
BANPU
POWER
BEYOND
BOUNDARIES
ENERGY FOR THE FUTURE
SUSTAINABILITY REPORT 2024

Vision:

To be recognized as a pioneer Asian power company with a strong reputation for sustainable development, friendly community relations, and respect for the natural environment.

Mission:

- To develop, own, and promote both conventional and renewable power businesses using the most efficient technologies available for sustainable growth in pursuit of a position of leadership in Asia.
- To conduct all business in an ethically, socially, and environmentally responsible manner.
- To create sustainable value for shareholders, customers, business partners, employees, and communities while being a good corporate citizen in all countries of operations.

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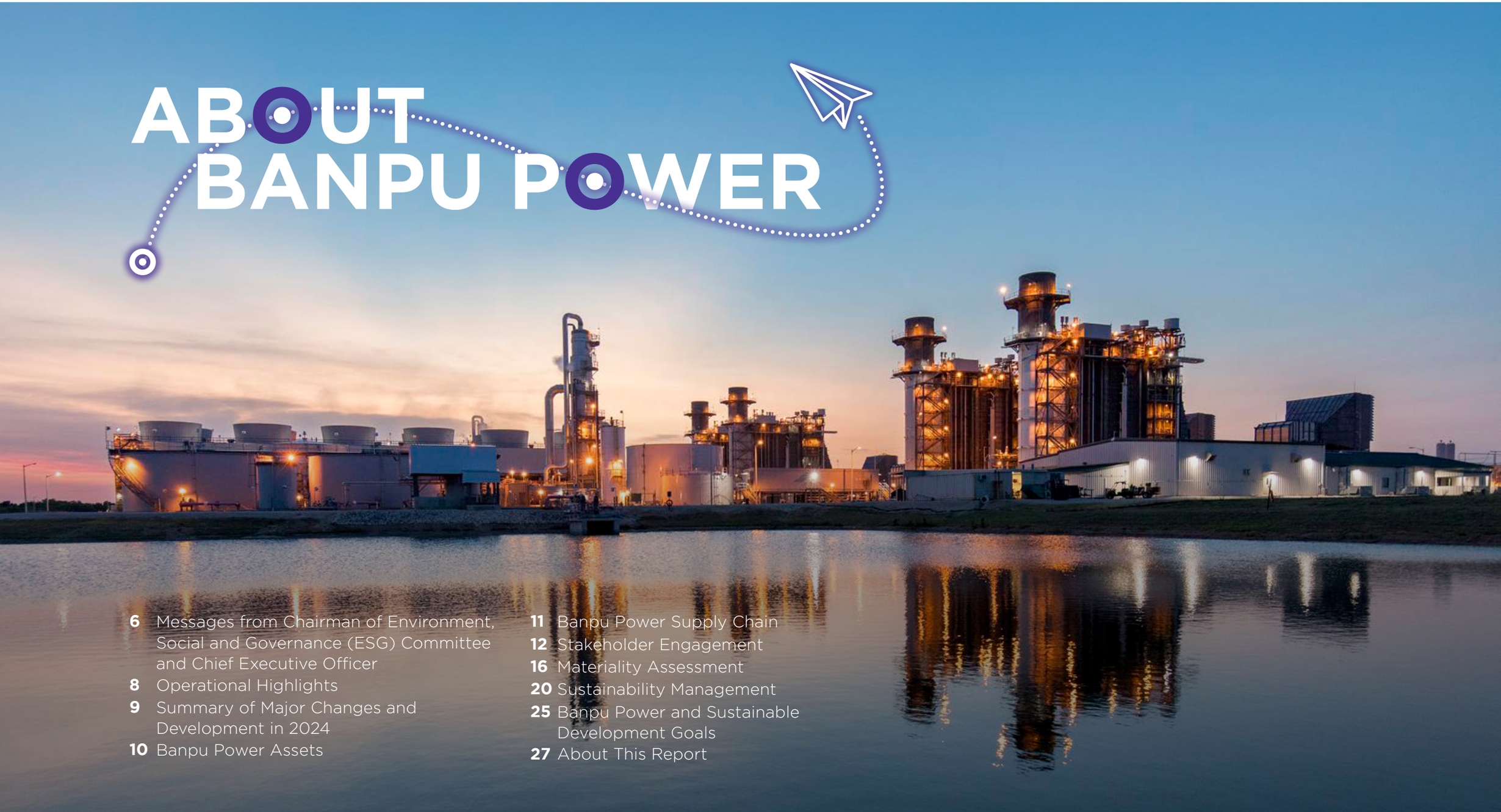
ABOUT BANPU POWER



About Banpu Power

Banpu Power Public Company Limited or Banpu Power (BPP) is a subsidiary company of Banpu Public Company Limited. It was established in 1996 and was listed on the Stock Exchange of Thailand in 2016. In addition to generating and supplying electricity from thermal power business and renewable power business, BPP also operates energy technology business in the Asia-Pacific region and United States of America. Presently, BPP's business bases are in Thailand, Lao PDR, China, Japan, Vietnam, Indonesia, Australia, and the U.S.

Nearly 30 years of business operations, BPP has been committed to creating sustainable business growth, both in power business investments and management. Thanks to our expertise in the power business combined with the strong synergies within Banpu Group related to business management and operations, BPP has been able to strive accomplishing its full potential to operate businesses continuously. In 2024, BPP adjusted the strategy and goals, and announced the **"Beyond Quality Megawatts"** business guidelines by expanding its business areas. In addition to building upon existing power business, BPP has also increased its investments in projects reducing the greenhouse gas (GHG) emissions, such as the Carbon Capture, Utilization and Storage (CCUS) project. Moreover, BPP has invested in energy infrastructure and battery energy storage systems, including the production of other forms of environmentally - friendly energy in response to the energy transition in the future.

At present, BPP has 3,584 MW in 2024, 27% of EBITDA from low-carbon energy business, and GHG emissions intensity 0.430 tonnes CO_2e/MWh.

Current Status

A generation capacity **3,584 MWe**.

- **27%** of EBITDA from non-coal business.
- GHG emissions intensity **0.430 tonnes CO_2e/MWh** in the power plants, in which BPP has management control.

Targets

Increasing a generation capacity of **1,500 MWe by 2030** through investment in a low-carbon energy generation and the energy transition.

- **65%** of EBITDA from non-coal business by 2030.
- GHG emissions intensity does **not exceed 0.549 tonnes CO_2e/MWh** in the power plants, in which BPP has management control.

BPP has been committed to creating sustainable business growth,

both in power business investments and management.

Banpu Power Group Structure Data as of 31 December 2024

Messages from Chairman of Environment, Social and Governance (ESG) Committee and Chief Executive Officer

Prof. Dr. Patchanita Thamyongkit
Chairman of the ESG Committee

Mr. Issara Niropas
Chief Executive Officer

The year 2024 was set to see significant changes for the energy industry. Demand for electricity was forecasted to continue rising, driven by the rapid adoption of technologies, such as artificial intelligence, electronic apparatus, and appliances, as well as electric vehicles. At the same time, the climate change impacts across the world were driving all sectors to join hands to reduce the greenhouse gas (GHG) emissions. This posed a challenge for the energy industry during the energy transition towards low-carbon energy, while the energy stability and security had to be maintained during a period of increasing demand for energy. In addition, geopolitical tensions and global economic volatility remained the significant risks and opportunities for business operations.

BPP is committed to being a leader of change. It has announced the strategic plan for business growth until the year 2030 by focusing on portfolio transformation beyond power generation expansion. For strong growth, we have put great importance on creating the balanced business portfolios among thermal energy, renewable energy and energy, technology, in tandem with environmental responsibility. BPP has used 5 management approaches to create business growth:

1. **Expanding growth in quality megawatts** through gas-fired power plants (CCGT).
2. **Creating the balanced Power Purchase Agreement (PPA) and merchant power market.**
3. **Investing in the Carbon Capture, Utilization and Storage (CCUS) projects.**
4. **Investing in energy infrastructure and scaling-up growth in clean energy technology business**, such as Battery Energy Storage System (BESS) and energy trading.
5. **Maintaining the power plants' production stability** in order to build energy security in all areas where BPP has operated, including no additional investment in coal-related businesses.

Presently, BPP has a total of 40 power plants/projects with a total equity-based commercial operation capacity of 3,500 MW in 8 countries and 84 MW under development. BPP has continuously dedicated to maintaining the power generation and distribution stability of BLCP Power Plant in Thailand, HPC Power Plant in Lao PDR, and Temple gas-fired power plant in the United States of America. In addition, the GHG emissions reduction at the three combined heat and power (CHP) plants in China has been progressing well, being able to decrease GHG emissions better than the government requirements. In order to lessen GHG emissions and provide a business opportunity to sell additional Carbon Emission Allowance (CEA) in China,

BPP just started implementing the project to mix biomass to be used as a fuel in the power plants. Meanwhile, the Cotton Cove project, which is a major step in pioneering the Carbon Capture Utilization System (CCUS) business in the U.S. continues progressing well, expected to commence operations in 2026. Moreover, BPP has invested in Banpu NEXT Co., Ltd., by holding 50% of stakes in order to drive the growth of renewable energy and energy technology businesses, such as solar power plant projects, wind power plants, solar rooftop business, battery electricity storage system (BESS) for electric vehicle business, and energy trading business, etc.

BPP has devoted to conducting its business with due respect to ESG. The ESG performance targets have been reviewed and revised in accordance to changes in the industry and BPP's growth in the gas-fired power plant business in the United States of America. These include amending the targets on GHG emissions, energy use, water use, waste management, air quality, availability factor, planned outage factor, and overall power plant efficiency factor. Furthermore, the Waste Management Policy and the Anti-corruption Policy have been revamped in keeping-up with changes and meeting stakeholder expectations.

More importantly, BPP continues to develop the competencies of its employees and executives—an essential mission to drive corporate growth and competitive advantage. BPP has established a plan to enhance the potential of employees and executives in alignment with its strategic growth plan. Additionally, a succession plan has been developed and is systematically monitored for progress. This includes fostering a work environment that attracts and retains top talent while continuously cultivating the Banpu Heart corporate culture to create synergy through employee diversity across the organization.

Due to continuous development and improvement, BPP received significant national and international recognitions in 2024 , including:

BPP has devoted to conducting its business with due respect to environment, social, and governance.

- **SET ESG Ratings for 2024:** BPP earned recognition on the SET ESG Ratings at **"AAA"** level for 2024 under the Resources group from the Stock Exchange of Thailand (SET). It has been selected as a sustainable stock for the 7th consecutive year.
- **Corporate Governance Report of Thai Listed Companies (CGR):** BPP has been rated at the **"Excellent CG Scoring"** level for the 5th consecutive year by the Thai Institute of Directors (IOD).
- **Corporate Credit Rating:** BPP has been assigned an **"A+"** corporate credit rating with **"Stable"** outlook by TRIS Rating Co., Ltd. (Tris Rating).
- **Corporate Sustainability Assessment (CSA) by S&P Global:** BPP received a score of 67% and was ranked 86th percentile in the Electric Utilities industry group.
- **Thai Private Sector Collective Action Against Corruption (CAC):** BPP has been a member of CAC.

Lastly, all Board members and executives are committed to driving BPP's growth. We are ready to lead change through effective risk management and by actively listening to stakeholders' perspectives. The continuous improvement and execution of BPP's strategic growth plan, combined with our professionalism, will enable BPP to overcome challenges and create lasting success and sustainable value for society.

Operational Highlights

Total power generation capacity
3,584 MW
- Thermal power generation **3,174** MW
- Renewable energy generation **410** MW

The availability factor (AF) of power plants
- Combined heat and power plants **94.15%**
- Gas-fired power plant **88.53%**

No incidents and complaints associated with the environment, society, and corporate governance.

Governance

Ranked as one of companies bestowed the **Excellence CG Scoring**, assessed by the Thai Institute of Directors (IOD)

Having been a member of the **Thai Private Sector Collective Action Against Corruption (CAC)**

Environment

Greenhouse gas (GHG) emissions intensity
0.430 tonnes CO_2e/MWh

Energy intensity
2.48 GJ/MWh

Water consumption intensity
0.817 cubic meter/MWh

Sulfur dioxide emissions intensity
0.0089 kg/MWh

Oxides of nitrogen emissions intensity
0.0305 kg/MWh

Particulate matters emissions intensity
0.0127 kg/MWh

Social

Zero major incidents and illness caused by work

Zero Lost Time Injury Frequency Rate (LTIFR) in employee and contractor

Average training hours **43.6** hours/person

Banpu Heart Score

Thailand **86%**

China **91%**

Summary of Major Changes and Development in 2024

Feb

Officially commenced production of SVOLT (Thailand) factory to produce lithium-ion batteries, focusing on manufacturing batteries for small electric vehicles, energy storage systems, and battery recycling.

