂ e/year

The Company also has a project to convert fuel and other transport trucks into electric trucks to reduce pollution and greenhouse gas emissions, while also lowering transportation costs. In addition, the Company plans to charge electric vehicle batteries using solar energy and provide backup batteries charged by solar energy for truck drivers, enabling self-replacement. This approach also reduces the investment cost for EV charging stations. It is expected that 215 internal combustion engine trucks will be replaced with electric trucks by 2024 (2567).

Cybersecurity and Personal Data Protection Management

The Company has established and published cybersecurity guidelines in accordance with the Cybersecurity Act to manage cybersecurity effectively. Controls, monitoring, inspections, and preventive measures are regularly conducted through the Cyber Security and DRP Committee and the Risk Management Department. In addition, the Company has developed an emergency response plan and procedures for cyberattacks, clearly defining roles and responsibilities for each department.

Regarding personal data protection, the Company emphasizes the confidentiality of customer and employee information at all levels, making confidentiality one of the organization's core values. Currently, the Company is drafting policies related to the Personal Data Protection Act (PDPA) and has designed operational frameworks according to ISO 27001 standards. Employees are educated to identify activities with cyber threat or personal data leakage risks, and emergency response drills are conducted. Responsibilities are assigned to Data Protection Officers to prevent and mitigate threats and data leakage impacts.



The Company regularly collects data and reviews risks. The Cyber Security and IT Committee is responsible for controlling, monitoring, inspecting, and implementing preventive measures to avoid cyber threats and personal data leakage affecting stakeholders, as well as protecting the Company's confidential business information. Risk assessments are conducted at least annually, and mitigation plans are prepared to restore normal operations promptly.

For communication on policy development or inviting employees to participate in cybersecurity and personal data protection training, the Company uses Line Official Account, Intranet, and Email for internal communication. For other stakeholders, the Company publishes complete related policies on the official corporate website to ensure all parties are informed and understand the management approach transparently and comprehensively.

Operational Goals

Operational Goals	Details	Target
Short-term Goals	- Fully comply with legal frameworks, such as the Cybersecurity Act (NCSC), Computer Crime Act, and Personal Data Protection Act (PDPA)	100%
	- Comply with all applicable laws	
	- Obtain cybersecurity and personal data protection certificates or standards	Obtained
Long-term Goals	- Achieve international standards in cybersecurity and personal data protection, such as ISO 27001 or equivalent certificates	2571

Emerging Risks

As the Company increasingly relies on technology across all business processes, cybersecurity risks have become unavoidable and require the highest level of protection. Cybersecurity and personal data protection are critical to business operations and influence customer trust. Failures in these areas may cause sudden operational disruptions or legal actions due to data breaches.

Recognizing this, the Company has implemented a Three Lines of Defense approach. Relevant units are assigned to monitor and manage cybersecurity risks affecting the security of the Company's IT systems, while fostering awareness and organizational culture among employees, which is key to reducing cyber threats.

The Company also plans to invest in Network Access Control systems and user device management tools under BYOD policies to enhance IT security (Cybersecurity Governance), expected to be completed by 2025 (2568). Additionally, the Company aims to further strengthen security by segregating IT and OT networks in 2026–2027 (2569–2570).

Operational Plan for Cybersecurity and Personal Data Protection

The Company has established a task force under the Three Lines of Defense framework, with roles and responsibilities as follows:

1.1st Line of Defense:

The Cyber Security and DRP Committee, responsible for overseeing both Information Technology (IT) and Operational Technology (OT).

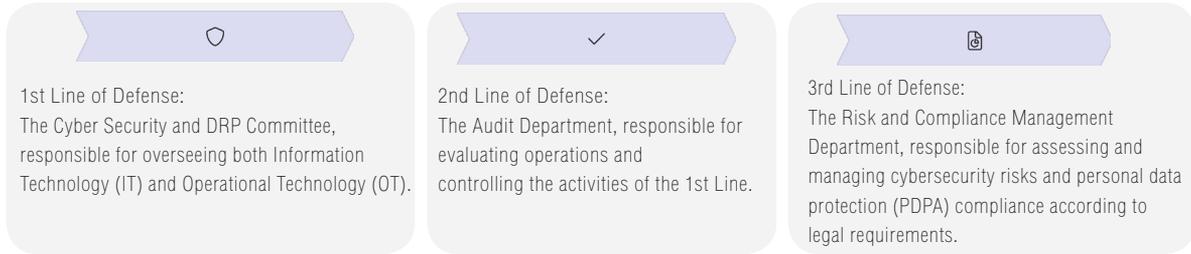
2.2nd Line of Defense:

The Audit Department, responsible for evaluating operations and controlling the activities of the 1st Line.



3.3rd Line of Defense:

The Risk and Compliance Management Department, responsible for assessing and managing cybersecurity risks and personal data protection (PDPA) compliance according to legal requirements.



In 2024 (2567), the Company successfully implemented its strategic plan to continuously enhance the security of its information technology systems. A key initiative was migrating the system architecture from On-Premise to Cloud for certain core information systems, such as the maintenance management system and central corporate infrastructure. This migration aims to reduce cybersecurity risks and increase flexibility in system management, leveraging the advanced security capabilities of internationally certified Cloud service providers, including data centers compliant with standards such as ISO/IEC 27001 and SOC 2.

The Company has also conducted comprehensive risk assessments and management for Cloud adoption, including implementing policies for Identity & Access Management (IAM), encrypting data both at rest and in transit, developing a Business Continuity Plan, and controlling access to information and IT systems under a Zero Trust framework.

For network access governance, the Company has purchased and installed Network Access Control (NAC) systems to manage devices accessing the network and strengthen the security of corporate data. The total budget allocated for procurement and installation is 10 million THB, with completion planned by 2025 (2568).

Item	Year 2024 (2567) (Million THB)
Network Access Control systems and equipment	3 - 5
Hiring external auditors	1
Developing and assessing employee cybersecurity awareness and practices	1 - 2
Total Budget	5 - 7

Performance Results

Performance Indicator	Year 2024 (2567)
Employee training on cybersecurity	Conducted Cyber Security User Awareness training for employees
Establishment of cybersecurity task force	-
Cyberattack response drills	Developed Table Top Exercise plan
Number of security/personal data complaints	0 complaints
Measures for identity verification and network access control	FYA: Network Access Control



Technology and Innovation

Due to rapid changes in climate and global geopolitics, as well as increasing stakeholder expectations on environmental performance, the Company recognizes the need to continuously adopt green technologies and innovations in its operations to enhance efficiency, reduce resource consumption, and lower greenhouse gas (GHG) emissions.

In 2025 (2568), the Company faced heightened innovation risks, particularly in the highly competitive renewable energy market, including biomass and solar energy technologies. In response, the Company has taken concrete steps, such as planning fuel transitions for PP7 and PP8 power plants toward co-firing and aiming for 100% biomass use in the long term. The Company has also invested in high-potential clean energy projects, such as Floating Solar and Battery Energy Storage System (BESS) research and development. These initiatives reflect ongoing monitoring of technological innovation and a commitment to applying appropriate technologies to improve operational efficiency and strengthen sustainable competitiveness.

The Innovation Research Center (IRC) plays a crucial role in supporting the Company's R&D, serving as a key driver of innovation and sustainability strategies over the long term.

In 2025 (2568), the Company continued to face similar innovation risks as in previous years and therefore pursued continuous development and application of innovations to respond effectively to changes across all dimensions.

Emerging Risks

In 2024 (2567), the Company faced increasing risks related to environmental changes and regulatory requirements, particularly in the competitive renewable energy market. Key risks include:

1. Climate Change / Extreme Weather – High temperatures, floods, and natural disasters may affect the stability of power plants, Floating Solar, and industrial water systems.
2. Fuel and Biomass Resource Risks – Climate change may reduce agricultural yields, impacting biomass fuel supply, a core NPS strategy.
3. Technology and Innovation Risks – Delays in developing new technologies (BESS, EV Trucks, Floating Solar) may result in lost business opportunities.
4. Regulatory Risk – New laws such as the Thai ETS and EU CBAM may increase costs and require stricter carbon emission reporting.
5. Financial and Investment Risks – Economic volatility, interest rates, and exchange rate fluctuations may impact clean energy projects and access to funding.
6. Reputation and Stakeholder Risks – Stakeholders expect accelerated transition to clean energy; delays may affect trust and investor support.

The IRC must conduct R&D to mitigate these potential impacts.

Action Plan

In 2025 (2568), the Company initiated a solar-powered Battery Energy Storage System (BESS) R&D project to support the transition of fuel transport vehicles to 100% electric trucks. The project aims to reduce reliance on fossil fuels and establish concrete renewable energy usage within the organization. Upon completion, EV truck batteries can be charged via solar energy and support Battery Swapping without additional charging station



investments, enhancing operational flexibility and reducing infrastructure costs. The project is expected to complete in 2025 (2568) and represents a major step toward environmentally friendly operations aligned with sustainable clean energy practices.