Banpu NEXT signed a memorandum of understanding with SVOLT Energy Technology Co., Ltd. focusing on forming a strategic partnership in developing battery businesses, energy storage systems, battery cells, battery recycling, and related industries.

Jul

Banpu Investment (China) or BIC, a subsidiary of BPP, signed a Memorandum of Understanding (MoU) with Shanxi International Energy Group Co. Ltd., an energy company in the People's Republic of China, to explore and expand opportunities on clean energy business in China.

Aug

Expanding clean energy business in the United States of America, Banpu NEXT has commenced commercial operations of the Ponder solar power plant with a capacity of 2.5 megawatts, located in Denton, Texas, the U.S.

Oct

Signed a Share Subscription Agreement (SSA) to invest a 33.33%[1] stake in Amp Co., Ltd. (Amp Japan), a developer of integrated renewable energy solutions in Japan, creating growth opportunities in the clean energy market, with a total investment value of USD 35 million according to the agreement.

[1]Investment proportion of Banpu NEXT Company Limited (BPP holds 50% of stakes in Banpu NEXT)

Nov

Officially commenced operation of DP NEXT battery assembly plant, located in Amata City Industrial Estate, Chonburi Province to expand battery production capacity covering both lithium nickel manganese cobalt oxide (NMC) and lithium iron phosphate (LFP) for various types of electric vehicles in the transportation and logistics business.

Dec

Divested equity interest in Nakoso IGCC Power Plant G.K., which operates a 543 MW (73 MW equity-based capacity) power plant in Fukushima Prefecture, Japan. This was in line with BPP's portfolio management strategy to transition to the energy portfolio able to generate strong cash flows, in tandem with reducing greenhouse gas emissions.

Banpu Power Assets

- Coal-Fired Power Plant
- Gas-Fired Power Plant
- Wind Power Plant
- Solar Power Plants
- Solar Rooftop and Solar Floating
- Carbon Capture, Utillization and Storage (CCUS)

Project in operation

Project under development/construction

Click for List of Business, Generation Capacity, Shareholding

Data as of 31 December 2024

Banpu Power Supply Chain

1 Production Factor
Stakeholder: Suppliers

- Coal
- Natural gas
- Fuel
- Other raw materials and chemicals
- Water

2 Transportation
Stakeholder: Contractors

- Road freight
- Sea freight
- Air freight
- Rail freight
- Gas pipeline

3 Production
Stakeholder: Contractor, Employees, Government Agencies, Communities, Business Partners

Thermal Power Plant

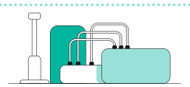
- Combined heat
- Coal-fired power plant
- Gas-fired power plant

Renewable Power Plant

- Solar power plant
- Wind power plant

Energy Technoloy

- Energy Trading
- Electric vehicles
- Solar rooftop
- Smart city
- Energy storage
- Energy management system



New Business

Businesses related to energy transition, such as Carbon Capture, Utilization and Storage

4 Delivery of Products and Services
Stakeholders: Contractors, Employees

- Electricity
- Steam, heat, and cooling water
- By-products (ash and gypsum)
- Electricity
- Renewable energy certificate
- Electricity
- Electric cars, Electric ferries, Travel solutions
- Solar rooftop solutions with digital platform
- Smart city platform and microgrid system
- Batteries
- Energy management system, A solution for smart energy production, storage, and utilization.
- Renewable energy certificate

5 Customer Management
Stakeholders: Customers, Employees

- Power grids
- Merchant power market
- Industrial factories
- Retail customers
- Residential areas
- Commercial areas
- Governance agencies

Stakeholder Engagement

BPP has concentrated on the operational impacts on society and environment. It has also placed great importance on all stakeholder groups, including focusing on creating appropriate engagement with each stakeholder group. The aim is to use opinions received to improve its operations to be sustainably developed under three key principles according to a framework based upon the international standard – AA1000 Stakeholder Engagement Standard (AA1000SES). The three principles include participation of all stakeholder sectors or "inclusiveness," and an assessment of sustainability issues significant to BPP, including stakeholders in the value chain or "materiality," as well as management in responding to stakeholders' expectations and transparent operating data disclosure, or "responsiveness."

Stakeholder Engagement Standard

Stakeholder Engagement Framework

1. **Determining stakeholders** who are involved with BPP's operations both inside and outside the organization.
2. **Analyzing and grouping stakeholders** based on the level on which stakeholders influence BPP's operations, and the degree of stakeholders' interests in BPP's businesses.
3. **Setting up the engagement channels** properly for each stakeholder group, such as a visit, a meeting, document preparation to provide information, and consultation, etc.
4. **Continuously assessing stakeholder's satisfaction,** such as stakeholders' interviews, questionnaires development to review stakeholder's satisfactions, etc.
5. **Quarterly reporting stakeholder engagement results** to executives and the ESG Committee for acknowledgment in order to seek opportunities for improving operations through analyzing stakeholders' advices and regularly following-up on progresses.

Stakeholder Engagement Results

In 2024, BPP reviewed stakeholder's analysis and grouping and found that its **key stakeholders were categorized into 6 groups** as follows:

Stakeholder Groups	Engagement Channels	Key Issues Interested by Stakeholders	Major Operations
1. Joint-venture partners, shareholders, investors, and financial institutions	• Board meetings at subsidiaries and affiliated companies • The Annual General Meeting of Shareholders • Presenting information for investments in various agendas, such as the quarterly meetings, roadshows to present data and answer questions, etc. • Arranging the security analyst meetings. • Presenting corporate information at the "Opportunity Day" event organized by the Stock Exchange of Thailand. • Creating various channels for receiving complaints, such as telephones and websites. • The satisfactory survey's questionnaires • Annual reports • Sustainable development reports • Information disseminated on websites • Participating in Carbon Disclosure Project (CDP). • Taking part in Corporate Sustainability Assessment (CSA).	• Operating results, project development, and business growth • Policies and financial data • Operations responding to climate change • ESG operations • Risks management • Auditing operation transparency • Qualifications from the Board of Directors, executives, and remunerations	• Focusing on creating sustainability by investing in high-efficiency, low emissions power plants, such as gas-fired power plants, renewable energy and energy technology businesses, new businesses creating growth and reducing greenhouse gas (GHG) emissions, such as Carbon Capture, Utilization and Storage (CCUS), and energy storage systems, etc. • Determining the Climate Change Policy and management approach, disclosing risks assessment data, impacts and operations related to climate change in accordance with the Task Force on Climate-related Financial Disclosures (TCFD). • Setting a target for appropriate GHG emissions intensity responding to the gas-fired power plant business. • Employing the risks management system in all business units. • Implementing the internal audit covering all business units. • Conducting the data accuracy assessment on ESG performance from external agencies. • Taking part in Thai listed companies' "Corporate Governance Reporting Project" for the year 2024, which was assessed by the Thai Institute of Directors (IOD), and receiving an excellent rating (five stars), including being a member of the Thai Private Sector Collective Action Against Corruption (CAC). • Reviewing the Board of Directors' qualifications to prepare the composition of the BOD's knowledge and expertise or the skills matrix. • Participating in the ESG Ratings, achieving recognition as a sustainable stock at the AAA level. • Participating in the international sustainability assessment for the Electric Utilities industry, organized by S&P Global and FTSE Russell ESG Rating. • Setting up the ESG Committee to govern and drive effective sustainability management.
2. Employees	• The employee engagement survey • The Banpu Heart corporate culture survey • A welfare committee • An occupational health and safety committee • An innovation promotion committee • Social responsibility activities • A corporate culture promotion activity • Employing performance assessment system. • A meeting between senior management and employees • Employee engagement promotion activities • Dissemination of PR news within the organization • Various grievance receiving channels, such as telephones, and websites • Annual reports • Sustainable development reports • Information published on websites	• Business direction and corporate sustainable growth	• A two-way communication to create understanding and engagement among employees.
		• The corporate code of conduct and responsibility towards employees	• Communicating about corporate governance and integrating CG as part of the organization's culture.
		• Fair remuneration • A performance assessment system • Career growth • Employee's competency development • Being allowed to participate in making decisions and have a chance for giving opinions. • Work-life balance	• Carrying out labor work as required by applicable laws and in accordance with the international principles. • Determining clear, transparent, and fair key performance indicators (KPIs) for evaluating employees' performance. • Allocating budgets and courses to develop employee competencies and creating individual development plans. • Cultivating a Banpu Heart corporate culture in all countries where BPP has operations.
		• Work environment and safety	• Regularly inspecting work environment and safety. • Providing welfares to employees, such as an annual health check-up, "Flexi Hour", "Flexi Benefits," and "Work from Anywhere," etc.

Stakeholder Groups	Engagement Channels	Key Issues Interested by Stakeholders	Major Operations
3. Government sector	• Arranging meetings and visits on various occasions. • Site visits and operation inspections • Submitting reports and data as required by applicable laws. • Disclosing information as requested. • Taking part in various projects organized by the government sector. • Annual reports • Sustainable development reports • Information disseminated on websites	• Compliance with applicable laws and regulations, including mitigating risks properly.	• Establishing a legal register and keeping it up to date. • Implementing a system to check and monitor legal compliance risks, especially a monthly inspection and report, including an inspection from independent agencies.
		• Upholding corporate governance in adherence to the Code of Conduct.	• Announcement of the Corporate Governance Policy and the Code of Conduct principles and regularly following up on CG operation performance.
		• Creating economic, social, and environmental values.	• Carrying out corporate social responsibility projects, paying taxes as required by laws, and promoting local employment and procurement. • Giving cooperation and supporting the government's sustainability projects.
		• Utilizing natural resources for maximum benefits.	• Executing environmental projects to reduce resource consumption and waste generation.
4. Customers	• Customer's satisfaction survey • Conducting a forum to meet with customers in order to set plans, make understanding about the market situation and make a schedule for delivering work according to the targets set. • Meeting with operators to exchange experiences in machine operation and contract management. • Arranging customer visits to find out about the problems and find out solutions for improvement. • Disclosing information as requested. • Providing grievance/complaint channel through telephones and websites.	• Delivering and developing products and services. • Available factor of electricity and other forms of energy • Business Continuity Management (BCM) to continue delivering products and services in the event of unexpected events.	• Carrying out production and maintenance efficiently, able to maintain availability factor in supplying electricity and other forms of energy according to customer's requirements with reasonable prices. • Implementing a BCM plan to ensure the delivery of products and services during crisis. • Surveying customer satisfaction and using the survey results to improve products and services.
5. Suppliers/ contractors	• A supplier/contractor satisfaction survey • A disclosure of procurement data through websites or applications • A joint meeting with suppliers/contractors • Organizing activities and training to build suppliers'/contractors' competencies and work safety.	• Transparent procurements and fair compensation • Making payments in a specified period of time. • Carrying out operations as specified in related project's action plans. • A safe working environment. • Cooperation on creating and developing innovation to find market opportunities. • Efficient joint-working procedures.	• Ensuring equitable disclosure of procurement information. • Transparent procurement with fair selection criteria through the Supplier/Contractor Selection Committee. • Communicating about operational plans and progress regularly. • Specifying the environmental and workplace safety measures for contractors and those involved in operations equally to employees. • Using the ESG criteria to assess suppliers' performance. • Communicating BPP's Supplier Code of Conduct.

Stakeholder Groups	Engagement Channels	Key Issues Interested by Stakeholders	Major Operations
6. Communities and society	• Community satisfactory survey • Social baseline surveys and gathering community's opinions before project initiation. • Meetings with communities • The establishment of a joint-development committee with communities • Creating community relations and co-organizing activities with communities. • Site visits to learn about BPP's operations • Various grievance receiving channels, such as telephones and websites • Annual reports • Sustainable development reports • Information dissemination on websites	• Community's health and environmental impacts management	• Deploying high efficient and low emissions technologies in project design and production processes improvement. • Employing an effective environmental management and monitoring system and using clean technology with ultra-low emissions. • Regularly communicating environmental performance to communities surrounding the power plants.
		• Human rights	• Determining human rights policy and guidelines for assessing human rights related risks. • Conducting human rights due diligence for businesses BPP has involved, such as BPP Office, power plants, and joint-venture power plants.
		• Social responsibility activities	• Carrying out CSR projects to build competencies and sustainability for communities surrounding the power plants based on local needs, such as occupational promotion, providing knowledge for community members, etc. • Giving assistance to communities and society, such as providing urgent assistance during the disasters, infrastructure development to improve quality of life for community members, etc.