Performance Results

In 2025 (2568), the Company applied new innovations to continuously improve electricity and industrial water production:

- **Electricity Production:** Introduced clean technology in co-firing power plants, including Circulating Fluidized Bed (CFB) boilers, which accommodate multiple fuel types, coupled with sulfur dioxide removal using lime injection. This ensures complete combustion, reduces pollution, and keeps nitrogen oxide and sulfur dioxide emissions below legal standards. Closed fuel storage combined with Electrostatic Precipitator (ESP) achieves 99.5% dust capture efficiency, and Continuous Emissions Monitoring Systems (CEMs) ensure emission levels remain within regulatory limits.
- **Renewable Energy:** Implemented Floating Solar projects to enhance solar power generation. This technology reduces generation temperatures, lowers maintenance costs compared to conventional solar panels, and maintains water quality by minimizing algae growth and underwater photosynthesis.
- **Industrial Water Production:** Focused on high-quality water supply by installing Pore Controllable Fiber (PCF) filtration systems at NS304 water treatment plants. This high-performance fiber filtration replaces conventional sedimentation tanks and filters, reducing chemical usage, halving space requirements, and efficiently meeting industrial water demand.

Additionally, the IRC, the internal R&D unit, conducted 21 research projects in 2024 (2567), driving innovation across the Group.

Research Category	Project Name	Project Description
Process Improvement	1. Analysis and Development of Water Pressure in Industrial Water Pipelines using EPANET2.0	Develop a mathematical model to simulate water distribution system and optimize efficiency to sustainably meet customer water demand.
GHG Reduction	1. Assessment and Development of Measures to Reduce CO ₂ Emissions in Industrial Water Production and Distribution	Analyze CO ₂ emissions from water production and distribution processes, and define measures to reduce GHG emissions in support of environmental sustainability and Net Zero goals.
Fuel Management	1. Reduction of Scale in Boilers	Select appropriate fuel for power plants to reduce costs and minimize scale formation in boilers.
Innovation / New Technology	1. Development of Coating Technology to Improve Solar Panel Cleaning Efficiency 2. Application of Electronic Nose Technology for Odor Source Prediction	1. Investigate feasibility of coating solar panels to reduce dust, dirt, and bird droppings, improving energy generation efficiency and lowering maintenance costs. 2. Use Electronic Nose technology to detect and analyze odor sources accurately, supporting environmental quality assessment and mitigation for staff and community.
Water Management	1. Enhancing Water Production by Identifying Factors Affecting Colloidal Silica Formation 2. Study of Emerald Pond Aquatic Ecosystem for Industrial Water Production Efficiency	Monitor water quality before and after delivery to customers, improve potable water production processes, and develop sustainable water management innovations.



Research Category	Project Name	Project Description
Waste Management	1. Development of Water Filter Fibers from Nanocellulose	Utilize lignocellulosic waste from affiliated production processes to produce eco-friendly water filter fibers with high efficiency.
Green Fiber Product Development	-	Improve processes and develop new products (e.g., tempered board) using hot ovens to reduce energy consumption.
Wastewater Management	1. Study of Ozone-based Wastewater Treatment for Reuse	Reuse treated wastewater to reduce production costs and improve sustainable wastewater management.
Breeding Improvement	1. Selection and Development of Eucalyptus Varieties for Energy Wood 2. Pilot Planting and Selection of Energy Wood from New Genetic Sources 3. Study of Suitable Eucalyptus Varieties for Eastern and Northeastern Regions	Crossbreed and develop new varieties suitable for Thai planting conditions.
Tissue Culture	-	Propagate seedlings using aseptic techniques; produce experimental and selected seedlings for commercial clone promotion.
Sustainable Eucalyptus Plantation	1. Study Fertilizer Application (Chemical + Organic) in Plantations 2. Study Optimal Planting Spacing for Eastern & Northeastern Regions	Examine effects of chemical + organic fertilizer, planting spacing, and water management on eucalyptus growth to develop efficient and sustainable plantation systems.
Plant Disease Research	-	Test resistance to diseases and pests, develop preventive measures, and diagnose disease and pest symptoms.

Product Quality Management

The Company is committed to continuously improving the quality of its products and services, recognizing that quality is a key factor directly affecting customer satisfaction, competitiveness, and corporate credibility. Throughout the past year, the Company has implemented proactive measures to maintain and enhance quality at every stage—from raw material procurement, production processes, quality control, to the stable and continuous delivery of electricity—to meet the challenges of the modern energy sector. The Company has designated “Enhancing Raw Material Quality” as a key strategy, focusing on selecting high-calorific coal that meets international ISO and ASTM standards, alongside the implementation of quality management standards, including ISO 9001:2015, ISO 14001, TIS 18001, and ISO 45001, covering all 11 power plants and affiliated factories within Industrial Estate 304 in Prachinburi and Chachoengsao provinces.

In electricity management, the Company emphasizes the stability of power supply, using key performance indicators such as SAIFI, SAIDI, and the number of flicker incidents to monitor impacts on electricity users and to improve systems in alignment with the needs of industrial customers who require consistent and high-quality electricity.

In addition, the Company prioritizes the continuous application of innovation to enhance quality, assigning the IRC Research Center to conduct research and development on renewable energy technologies, improve power plant efficiency, and upgrade raw material quality, while fostering collaboration with government and private agencies to strengthen business sustainability and long-term competitiveness.



Customer Relationship Management

The Company places the highest importance on customer satisfaction with its products and services, striving to maintain operational and management standards while adhering to principles of responsibility, honesty, and care in all interactions. This ensures the delivery of excellent service and user experiences. The Company's main customers are all major industrial buyers of electricity, water, and steam services.

Customer Relationship Policies and Management

To ensure long-term satisfaction, the Company has established comprehensive product and service quality management procedures to fully meet customer needs. Channels for feedback and reporting issues have been established via Line, telephone, email, and mail, enabling the Company to track and resolve problems efficiently and to implement preventive measures for future incidents. The Company also emphasizes the protection of customer data, ensuring personal information is not misused for private or unauthorized purposes.

Customer Relationship Measures

The Company prioritizes building trust and maintaining strong relationships with industrial electricity and water customers. Clear procedures are defined for incidents that may affect service, such as faulty or inaccurate meters, involving joint verification by Technical (T&D), Accounting, and CRM teams to identify causes, calculate retroactive electricity usage per contracts, and propose solutions. Transparent discussions with customers are held until fair resolution is achieved. Similarly, for industrial water meter anomalies, joint checks are conducted with Distribution Water and Accounting, followed by reporting to relevant executives and discussions with customers to ensure accurate billing and collection.

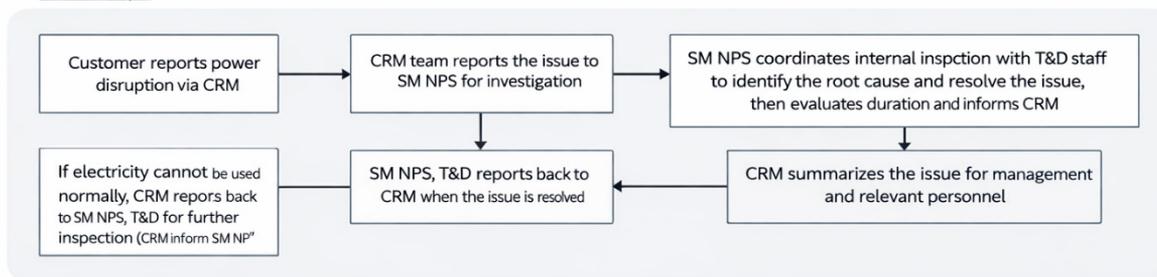
The Company also implements proactive communication measures in emergencies, such as fires near customer facilities. The CRM team acts as the central coordinator, receiving notifications, reporting progress, and executing the industrial estate emergency response plan. These processes demonstrate the Company's commitment to conducting business transparently, fairly, and with strong attention to customer satisfaction. Each case is recorded and monitored for customer satisfaction feedback, which is then used to continuously improve service quality—a critical factor in ensuring long-term sustainability for both the business and its stakeholders.

For electricity-related complaints, the Company has established a Customer Relationship Management (CRM) department to facilitate, coordinate, manage, and receive service-related issues 24 hours a day. Upon receiving a notification, the department coordinates with technical teams and expert engineers to resolve the issue promptly, closely monitors repair progress, and immediately informs customers once completed. After completion, the CRM department collaborates with the technical team to prepare a Failure Report for statistical purposes, provides the customer with measures to prevent recurrence, and reports operational results while receiving guidance/consultation from senior management. The CRM department's coordination workflow is shown in the attached diagram below.