In addition, there are other stakeholder groups with minimal direct influence on BPP's operations but who may be indirectly affected, such as the media, civil society, and Non-Governmental Organizations (NGOs). BPP, therefore, has regularly created appropriate participation and listened to opinions of these stakeholder groups via various channels, such as communicating about BPP's operating results through emails, interviews and meetings, etc.

Stakeholder Engagement Survey

In 2024, BPP conducted a stakeholder satisfaction survey among five external groups, including business partners, regulatory agencies, consultants, suppliers, and financial institutions. The survey covered operations in Thailand (BPP), China (BIC), and the United States (BPPUS), and was carried out by a consulting company. The survey topics were updated to align with the Company's strategies and sustainability, while also used the previous year's results to continuously improve the Company's operations. The survey results indicated a high level of satisfaction among stakeholders, with scores ranging from 97% to 100% from a total of 58 respondents.

Topics	Score (%)		
	BPP	BIC	BPPUS
Professionalism	90	100	100
Environment, Social, and Governance (ESG)	72	98	42
Engagement Channel	94	100	100
Satisfaction	97	100	100
Net Promoter Score (NPS	61	82	73

Materiality Assessment

BPP assesses the sustainability materiality associated with its businesses in order to prioritize the short- and long-term materiality and set up the sustainable development strategies and targets for the years 2021 - 2025 in accordance with the **"Beyond Quality Megawatts"** strategy. Subsequently, the operational plan and proper indicators have been developed, while the sustainability progress has been monitored and evaluated regularly by various parties, ranging from business units, the Sustainability Committee, the Risk Management Committee, the Environment, Social and Governance (ESG) Committee to the Board of Directors. In addition, the external assessment results from both national and international agencies are also in consideration for developing improvement plans and raising BPP's sustainability performance standards, responding to endless changes, and meeting the international standards as well as stakeholders' expectations completely.

BPP's major sustainability materiality is assessed in accordance with the Global Reporting Initiative (GRI) and AA1000 AccountAbility Principles (AA1000AP). The materiality prioritization has been considered based upon its significance on BPP and stakeholders covering the ESG issues annually.

Improving and elevating

the BPP's sustainability operation standards to align with ongoing changes, and ensure compliance with international standards.

Sources of sustainability materiality include:

- **Major enterprise risk issues derived from corporate risk management systems.**
- **Trends or directions of changes in the energy business.**
- **Applicable laws and future change trends.**
- **ESG practice guidelines and ESG operation standards.**
- **Practice guidelines, best practices of power business and others associated.**

Materiality Assessment Procedures

1. **Identifying sustainability-related issues** by studying from various sources and stakeholder's engagement and thoroughly compiling business-associated issues, including stakeholder's expectations, key enterprise risks, and changes arising all around, such as:

   - Risk assessment results derived from the Enterprise Risk Management System, which collects risks from all business units and summarizes them as the organization's risks every quarter.
   - International stakeholders expectations, such as sustainability performance questionnaires and financial institutions.
   - The results of meetings with governmental agencies to clarify the projects and get advices
   - The outcomes from meetings with joint-venture partners, regulatory agencies, consultants, suppliers, customers, and financial institutions to clarify the projects and listen to their opinions.
   - The satisfactory survey results conducted with stakeholders who have jointly worked with BPP, consisting of joint-venture partners, regulatory agencies, consultants, suppliers, and financial institutes, via online questionnaires.
   - The customer's satisfactory survey result.
   - Consequences of meetings arranged to update BPP's operational progress and to listen to opinions, such as the shareholders' meetings and the security analyst meetings.
   - The results of following up on local and international policy trends, legislation, and ESG expectations.
   - Sequels of employee engagement survey, and "Banpu Heart" corporate culture scores, including employee feedbacks gained from the online surveys carried out by external consultants and a focus group conducted within the organization.
   - Opinions gained from external consultants and experts.

2. Major Materiality Prioritization

2.1 Determining each materiality significance on BPP's operations. The impact levels on BPP's operations are evaluated in accordance with the corporate risk assessment criteria by appraising the impact assessment criteria in all 10 areas. Then, the highest impact will be used for prioritizing the significance levels of impact assessment criteria.

The impact assessment criteria

1) Financial impacts
2) Strategic impacts
3) Health effects
4) Safety impacts
5) Environmental impacts
6) Legal and licensing impacts
7) Corporate reputation impacts
8) Human resources impacts
9) Impacts on product and service delivery
10) Impacts on personal data protection

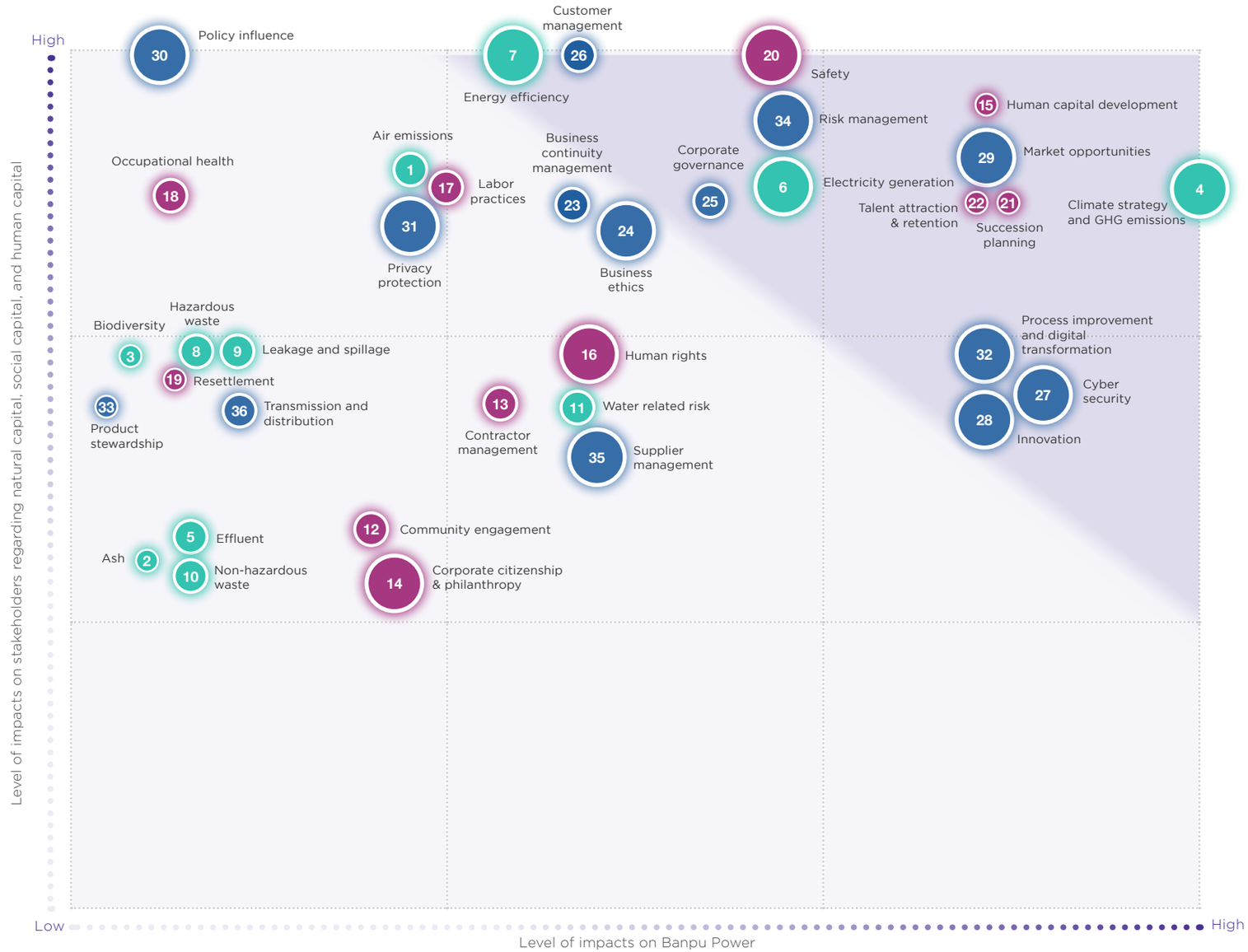
2.2 Identifying each materiality significance on stakeholders: The level of impacts on all stakeholders has been assessed by focusing on key stakeholders of each materiality affected by BPP's operations both positively and negatively throughout the value chain. The impacts can be divided into 3 dimensions, including the effects on natural capital, social capital, and human capital, which have been integrated into human rights risks.

3. **Evaluating core materiality by senior management** in order to examine and provide opinions on improving key materiality assessment from a management perspective to cover the organization's financial and strategic impacts, covering current and future operations.

4. **Approving core materiality by the ESG Committee**, which is the sub-committee at the Board level, responsible for governing the sustainability. The ESG Committee is comprised of 3 independent committees who have knowledge and working experiences outside the organization.

Additionally, the core materiality prioritization results have also been used for communicating and obtaining opinions from external experts/consultants to ensure a comprehensive and complete assessment.

Core Sustainable Materiality Assessment Results



Remark: The size of the circle represents the number of stakeholders involved.

Dimension	Sustainability Materiality
Environment	1. Air emissions 2. Ash 3. Biodiversity **4. Climate strategy and GHG emissions** 5. Effluent **6. Electricity generation** **7. Energy efficiency** 8. Hazardous waste 9. Leakage and spillage 10. Non-hazardous waste 11. Water related risk
Social	12. Community engagement 13. Contractor management 14. Corporate citizenship & philanthropy **15. Human capital development** 16. Human rights 17. Labor practices 18. Occupational health 19. Resettlement **20. Safety** **21. Succession planning** **22. Talent attraction & retention**
Governance	23. Business continuity management 24. Business ethics **25. Corporate governance** **26. Customer management** **27. Cyber security** **28. Innovation** **29. Market opportunities** 30. Policy influence 31. Privacy protection **32. Process improvement and digital transformation** 33. Product stewardship **34. Risk management** 35. Supplier management 36. Transmission and distribution

2024 Core Sustainability Materiality

BPP was able to identify 14 major sustainable materiality related to key enterprise risks as follows:

Materiality	Scope of Significance on Stakeholders: Within the Organization	Scope of Significance on Stakeholders: Outside the Organization	BPP's Key Risks	Topics in the Report (Click link to Topics)
4. Climate strategy and GHG emissions	• Banpu Group	• Governmental sector and regulatory agencies • Shareholders/investors • Communities • Joint-venture companies/ joint-venture partners • Financial institutions	• Risks associated with changes and compliance to rules, regulations, and applicable laws • Risks related to investments and business operations according to the growth plan. • Risks relevant to more rigorous ESG operation standards • Risks relating to natural disasters	Climate change and GHG emissions
6. Electricity Generation	• Employees • Banpu Group	• Joint-venture companies/ joint-venture partners • Shareholders/investors • Customers • Financial institutions • Governmental sector and regulatory agencies	• Risks related to electricity production • Risks associated with more stringent ESG operation standards	Electricity generation
7. Energy consumption efficiency	• Employees • Banpu Group	• Customers • Join-venture companies/ joint-venture partners • Shareholders/investors • Contractors		Energy efficiency
15. Human capital development	• Employees • Banpu Group	• Shareholders/investors • Financial institutions	• Risks relating to human resources management and competency development to accommodate growths	Human capital development
20. Safety	• Employees • Banpu Group	• Contractors • Communities • Customers • Governmental sector and regulatory agencies • Joint-venture companies/ joint-venture partners • Financial institutions • Shareholders/investors	• Risks relevant to occupational health and work-safety	Occupational health and safety
21. Succession planning	• Employees • Banpu Group	-	• Risks associated with human resources management and competency development to accommodate growths	Talent attraction and retention
22. Talent attraction and retention	• Employees • Banpu Group	-		

Materiality	Scope of Significance on Stakeholders: Within the Organization	Scope of Significance on Stakeholders: Outside the Organization	BPP's Key Risks	Topics in the Report (Click link to Topics)
25. Corporate governance	• Employees • Banpu Group	• Financial institutions • Shareholder/investors • Join-venture companies/ joint-venture partners • Government sector and regulatory agencies	• Risks related to changes/transition and compliance to rules and regulations as well as applicable laws • More stringent ESG operation standards	Corporate governance
26. Customer management	• Banpu Group	• Customers • Financial institutions	• Commercial risk (electricity and coal prices, and account receivable management)	Customer management
27. Cyber security	• Banpu Group	• Joint-venture companies/ joint-venture partners • Customers • Government sector and regulatory agencies • Shareholders/investors • Financial institutions	• Risks involved with cyber security and personal data protection	Process improvement and innovation
28. Innovation	• Employees • Banpu Group	-		
32. Process improvement and digital transformation	• Employees • Banpu Group	-	• Risks related to electricity production	
29. Market opportunities	• Employees • Banpu Group	• Joint-venture companies/ joint-venture partners • Shareholders/investors • Financial institutions • Customers	• Risks associated with investments and business operations in accordance with the growth plan • Risks relating to business investments and emerging technology	Market opportunities
34. Risk management	• Employees • Banpu Group	• Financial institutions • Shareholders/investors • Joint-venture companies/ joint-venture partners • Customers	-	Risk management

Sustainability Management

BPP commits to creating sustainable development through quality megawatts and adherence to the heart of affordable prices (Affordable), continuous delivery (Reliable), and eco-friendly manner (Eco-Friendly). In addition to continuously improving operational efficiency of its existing assets and investing in clean energy, BPP has enhanced its ability to cope with today's rapid changes, such as climate change, which is the significant challenge for energy business. This has led to investments in projects reducing carbon dioxide (CO_2) emissions, energy infrastructure and battery energy storage systems, including building upon the power business within Banpu Group's business ecosystem as well as producing other forms of energy. The aim is to drive the organization's growth in the future. Such a move is the try-out and opportunity for BPP to formulate its strategies and lay down a sustainable development foundation, putting top priority on values creation for all groups of stakeholders in the long-run.