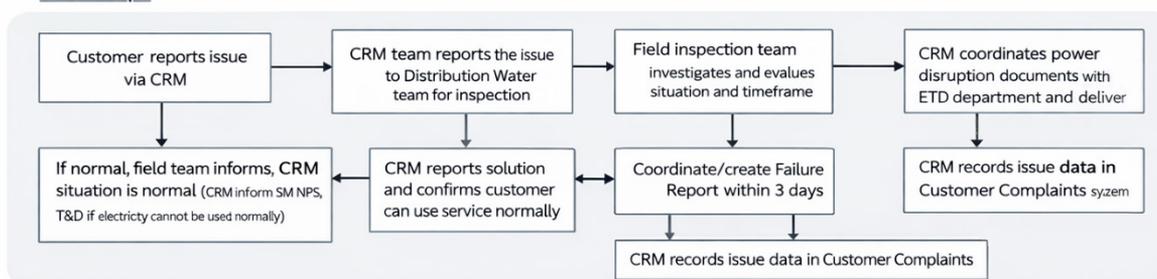
⚡ Case: Power Supply Disruption • WORK INSTRUCTION (WI)

Work Steps



💧 Case: Abnormal Water Meter • WORK INSTRUCTION (WI)

Work Steps



Emerging Risks

The management of the company's relationships with customers is a critical factor for business operations, both in terms of growth and the company's reputation in the short and long term. As the company provides electricity, water, steam, and alternative gases for the industrial sector, the company places importance on customer satisfaction to ensure that customers continue to choose the company's services. This includes providing accurate and complete information about the significance of alternative energy to promote understanding of the necessity of transitioning from coal-based energy to sustainable alternative energy.

In addition, the company recognizes the importance of maintaining stability in the supply of electricity, water, steam, and gases for the industrial sector, as well as the potential impacts from operational disruptions. Therefore, the company has designed and established systematic processes for handling complaints and resolving disruptions to ensure rapid and effective responses.

The company also acknowledges customers' demands for self-produced alternative energy, such as electricity from solar cells, and has planned service contract designs to align with such demands, promoting the use of clean energy and supporting long-term sustainability.

Operational Plan

The company assigns the Customer Relationship Management (CRM) department as responsible, with operational plans covering service delivery through after-sales support. The CRM department also serves as the central point of contact for receiving complaints directly from customers, coordinates with various departments, and presents key issues to the Board of Directors and management to continuously improve processes and resolve issues.

Currently, the company operates systematically in managing disruptions in electricity, water, steam, and gas systems with speed and efficiency. The company recognizes the complexity of these disruptions and therefore emphasizes technical knowledge enhancement for CRM staff, enabling them to resolve problems and provide customers with accurate initial guidance on procedures and timeframes. Weekly meetings are held between the CRM department and the technical team to strengthen understanding and effective coordination. Additionally, the company has implemented proactive measures to prevent disruptions in electricity, water, steam, and gas systems, reducing potential impacts on industrial customers and their operations.

Plans and Procedures for Transmission System and Equipment Maintenance

The company conducts inspections and maintenance of transmission systems and electrical equipment according to internationally recognized engineering and safety standards to ensure a stable, safe, and reliable electricity supply. Key activities cover both preventive maintenance and in-depth inspections using modern technologies, including:

- Visual Inspection, covering poles, accessories, insulators, conductors, joints, switchgear, transformers, and protective equipment.
- Advanced Technology Inspections, including:
 - Thermography (Thermoscan) to detect abnormal heat
 - Corona and partial discharge measurement for high-voltage equipment
 - Camera drone inspections for poles, insulators, OHGW, and joints to enhance safety and efficiency
 - Transformer oil testing (DGA) and SF6 monitoring
- Proactive Maintenance Measures, such as washing insulators, cleaning equipment, and replacing lightning arresters on a scheduled basis
- Functional Testing / Outage Testing of switchgear, transformers, disconnecting switches, and protection systems to confirm actual system readiness

Operational Standards

All inspections comply not only with the minimum standards required by law and regulators but also exceed these standards by integrating digital technologies, advanced diagnostics, and predictive maintenance to prevent potential issues in advance.

Stakeholder Confidence

These measures reflect the company's commitment to creating a safe, stable, and sustainable electricity system in environmental (reducing accident risks and energy loss), economic (reducing electricity outages), and social dimensions (building confidence among communities and customers). Stakeholders can be confident that the company has a meticulous, transparent, and socially responsible management system.





Our commitment to advancing toward Net Zero.

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