BPP lays down the management framework to drive its sustainable operations by taking into account the external factors and all around changes. It formulates strategies and sets up indicators for both the short- and long-terms. The missions are then assigned to executives and all employees to drive towards success.

Enhancing the ability to cope with rapid changes,
such as climate change, which is a significant challenge in the energy business.

AFFORDABLE

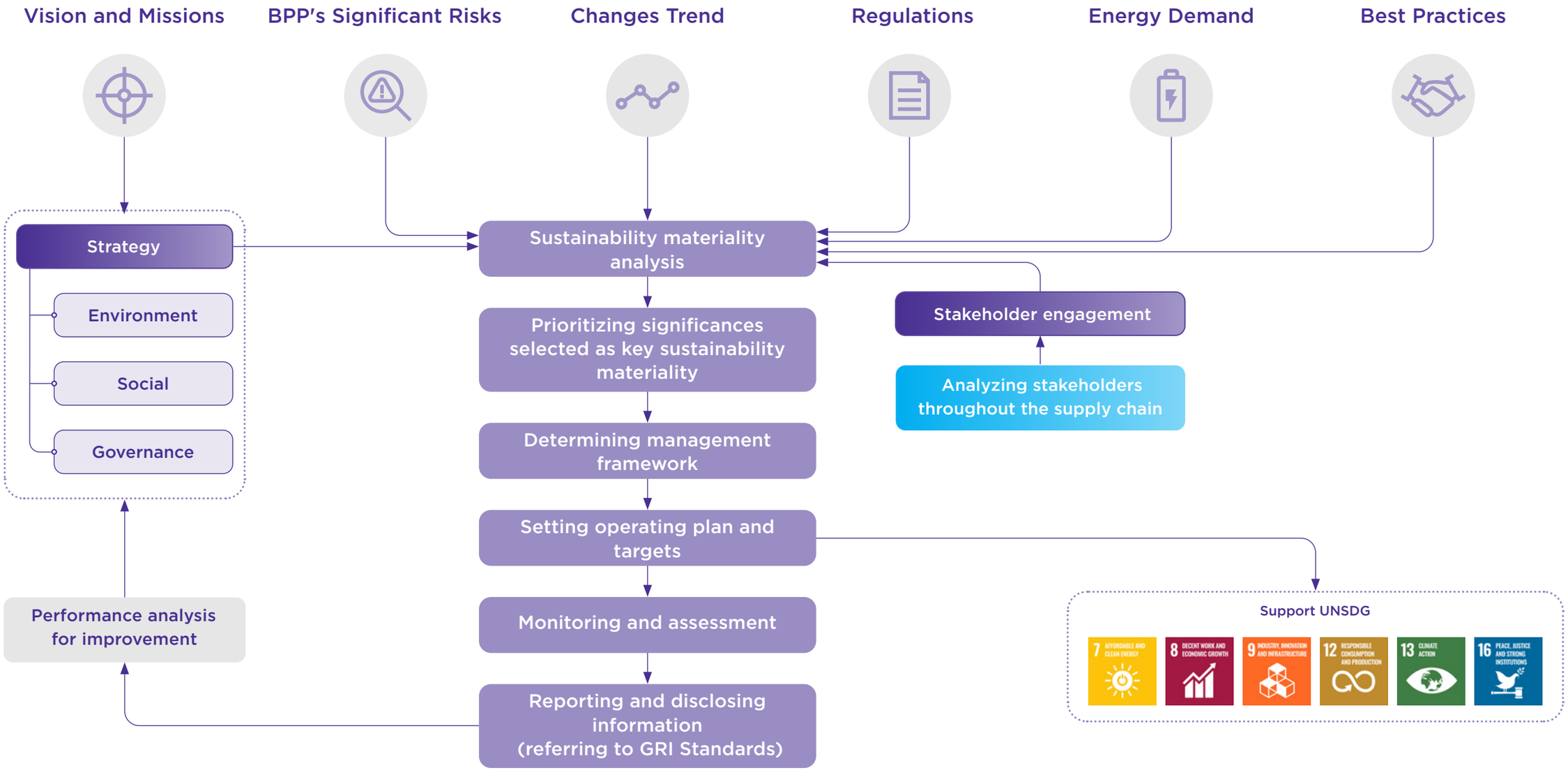
- Investing in sound assets with efficient cost management.
- Creating competitive advantages through deployment of innovations and capacity-building of employees.
- Building business partnerships throughout the supply chain.

RELIABLE

- Elevating Corporate Governance (CG) standards.
- Establishing a risk management system and exploring business opportunities to become the integrated energy producer and supplier .
- Setting up a monitoring and evaluation system while ensuring transparent communication of operating results to stakeholders.

ECO-FRIENDLY

- Deploying innovations and high efficiency, low emissions technologies.
- Engaging stakeholders and communities surrounding the project areas.
- Adhering to the environmental, occupational health, and safety management system standards.


Vision and Missions
BPP's Significant Risks
Changes Trend
Regulations
Energy Demand
Best Practices
Strategy
Environment
Social
Governance
Sustainability materiality analysis
Prioritizing significances selected as key sustainability materiality
Determining management framework
Setting operating plan and targets
Monitoring and assessment
Reporting and disclosing information (referring to GRI Standards)
Performance analysis for improvement
Stakeholder engagement
Analyzing stakeholders throughout the supply chain
Support UNSDG
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Policies and Strategies towards Sustainability

Banpu Power is committed to creating sustainable energy through the quality megawatts under the concept of Beyond Quality Megawatts, aiming to expand the scope of business beyond increasing electricity production capacity, such as Carbon Capture, Utilization, and Storage business (CCUS), Battery Energy Storage System (BESS), etc. BPP creates business growth and stable returns for shareholders in the long-term along with social and environmental responsibility via the Triple E approach as follows:

E Excellence

Having an ability to adapt oneself to external changes and employing efficient risks management, including promoting stable and efficient production of all power plants.

E Ecosystem

Striving towards quality megawatts through a balanced business portfolio by adding upon the business eco-system within Banpu Group.

E ESG

Operating business in accordance with the sustainable development principles, being a good corporate citizen with social responsible manner in all countries, in which BPP has invested and operated.

In addition, BPP has built on the organizational strengths to respond to challenging changes/transitions as follows:

- **Expertise in operating power business in the Asia-Pacific region:** BPP has an understanding of government regulations and various economic contexts, including expertizing in managing the long-term Power Purchase Agreement (PPA) electricity business and the merchant power market. This helps BPP to increase opportunities to earn income from power production and distribution.
- **Ability to synergize with Banpu Group:** BPP strengthens its businesses by seeking investment opportunities through the use of synergies of energy resources business and energy technology group within Banpu Group. For example, a joint investment to develop a project to capture and store carbon dioxide (CO_2), a development of battery energy storage projects, etc.
- **Strong financial status to support investment expansion:** Due to its quality assets to consistently provide good returns and a continuous improvement and development of existing projects to be more efficient, BPP has sound financial liquidity and strong cash flows, as well as an ability to invest in new projects.
- **Developing personnel being ready to adapt oneself to the future world:** BPP bonds overs a diverse generation of people with experience in the power business and a new generation equipped with innovative ideas and technology. BPP provides equal opportunities and promotes the development of employees' potential. Opportunities are available for its personnel to present their creativity. BPP employees have been trained and developed to have a global mindset with a ready to learn, flexible, and quickly adaptive manner.

Sustainable Development Policy

The **"sustainability"** has been designated as one of "Banpu Heart" shared values in order to promote the **"sustainable development"** and raise awareness from BPP's executives and employees at all levels. Accordingly, BPP personnel are socially and environmentally responsible, making decisions based on sustainability principles, including being the organization's representatives in communicating correct information to stakeholders.

Moreover, BPP also places great importance on disclosing ESG performance in a transparent and reliable manner. A sustainable development report has been prepared to communicate the results to stakeholders, while the accuracy of information related to core materiality has been verified by external agencies annually.

Sustainability Governance Structure

BPP has set up the sustainability governance duties as follows:

- **The Board of Directors (BPP Board)** determines the organization's sustainability policy, the environment, social and corporate governance (ESG) strategies, and other related policies. BPP Board also identifies the operational targets and stakeholder engagement procedures as well as assessing results of key sustainability issues.

- To elevate sustainability governance and create confidence among stakeholders regarding the efficient sustainable management, BPP sets up the **Environment, Social and Governance (ESG) committee** at the director-level to replace the Sustainability Committee at the executive-level. The aim is to support the Board of Directors in supervising, setting up strategies, monitoring progress, evaluating sustainability performance, reviewing and providing recommendations on stakeholder engagement processes, and assessing results regarding key sustainability issues. The ESG committee meeting is held every quarter, while the meeting results are reported to the Board of Directors at least once a year.

- **Sustainable Development and Risk Management:** The "Sustainability and Risk Management" Department is responsible for coordinating and communicating about policies and best practices, setting up goals, following up operational performance throughout the organization. All activities conducted are then reported to the ESG Committee, Chief Executive Officer, and senior executives. This includes communicating and disclosing information to stakeholders.

Sustainable Development Performance Assessment

Because sustainable development operations involve everything from making policies and setting up effective strategies to determining appropriate indicators in order to encourage participation and action from everyone in the organization, BPP evaluates sustainable development performance at multiple levels. The methodologies and indicators used are as follows:

- **Board of Directors' Performance Assessment:** The Board of Directors' appraisal is carried out once a year through self-assessment, divided into three levels as follows:
  - Individual self-assessment
  - The entire Board of Directors' performance evaluation
  - Assessments of each sub-committee's performance

- **Chief Executive Officer (CEO) and top management performance reviews:** The performances of CEO and top management are appraised by the Compensation Committee based on the key performance indicators (KPIs) set. The assessment is carried out twice a year, and against the annual and long-term goals, including:
  - Creating growth in high-efficiency and low-emission businesses.
  - Generating returns for stakeholders.
  - Running productions in accordance with the organization's ESG goals, such as GHG emissions, energy consumption, water usage, and work safety.
  - Raising ESG operation standards to be internationally recognized to build competitive advantages and respond to stakeholders' expectations.
  - Overseeing all operational units to fully comply with applicable laws with no incidents involved with violations of local or international ESG laws.
  - Creating employee engagement, recruiting, and developing employee's competencies.
  - Engaging stakeholders through various channels.

- **Performance appraisals for executives and employees:** The performance of executives and employees is carried out twice a year, through a using KPIs, both operational results and behaviors promoting the Banpu Heart corporate shared values.

- **Analyzing the operating results against best practices or standards in the industry group,** such as gap analysis for improvements by comparing to the international sustainability assessments – S&P Global Corporate Sustainability Assessment (CSA), FTSE Russell ESG Scores, and the sustainability assessment conducted by the Stock Exchange of Thailand, etc.

Driving the Corporate ESG

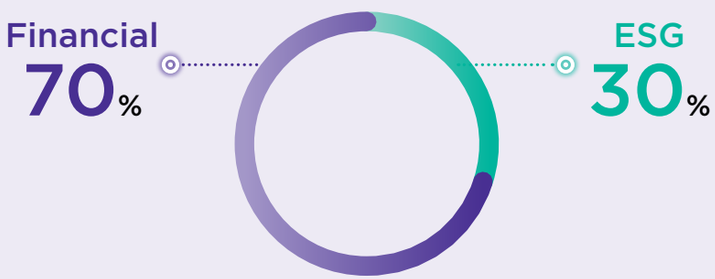
BPP has established the ESG Committee since March 2023 to drive its ESG operations to maximum efficiency throughout the organization, and to build confidence in management consistent with BPP's strategies. BPP's ESG Committee consists of 3 directors who have experiences and expertise in the ESG area. These 3 directors are independent directors. The ESG Committee meeting is convened quarterly and the 2024 main points are summarized as follows:

- **Approving the core materiality assessment results.**
- **Approving improvements to the Waste Management Policy.**
- **Approving additionally revised ESG indicators and targets for years 2024 - 2025** to reflect the operating results of gas-fired power plants.
- **Considering key ESG risks.**
- **Following up on the progress of key ESG issues** of all power plants, in which BPP has management control and has jointly invested, such as the GHG emissions intensity, energy consumption intensity, and accident statistics, etc.
- **Providing opinions to improve and develop ESG operations,** such as carbon emissions reduction projects, development and improvement of power plant's efficiencies, cyber security, employee engagement, etc.
- **Obtaining opinions from activities conducted to create stakeholder's engagement,** including giving suggestions for improvement.

Each year, BPP organizes the trainings to provide knowledge related to ESG trends and risks to the Board of Directors, executives, and employees. In 2024, the training on the topic of "Artificial Intelligence (AI) risks in the electricity business," was organized and conducted by the leading technology consulting firm and the digital & information technology division of Banpu Group. The training demonstrated an example of leveraging AI to improve operations as well as created awareness of risks resulted from using AI tools.

ESG Performance Appraisal for CEO and Senior Executives

To drive the operation to achieve its goals and demonstrate responsibilities from all levels of management, the performances of BPP's CEO and senior executives are assessed twice a year. The indicators used for such assessments consist of 70% financial aspects and 30% ESG. The financial and ESG targets are the same as BPP's ones and in line with the sustainable development goals and affecting executive's remunerations.



Driving the operation to achieve its goals and demonstrate responsibilities from all levels of management.

[1] Targets have been adjusted to be consistent with the 2026 - 2030 strategy and to reflect the operating results of gas-fired power plants in the 2nd half of the year 2024.

Financial Targets

- Increasing a generation capacity of **1,500 MW** by 2030 through investment in a low-carbon energy generation and the energy transition.
- **65%** of EBITDA from non-coal business by 2030
- An investment in new businesses consistent with the Group's strategies.
- Return on investment.

ESG Targets

- **Environment:**
  - GHG emissions intensity is **not more than 0.676 tonnes CO_2e/MWh**[1].
  - Sulfur dioxide (SO_2) emission intensity is **not more than 0.0776 kg/MWh**[1].
  - Nitrogen oxide (NO_x) emission intensity is **not more than 1.184 kg/MWh**[1].
  - Particular matters (PM) emission intensity is **not more than than 0.0230 kg/MWh**[1].
  - Water consumption intensity is **not more than 0.868 cubic meters/MWh**[1].
  - Availability Factor (AF) is **over 90%**[1].
  - Forced Outage Factor (FOF) is **less than 5.0%**[1].
- **Social:**
  - **None** of fatal accidents among employees and contractors.
  - Injury frequency rate of employees and contractors is equal to **zero**.
  - **None** of significant complaints related to community, human rights, discrimination and harassment.
  - Employee engagement score is **more than 70%** in Thailand and **85%** in China.
  - Banpu Heart corporate culture score is **more than 70%** in Thailand and **90%** in China.
- **Governance:**
  - **None** of significant complaints related to business ethics or ESG violations.

Banpu Power and Sustainable Development Goals

- GHG emissions intensity < 0.549 tonnes CO_2e/MWh
- 65% of EBITDA from non-coal business by 2030
- Disclose climate change information according to TCFD
- 100% coverage of critical business function conduct business continuity plan drill

- Water consumption intensity < 0.917 m^3/MWh
- Energy consumption intensity < 2.84 GJ/MWh
- 100% re-used/recycled of fly ash and bottom ash
- All operational control assets assessed for potential biodiversity impact

- Ultra-low emissions intensity
- No significant environmental and social incident
- No significant ESG complaint from communities
- All combined heat and power plants in China were certified ISO 14001.
- Cybersecurity and privacy maturity score not less than 2.5 (full score = 5)

- Achieve zero incidents involving non-compliance, corporate governance, and corruption
- 100% of significant corporate governance complaints resolved through a dispute mechanism
- Be a member of Thai Private Sector Collective Action Against Corruption (CAC)

- Increasing a generation capacity of 1,500 MW by 2030 through investment in a low-carbon energy generation and the energy transition.
- Availability Factor (AF) not less than 85 - 90%
- Forced Outage Factor (FOF) not more than 2.5 - 5%.
- Key ESG issues are part of senior management's KPI.

- No major incident and occupational illness in employees and contractors
- Employee engagement score of no less than 70% in Thailand and 85% in China
- Banpu Heart score of no less than 70% in Thailand and 90% in China
- No significant human rights complaints
- No complaint about customer privacy and product use

Banpu Power operates its business by setting up the sustainability operation's goals relating to, in accordance with, and responding to the United Nations Sustainable Development Goals (SDGs), which are the operational framework reflecting stakeholders' expectations and BPP's sustainable development goal in the future. BPP has established the sustainability operation targets as follows:

UN Sustainable Development Goals (SDGs)		BPP's 2025 Targets
	7.1 By 2030, ensure universal access to affordable, reliable, and modern energy services. 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix. 7.3 By 2030, double the global rate of improvement in energy efficiency.	• Increase a generation capacity of **1,500 MW** by 2030 through investment in a low-carbon energy generation and the energy transition. • **65%** or two-thirds of EBITDA[1] generated from non-coal businesses by 2030[2] • Availability Factor (AF) at a rate of **85 - 90%**[2] - Combined heat and power plants ≥ **90%** - Gas-fired power plants ≥ **85%**[2] • Forced Outage Factor at a rate of **2.5 - 5%**[2] - Combined heat and power plants ≤ **5%** - Gas-fired power plants ≤ **2.5%**[2] • Energy consumption intensity ≤ **2.84 GJ/MWh** - Combined heat and power plants ≤ **1.55 GJ/MWh** - Gas-fired power plants ≤ **3.94 GJ/MWh**[2] • Key ESG issues are integrated into the CEO's performance appraisal and are further cascaded to senior management.
	8.8 Protect labor rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants and those in precarious employment.	• Workplace environment complies with regulatory requirements and standards. • No serious injuries and occupational illness in employees and contractors - **Zero** fatality - **Zero** lost time injury frequency rate (LTIFR) - **Zero** total recordable injury frequency rate (TRIFR) - **Zero** high-consequence injury rate - **Zero** fatality caused by occupational ill-health - **Zero** total recordable occupational ill-health frequency rate - **Zero** tier-1 process safety event rate • Employee engagement score ≥ **70%** in Thailand and ≥ **85%** in China • Banpu Heart score ≥ **70%** in Thailand and ≥ **90%** in China • Proportion of employees having Individual Development Plans equivalent to **100%** • All critical positions are identified for succession planning. • Proportion of business units conducting human rights risk assessment ≥ **70%**[3] • **No** human rights complaint and the proportion of human rights complaints entering a dispute resolution mechanism equivalent to **100%** • All business units have a risk management plan that covers ESG issues. • Customers and Products - **No** complaints about customer privacy - **No** complaints about safety and environment concerning product use - All customers' complaints are investigated and resolved within an appropriate timeframe.

UN Sustainable Development Goals (SDGs)		BPP's 2025 Targets
	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.	• Emissions intensity of the thermal power plants achieves ultra-low emissions. - SO_2 intensity ≤ **0.0336 kg/MWh**[2] - NO_x intensity ≤ **0.0555 kg/MWh**[2] - PM intensity ≤ **0.0216 kg/MWh**[2] • Hazardous waste disposal to landfills ≤ **210 tonnes/year** • Non-hazardous waste disposal to landfills ≤ **793 tonnes/year** • **No** significant environmental incidents, social incidents, and fines for non-compliance at all operating assets • **No** significant complaints from communities both from operation and resettlement • All complaints from communities must be resolved through a dispute resolution mechanism. • All combined heat and power plants in China obtain ISO 14001 certification—Environmental management system standards. • **Not less than 50%**[3] of procurement is sourced from local suppliers. • **100%** of critical tier-1 suppliers are assessed for ESG risks. • **100%** of contracts include ESG requirement clauses. • Cybersecurity and privacy maturity score of **no less than 2.5** (full score = 5)
	12.2 By 2030, achieve sustainable management and efficient use of natural resources.	• Water consumption intensity ≤ **0.917 m³/MWh** • **100%** re-use/recycling of fly ash and bottom ash • All operating assets assessed for potential biodiversity impact
	13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.	• GHG emissions intensity ≤ **0.549 tonnes CO_2e/MWh** in combined heat and power plants under BPP's direct management[2] • Disclose climate-related information according to the recommendations of Task Force on Climate-related Financial Disclosures (TCFD) • Business continuity management (BCM) system established and rehearsed at all business units, and the proportion of critical business functions drill the BCM plan equivalent to **100%**.
	16.5 Substantially reduce corruption and bribery in all their forms.	• **Zero** incidents of corporate governance breaches or corruption • All significant complaints investigated and resolved through a dispute resolution mechanism • Be a certified member of Thai Private Sector Collective Action Against Corruption (CAC)

[1] Earnings before interest, taxes, depreciation, and amortization (EBITDA)
[2] Revised/expanded in 2024 to be challenging and aligned with gas-fired power plants and the Company's strategies for 2026 – 2030.
[3] The overall target of Banpu Group

About This Report

To disclose Banpu Power's sustainability operation results, covering environment, social, and governance (ESG) issues, BPP has annually published the sustainability report (Report) for the 7th consecutive year. This "Report" has been developed by reference to the 2021 edition of Global Reporting Initiatives Standards (GRI Standards 2021): Core Options with additional indicators for electric utilities sector disclosures for the year 2010. Moreover, the operating results have been presented in alignment with the United Nations Sustainable Development Goals (SDGs), while the financial data has complied to the Thai Financial Reporting Standards.

Reporting Period

This "Report" covers the operating performance from 1 January 2024 to 31 December 2024, including subsequent activities conducted within the first quarter of 2025 in order to provide readers with the most up-to-date data.

Reporting Boundary

BPP reviewed and reported its sustainability performance of all key materiality involved. The data displayed in this "Report" were analyzed through the assessment of 36 sustainability issues of power business for the year 2024, of which 14 topics were associated with BPP's key sustainability issues. The 2024 core materiality was not different from the assessment result of the previous year and covered all business entitles in which BPP has management control, namely:

- **Three combined heat and power (CHP) plants:** Zhengding CHP Plant, Zouping CHP Plant, and Luannan CHP Plant in China.
- **One gas-fired power plant:** Temple Power Plant in the United States of America.

The Ponder Solar Power Plant in the United States of America, which BPP has direct management authority over, is not included in BPP's performance results for this year. This is because the power plant commenced commercial operations in August 2024 and is currently in the process of data collection. The data is expected to be reported in 2025.

The sustainability performance data of joint-venture companies, in which BPP has no direct management control are not included in BPP's operating results. However, these business entities are playing the key role in generating revenue and creating growth for BPP. As a result, some of their sustainability outcomes, which have not yet been certified by the external agency, are separately reported based on stakeholders' interests, including: Renewable energy and energy technology businesses, in which BPP has invested through Banpu NEXT Co., Ltd., BLCP Power Plant, and HPC Power Plant.

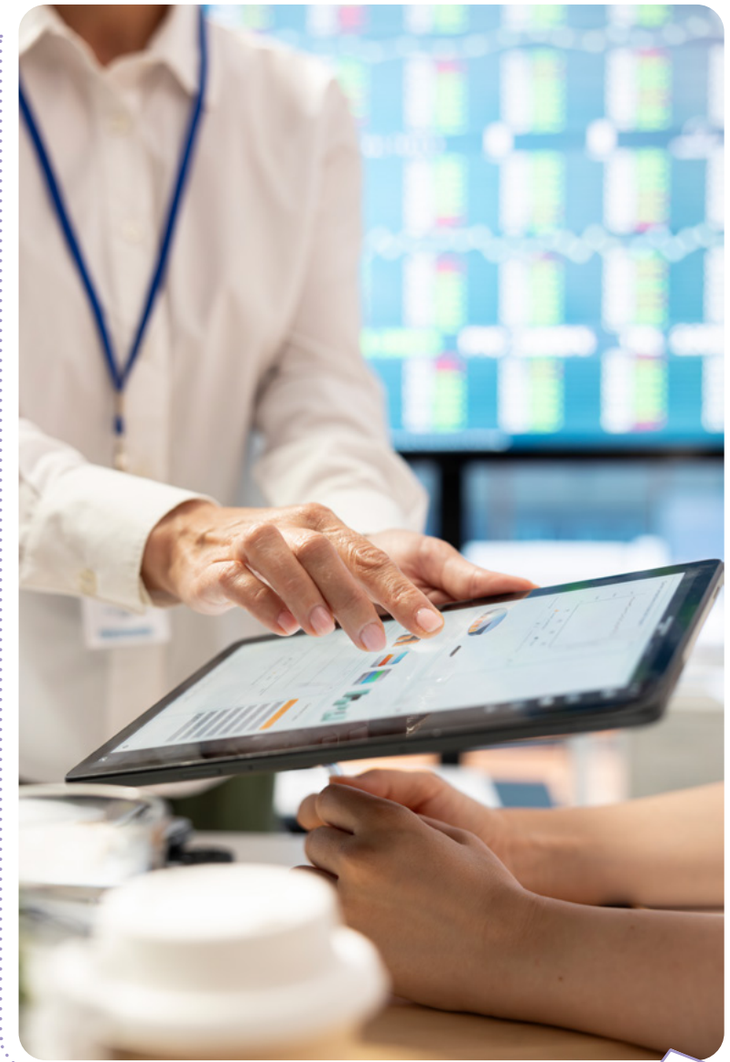
Assurance

The disclosed performance data related to

- **Environment:** Energy, water, GHG, air emissions, and waste
- **Social:** Occupational health and safety
- **Governance:** Compliance with laws and regulations

were verified by external independence agency using the relevant GRI topic specific standard with the "Moderate Level of assurance".

Interested persons can study additional details and view the verification report of the certifying provider on page 182. Consequently, BPP has a commitment to certify the "Report" continuously, including increasing indicators on core sustainability issues in the future.



GOVERNANCE

Banpu Power

adheres to robust corporate governance principles, fundamental for fostering sustainable business growth.

Corporate Governance

Stakeholders

- Business partners, shareholders, investors, employees, financial institutions, and the government sector.

BPP is committed to being the organization operating under the principles of good corporate governance (CG), with standardized, transparent, verifiable, and efficient management system. The Board of Directors has prepared a written CG policy and Code of Conduct to create knowledge and understanding for the Board members, executives, and employees, as well as to build awareness in applying these principles to their work. Today, such practices have become a strong "Banpu Heart" corporate culture, especially "Adhere to Integrity and Ethics", one of "Banpu Heart" attributes, is used for operations in every country, in which BPP operates business.

BPP has followed up and studied on CG practices both domestically and internationally, such as the CG principles and the corporate governance report of Thai listed companies (CGR), the best practices of the Securities and Exchange Commission (SEC), and the Stock Exchange of Thailand (SET), including the international criteria such as the ASEAN Corporate Governance Scorecard. Thereby, the Board of Directors has assigned the Governance and Nomination Committee to govern work standards to be at the international level, being consistent with the organization's strategy and business direction, inclusion of various regulations, laws, and practice guidelines. The effectiveness of operating performance is regularly monitored, evaluated, and reported to the Board of Directors at least twice a year.

To promote sustainability in all aspects, the Board of Directors has assigned the Chief Executive Officer (CEO) to be responsible for business operations in accordance with CG principle. Major issues involved with environment, social, and governance (ESG) are included as part of the key performance indicators (KPIs) of the CEO annual performance review and those of senior management of all business units. In addition, BPP continues being committed to managing risks and internal control appropriately, as well as integrating the ESG strategies as an important part in the management process. This is to help BPP move towards the steady and sustainable growth, in tandem with creating the long-term values for society and the environment.

Corporate Governance Structure

BPP's Board of Directors' structure consists of 11 directors, divided into 4 independent directors, 2 non-executive directors, and 5 executive directors, of which the independent directors account for 36.6% of the total number of the Board of Directors. Under this BOD structure, there are 4 sub-committees, namely the Governance and Nomination Committee, the Audit Committee, the Compensation Committee, and the ESG Committee.

The Board of Directors' Structure of BPP

BPP has determined that the Independent Directors shall serve a term of office of 9 years or not exceeding 3 consecutive terms. The nominee must not be a director of more than 5 listed companies on the Stock Exchange of Thailand, and a quorum must be at least two-thirds of the total number of directors to vote at a meeting.

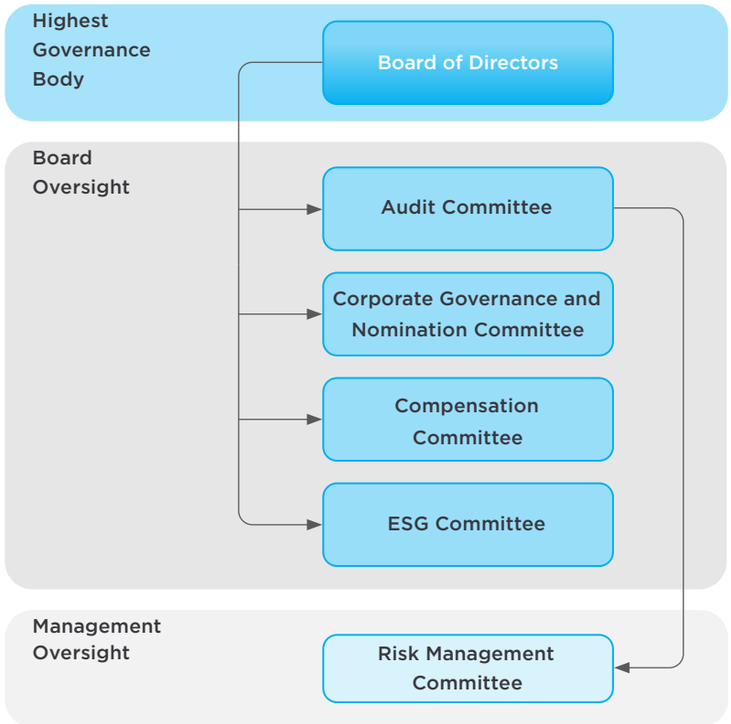
BPP determines that a joint meeting between independent directors and non-executive directors, exclusion of executive directors and management, is held once a year. In 2024, such a joint meeting was organized on 5 October when all 6 non-executive directors were attending this meeting. The meeting was aimed at providing the opportunity for all directors to present and discuss issues freely, as well as expressing their

opinions and suggestions beneficial for the collaboration between the Board of Directors and BPP management to work together. This included setting up management guidelines for business operations in accordance with BPP's action plans and targets. At the meeting, opinions relating to BPP's top executives' succession plan were also recommended.

In addition, the Board of Directors stipulates that Chairman of the Board of Directors and CEO must not be the same person. BPP has clearly divided the duties of the Board of Directors and its management. Therefore, the Board of Directors appoints and assigns the CEO to be responsible for business operations and development as well as strategy implementation. Meanwhile, the CEO delegates his/her authority to the next level executives of both domestic and international business units by using the Delegation of Authority (DOA) to create a balance between corporate governance and management.

	The Corporate Governance and Nomination Committee	The Audit Committee	The Compensation Committee	The Environment, Social and Governance (ESG) Committee
Entire Board of Directors	**3**	**3**	**3**	**3**
- Executive Directors	-	-	1	-
- Non-Executive Directors	1	-	1	-
- Independent Directors	2	3	3	3
Associated Charters	The Charter of the Corporate Governance and Nomination Committee. Click here	The Charter of the Audit Committee Click here	The Charter of the Compensation Committee Click here	The Charter of the ESG Committee Click here
Main Duty	• Considering the policy and practice guidelines of corporate governance and code of conduct. • Monitoring on compliance with policies and practices within the ethical framework. • Recruiting and selecting individuals to serve as BPP's directors, CEO, and executive officers. • Following up on succession plans of high-ranking executives.	• Verifying financial statements, internal control and risk management systems, as well as legal and regulatory compliances, making them to be appropriate and efficient. This includes overseeing the internal audit system to have sufficient and appropriate practice standards. • Considering action plans and performance of the Internal Audit Office. • Determining BPP's information disclosure in the event of connected transactions or conflicts of interest. • Joining with the Board of Directors in giving opinions on the suitability and reasonableness of entering into transactions to acquire or dispose assets with significant value (Material Transaction or MT) and following up on the progress of entering into such transactions. • Examining details related to the use of raised fund and enabling BPP to employ a mechanism to oversee and follow up on the correct and appropriate use of such fund raised in accordance with the objectives disclosed. • Selecting, proposing, appointing, and terminating the auditors, including proposing for consideration of BPP's auditor's remuneration. • Determining the independence of the Internal Audit Unit, including jointly making the "Risk-based Audit Plan," giving opinions on action plan and performance, budgets, and manpower of the Internal Audit Unit as well as approving the appointment, performance appraisal, transfer, dismissal of the chief of Internal Audit Unit. • Continuously verifying and monitoring critical risk management submitted by the Risk Management Committee, inclusive of managing cyber security risk and other information technology risks as well as the overall picture of corporate risks. • Verifying and governing BPP to duly comply with its anti-corruption policy.	• Giving opinions on remuneration management and other benefits for the Board of Directors, sub-committees, and CEO. • Considering the overview and structure of salary and annual bonus.	• Providing advice related to ESG strategies and operational guidelines to BPP's Board of Directors. • Considering and reviewing policies, goals, operations, and performance associated with ESG. • Verifying and monitoring on stakeholder engagement and ESG materiality assessment process. • Considering and verifying the ESG data disclosed to the public. • Proposing issues related to ESG possibly affecting stakeholders, businesses, operations, performance or BPP's reputation to the Board of Director, including giving advice on improving policies, operations, and disclosure of relevant information.

Significance and Corporate Commitments



Being well aware of the importance of ESG issues, both in legal matters and in creating added values for the business in the long-term, the Board of Directors has therefore established the ESG Committee (at the director – level) to replace the Sustainability Committee (at the executive – level) so as to enhance sustainability governance and build confidence among stakeholders in the organization's sustainability management.

The ESG Committee consists of 3 independent directors, serving a term of office for 3 years. It is responsible for reviewing the ESG policies, goals, and performance, as well as examining ESG risk management, assessing key issues, and disclosing ESG information transparently in order to support the organization's strategic decisions. The ESG Committee meets at least once a quarter and reports the operating results to the Board of Directors at least once a year.

Performance to drive towards sustainability operations in the year 2024

1. **Reviewing key materiality assessment** obtained from stakeholder participation and sustainability issues prioritization in order to plan for improvements and raise BPP's sustainability standards in accordance with changes arising and to meet the international standards as well as to respond to stakeholder expectations.

2. **Reviewing improvements of Waste Management Policy** to be in line with the business growth and transitions. In addition, the revised ESG targets for 2024 - 2025 have also been approved to be suitable to the gas-fired power plant business in the United States of America and the business operations in the merchant market. Besides, the targets for combined heat and power (CHP) plants have been increased, such as greenhouse gas (GHG) emissions, energy consumption, water use, waste management, air pollution emissions, and power plant efficiency, etc.

3. **Following up on ESG performance** against the set targets, starting from the business unit level to the corporate level. This included looking into ESG risk management measures and guidelines for prevention and correction. The aim is to ensure that BPP be able to predict and respond to the ESG issues in a timely and appropriate manner, such as climate change risks, investment risks and business growth according to the set plan, risks associated with human resource and employee competency development as well as cyber security, etc.

4. **Following up on the process and results of creating stakeholders' participation both inside and outside the organization**, such as the employee engagement survey, the stakeholder satisfaction survey, the meetings to provide ESG information to investors, financial institutions, mass media, and other stakeholder groups. It was found that in the past year, stakeholders paid more attention to climate change and GHG emissions issues.

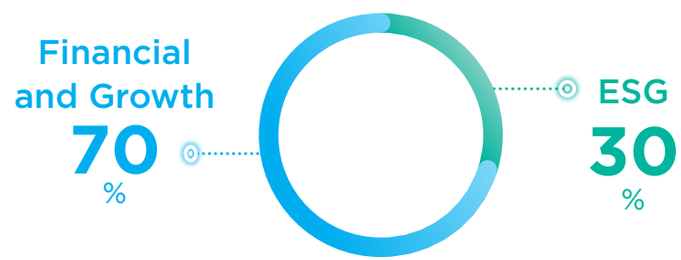
5. **Governing and providing recommendations** for executives on operating in accordance with the strategies set through the ESG Committee meetings every quarter in order to achieve the ESG goals.

Sustainability Performance Assessment

The Board of Directors determines that the key performance indicators (KPIs) for CEO, consisting of financial and growth KPIs, is accountable for 70%. Meanwhile, the ESG indicators represent 30%, which is the same as BPP's ones. The ESG KPIs include GHG emissions intensity, water consumption intensity, power plants' availability factor, work safety, employee engagement levels, the number of grievances related to code of conduct and significant ESG regulatory violations, etc.

In addition, the KPIs of senior executives are consistent with those of the CEO in order to demonstrate responsibility from every department. The CEO performance is appraised by the Board of Directors, while those of senior executives will be evaluated by CEO.

CEO's KPI



Board of Directors Nomination

BPP stipulates that the Board of Directors shall be diverse (Board Diversity) in terms of the qualification of individuals who will be nominated as BPP Board of Directors. The Board qualifications shall have skills in alignment with BPP's strategies and shall be considered based on independence, knowledge & skills, competency, experience, specific expertise in accordance with BPP's Board Skills Matrix, but shall not limit or separate other properties, whether it is diversity in terms of gender, race, nationality, religion, and age.

Board of Directors Skills Matrix

No	Name of Director	Type of Director	Sub-Committee				Diversity			Education & Experience										
			Audit Committee	Compensation Committee	GNC Committee	ESG Committee	Gender	Age	Nationality	Accounting & Finance	Management	Information Technology	Business Relations	Economics	Strategy	Power	Technical/Engineer	Risk Management	Natural Resources & Environment	Energy Technology
1	**Assoc. Prof. Naris Chaiyasoot Ph.D.**	ID	●		●		M	70	Thai	●	●		●	●	●			●		
2	**Mr. Yokporn Tantisawetrat**	ID	●			●	M	70	Thai	●	●	●		●	●			●	●	
3	**Mr. Chanin Vongkusolkit**	NED			●		M	72	Thai	●	●		●	●	●	●			●	●
4	**Mr. Metee Auapinyakul**	NED		●			M	71	Thai	●	●		●	●	●	●			●	
5	**Mr. Kijja Sripatthangkura**	ID		●		●	M	64	Thai		●		●	●	●	●	●	●	●	●
6	**Mrs. Somruedee Chaimongkol**	ED		●			F	63	Thai	●	●	●	●	●	●	●		●	●	●
7	**Mr. Voravudhi Linananda**	ED					M	67	Thai		●		●	●	●	●	●	●	●	●
8	**Dr. Kirana Limpaphayom**	ED					M	50	Thai	●	●	●	●	●	●	●		●	●	●
9	**Prof. Patchanita Thamyongkit Ph.D.**	ID	●		●	●	F	48	Thai		●		●		●	●	●		●	●
10	**Mr. Sinon Vongkusolkit**	ED					M	34	Thai	●	●		●	●					●	●
11	**Mr. Issara Niropas**	ED					M	53	Thai		●		●			●	●	●		

Remarks
ID Independent Director
NED Non-Executive Director
ED Executive Director

The Governance and Nomination Committee has been assigned to determine the criteria and processes for selecting individuals who are appropriate and worthy of being BPP's directors. The selection process is carried out by both giving opportunities to minority shareholders and major shareholders to nominate, and a selection by the Governance and Nomination Committee. This is to ensure that the overall composition of the Board of Directors is appropriate to supervise the organization in accordance with BPP's directions and strategic plans, and able to meet stakeholders' needs.

In addition, the Governance and Nomination Committee is responsible for nominating and appointing the CEO and senior executives before proposing to the Board of Directors for further appointment approval. The selection and nomination are based upon qualifications, knowledge, competencies, energy business operations, experiences in various fields, including managerial capabilities. Moreover, specific qualifications in various areas have also been considered, including conflicts of interest and leadership to drive the organization efficiently and for the ultimate benefit of BPP's businesses.

In 2024, the Governance and Nomination Committee followed the selection process in considering and screening qualifications, knowledge and skills, expertise, and experience of the person nominated to be the new CEO according to BPP's Succession Plan. Mr. Issara Niropas whose qualifications are in accordance with BPP's business strategy and direction was appointed as BPP CEO.

Board Meeting Attendance

In 2024, the Board of Directors consistently attended the BOD meeting and 4 sub-committee meetings as follows:

98.61%	The Board of Directors
100%	The Compensation Committee
100%	The Governance and Nomination Committee
100%	The Audit Committee
100%	The ESG Committee

Board of Directors' Performance Review

BPP requires that the performances of the entire Board of Directors and sub-committees, including individual directors, be evaluated. The Board of Directors resolved to approve the improvement of the Board performance assessment form to be in line with the criteria and evaluation procedures according to standards of the Stock Exchange of Thailand, the Thai Institute of Directors, and the CG principles. Every year, BPP presents the BOD performance assessment result together with recommendations at the Board of Directors' meeting. So that the Board members can jointly exchange opinions with each other and develop as well as improve various issues for maximum benefit to BPP. Details of the Board assessment results are as follows:

BOD Performance Review 2024

The Committee	Average Score (full scores of 5)	Results
The entire Board of Directors	4.79	Excellent
The four sub-committees	4.85	Excellent
Individual Directors	4.85	Excellent

The average score lower than 2.49 is in the criteria for improvement.
The average score between 2.50 - 3.49 is in fair condition.
The average score between 3.50 - 3.99 is in good condition.
The average score between 4.00 - 4.49 is very good.
The average score between 4.50 - 5.00 is in excellent condition.

Board of Directors Competency Development

In 2024, the Board members attended the competency development training as follows:

Programs	Organizers	Number of Attending Directors
Congestion Revenue Right (CRR) Trading Business Development in the U.S.A.	Banpu Power US Corporation	4
Green Taxonomy	PwC Thailand	8
IFRS Sustainability Disclosure Standard	PwC Thailand	9
Sustainability Pulse: Transition Finance	Asian Development Bank (ADB)	5
Global Trends and Thailand Implementation on Climate Change	Dr. Phirun Saiyasitpanich The Office of Natural Resources and Environmental Policy and Planning	10
Cybersecurity & AI Tech Awareness	Digital and Innovation of Banpu Group	8
Battery Energy Storage System (BESS) Strategy in U.S.A.	Banpu Group	6
Digital Quotient (DQ)	McKinsey	8
Digital Risk Awareness	Digital and Innovation of Banpu Group	7
Battery Energy Storage Business	Banpu Group	7
Geopolitics and Global Economy	Dr. Piyasak Manason Head of Economic Research, Research Group at InnovestX Securities Co., Ltd.	11
AI for Electricity Utilities Business and Sustainability	Gartner	2
Board Nomination and Compensation Program	The Thai Institute of Directors (IOD)	1
Chief Sustainability Officer (CSO)	TNI and Associates Company Limited	1
Anti-Corruption Reform for Effective Governance	Asst. Prof. Torplus Yomnak, Ph.D.	2
Economic Update and Climate Change from Financiers' Viewpoint	Standard Chartered Bank (Thai)	3

Business Ethics

Stakeholders

- Shareholders/investors, financial institutions, business partners, government, suppliers, customers, and employees.

Strategy

- Conducting business to develop, strengthen, and promote the good corporate governance (CG) system through operating business adhering to honesty, justice, responsibility, and transparency by instilling the ethical operation culture. The aim is to create confidence among shareholders, investors, customers, business partners, communities, and all groups of stakeholders in both short- and long-terms.

Key Indicators

- Employee's communication on CG principles.
- Proportion of executives and employees acknowledging in CG policy and taking a knowledge test on CG and the Code of Conduct.
- Proportion of all significant CG-related grievances to be examined and resolved.
- The number of incidents associated with violations of CG and business ethics, including corruption.

Targets

- Operating business based on good corporate governance and being part of fighting against corruption.
- All BPP's executives and employees are well aware of the CG policy and the Code of Conduct, including using them as an operating framework.
- All significant CG-related grievances are reviewed and resolved, including establishing preventive measures to cease recurrences.
- None of incidents relating to CG, code of conduct violations, and corruption.

Performance

- Completing anti-corruption policy communications to employees **100%**.
- Arranging a knowledge test, respecting to CG and Code of Conduct, with **100%** buy-in from executives and employees at the headquarters.
- **None** of significant CG-related complaints.
- **None** of the incidents involved CG & the Code of Conduct violations, and corruption.

CG Policy and Code of Conduct Manual

Anti-corruption Policy

Significance and Reporting Boundary

With an aim to operate business for the greatest benefit of shareholders, investors, customers, business partners, communities, and all groups of stakeholders, BPP is committed to running its business in alignment with the CG and Code of Conduct principles. Subsequently, BPP puts the utmost efforts to create business growth with sound return, along with conducting business with honesty, integrity as well as adhering to morality and ethics. It also operates business based on the operational guidelines according to laws and regulations related to business operations both within the country and abroad. Moreover, BPP supports the creation of good conscience in order to be an organization operating business efficiently and transparently, including driving the organization towards the sustainability leader in the CG area.

BPP communicated its Code of Conduct manual to all directors, executives, and employees as working guidelines. This is to make them perform their duties with honesty and transparency, upholding them to the rules of law, standing firms in justice and ethics, including giving top priority to customers and social responsibility, not being involved with politics and taking into account all groups of stakeholders. These also included non-involvement in human rights violations, anti-corruption, no gifts and bribes, no conflicts of interest, no actions infringing others' intellectual properties or copyrights, as well as having channels for stakeholder's whistleblowing. In addition, the Supplier Code of Conduct – a customer's practice guideline for suppliers throughout the entire supply chain, has been developed to promote and protect rights throughout the business value chain.

Management Approach

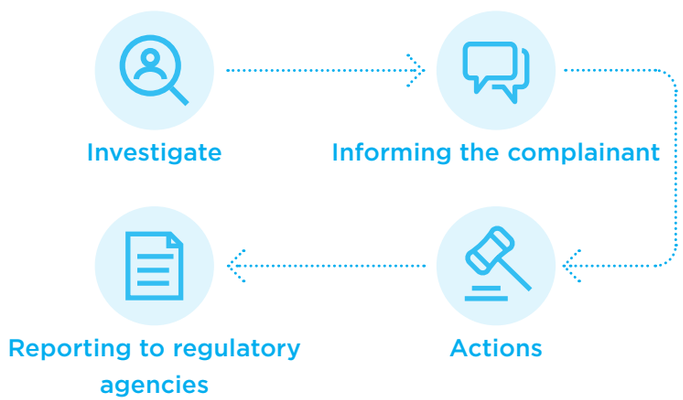
BPP determines that the Governance and Nomination Committee is responsible for regularly setting up and reviewing the CG policy and Code of Conduct manuals, including the anti-corruption policy developed in accordance with the "Corporate Governance Report for Thai Listed Companies (CGR)," the "Thai Private Sector Collective Action Against Corruption," and the Principles of Corporate Governance by the Organization for Economic Co-operation and Development (OECD), inclusion of the international criteria for sustainability assessments.The aim is to create maximum benefits to

shareholders and stakeholders and in alignment with CG principle of the Securities and Exchange Commission. BPP's CG operation procedures include:

1. Specifying policies and reviewing CG processes.
2. Setting up objectives and action plan.
3. Implementing policies and guidelines.
4. Promoting practices creating employees' awareness and understanding.
5. Following up performance in accordance with goals and making improvements by reporting the results to the Governance and Nomination Committee every quarter and the Board of Directors every 6 months.
6. Evaluating compliance with the corporate governance policy every year.

In addition, BPP organizes the training and communicates about CG and anti-corruption to its executives and employees, including arranging the knowledge test in order to create awareness and promote understandings regarding operating in accordance with the CG principle. Besides, BPP strives towards fighting against all forms of corruption by adhering to the practice guidelines related to accepting and offering of gifts, hospitality, or other similar forms of reward so as to be a clear guideline for operating business with honesty, transparency, and accountability. BPP has been consecutively renewed as a member of the Thai Private Sector Coalition Against Corruption (CAC) in the 4th quarter of 2022, for a period of 3 years.

Grievances and Anti-corruption Handling Process within the Organization



BPP is committed to conducting business based on the sustainability principles, including the process of receiving and handling complaints that must be transparent and verifiable. This is to ensure that all grievances related to the organization's operations be handled appropriately. As a result, BPP has established a standardized complaint mechanism throughout the organization. The mechanism also helps promote an ethical operations culture at all levels of the organization.

- **Investigative process:** When receiving a complaint with sufficient information or evidence to consider actions, BPP will set up an investigation committee for the specific matter. This investigation committee will conduct a thorough examination in accordance with the corporate corruption management system standards.
- **Informing the complainant:** After the investigation is completed, BPP will inform the results to the complainant. This communication will be conducted through a specifically designated channel for clarity and to maintain the complainant's privacy.
- **Actions:** Once the complaint is verified and considered, BPP will take appropriate corrective actions, depending on the severity and nature of such misconduct. The internal actions range from disciplinary measures to legal actions so as to ensure that misconduct is corrected in a timely manner and consistent with corporate values.
- **Reporting to regulatory agencies:** The investigation results and corrective actions taken are reported to the Governance and Nomination Committee on a quarterly basis. In addition, the report summarizing the complaint mechanism effectiveness in overall and significant cases, is annually presented to the Board of Directors.

Whistleblowers Protection

BPP rigorously protects the rights and safety of individuals who report violations or who participate in investigations. The protection covers various issues such as:

- Fair treatment or non-retaliation towards employees, temporary employees or external individuals who report violations/wrongdoing or those who give cooperation in the investigation.
- Maintaining whistleblower's confidentiality and identity, including details of the report unless required to disclose information or is necessary for legal proceedings.
- Enforcing penalties for unauthorized disclosure of confidential information.

Submitting a letter to the Secretary of the Corporate Governance and Nomination Committee
Banpu Power Public Company Limited
26th Floor, Thanapoom Tower, 1550 Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400

Company Website
Banpu Portal: (BPP Whistleblower)

GNCchairman@banpupower.co.th and/or
BPP_Comsec@banpupower.co.th

Complaint Receivers
Chairman of the Corporate Governance and Nomination Committee
The Secretary of the Corporate Governance and Nomination Committee

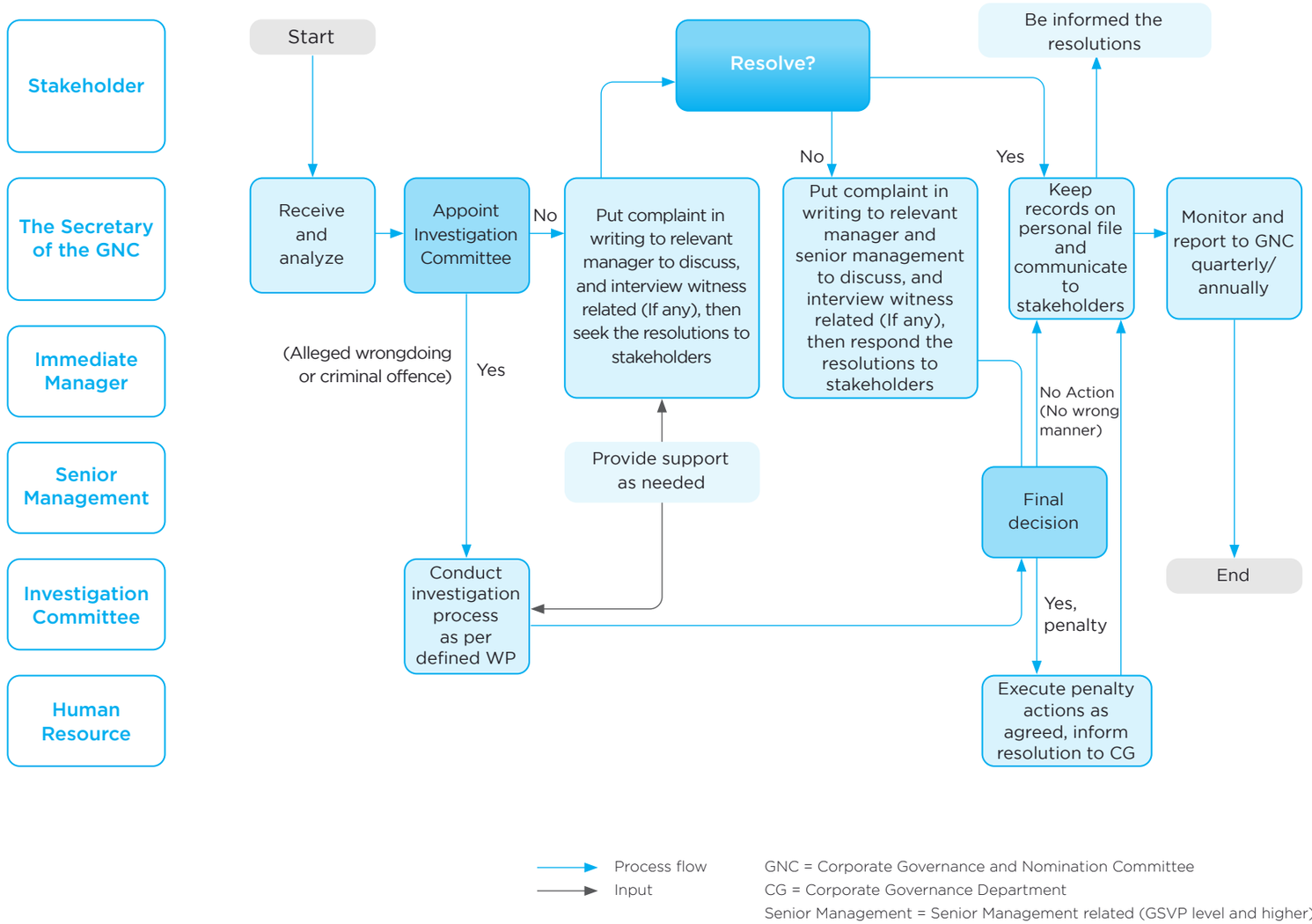
The grievances submitted will be put into the internal fraud management process, whereby the Investigation Committee will examine the complaints received in alignment with the Corporate Fraud Management guideline. The investigative results and recommendations will be presented to the CEO for making decisions and guiding appropriate corrective solutions. Furthermore, such complaints will be submitted to the Governance and Nomination Committee quarterly and will be later summarized and further handed over to the Board of Directors. If anyone commits a breach of disciplines, he/she must be responsible for compensating the damage caused by his/her wrongdoing to BPP. He/she will also be legally liable for those who have been damaged or affected by the said actions. In addition, BPP also reviews the procedures to find ways to prevent repeats.

BPP continues focusing on two-way communication with its employees. It does not only communicate about the best practices it upholds, but also encourages its employees at all operational levels to turn these best practices into the tangible actions, in alignment with the organizational standards and business ethics. The best practice is communication through internal activities and other public relations channels. Moreover, employees are also encouraged to express their opinions, make inquiries, or submit relevant grievances through various channels either emails, telephones or a whistleblowing process.

The grievances submitted will be put into the internal fraud management process

Whistleblowing Policy

Complaint Handling Process



Grievances	Number of grievances
Code of Conduct violation	0
Corruption	0
Conflict of interest	0
Briberies	0
Sexual harassments	0
Money laundry and insider trading	0
Discrimination	0
Violations of environmental, occupational health, and safety regulations	0
Personal data breach	0

Performance

- Improving the Anti-Corruption Policy by **heightening its standards in accordance with the international ones,** and in line with the principles of the Thai Private Sector Collective Action Against Corruption (CAC). The definition has been added to make it clearer, while policies relevant to bribery, charitable donations, financial support, contributions for politics and governmental officials, convenience fees, conflict of interest, including specifying protection measures for those who refuse any practices leading to corruption, have been enforced. BPP is in the process of preparing for CAC membership renewal for the second time in the 4th quarter of 2025.
- **Assessing corruption risks**, including developing preventive measures for the year 2024, **covering every business unit in all countries, in which BPP has invested**, at both subsidiary and joint venture levels. This was carried out in accordance with CAC assessment principle, which considers likelihood and impact possibly arising so as to determine measures to control, prevent, and reduce impacts resulted from such risks.
- **None** of significant incidents associated with corporate governance.
- Receiving the **"Excellence CG Scoring"** for the fifth consecutive year from the 2024 corporate governance survey of listed companies carried out by the Thai Institute of Directors Association (IOD).
- Receiving **100%** Scores from the assessment titled "Intensively Tutoring, Receiving 100 Scores," or "Tiwkhem Hai Temroi" in Thai, which was organized by the Thai Investors Association.
- Requiring executives and employees to report personal data and items potentially having conflict of interest (Conflict of Interest Report).

Zero corporate governance violation and corruption incident

In addition, BPP has cultivated a culture of ethical operation by specifying the ethics as one of the corporate core values and one of the key performance indicators (KPIs) of all executives and employees. Various activities have been continuously arranged to promote knowledge and create awareness regarding business ethics as follows:

- Organizing training on corporate business ethics for newly hired employees, with **100%** of attendances.
- Arranging a knowledge test relevant to corporate governance and business ethics, of which policies were **100%** accepted by executives and employees.
- **Promoting knowledge and practices for employees** in accordance with the corporate governance policy and code of conduct manual through E-learning and E-testing systems provided on BPP's B-SUCCESS platform.
- The 2024 corporate culture survey results conducted with employees found that the "Adhere to Integrity and Ethics," one of the attributes of "Committed" **core value was at a satisfactory level.**
- Continuing proceeding according to the practice guidelines regarding accepting and offering of gifts, hospitality, or other similar forms in accordance with the "No Gift Policy," while communicating the Anti-Corruption Policy to directors, executives, and employees across the organization, including stakeholders in order to apply such policies to tangible actions.
- **Organizing an internal communication activity titled "CG Whistle Guard,"** with an aim to create awareness and understanding about business ethics, whistleblowing policy, and whistleblower protection. This will be a tool to prevent violations and non-compliance with policies and best practice guidelines, including preventing impacts on the organization and employees. BPP encourages its employees to comply with the CG policy and Code of Conduct Manual through activities to promote understanding and awareness as follows:
  - **Communicating in the form of VDO Podcast** every Friday via the program called "Friday Morning News Program" so as to make executives and employees well aware of the CG principles.
  - **Organizing the "Interactive E-mail"** communication under the topic of "CG Whistle Guard," by presenting information relevant to Whistleblower Policy.
  - **Organizing a CG Day** activity on 7 October 2024, with the objective to create awareness and support compliance with CG principles of Banpu Group. At the event, various activities were arranged to create participation and understanding of CG principles. A special lecture on the topic of "Anti-Corruption Reform for Effective Governance" was conducted by Assistant Professor Dr. Torplus Yomnak to provide knowledge, ideas, and experiences to executives and employees across the organization.

Legal and Regulatory Compliance

Stakeholders

- The government sector, shareholders/investors, business partners, financial institutions, suppliers, customers, employees, communities, the public sector.

Strategy

- Executing the effective internal control system in both prevention and performance monitoring, categorized into several levels, including self-auditing and inspections by the independent unit directly reporting to the Audit Committee and the Board of Director.
- Developing applications to integrate the monitoring system data on legal and regulatory compliance, risks management, and corporate governance.

Key Indicators

- Coverage of internal audit and legal compliance systems.
- The number of substantial fines from legal non-compliance.

Targets

- The internal audit and legal compliance systems are executed, covering all business units where BPP has direct control.
- None of outstanding incidents associated with legal non-compliance, including significant fines.

Performance

- **All business entities**, in which BPP has management control operated in accordance with the internal audit and legal compliance systems.
- **None** of business entities, in which BPP has direct control and joint-venture companies as well as suppliers operating in BPP's operational areas, failed to comply with applicable laws.
- Joining hands with business partners to inspect internal operations and **legal compliance of joint-venture companies**, including monitoring and solving defects to meet the standards.

Significance and Reporting Boundary

Legal compliance is a fundamental principle to which BPP has adhered in running its businesses. It is also a major challenge for BPP since it has operated business in many countries where regulations are varied and changing rapidly nowadays. These include laws and policies associated with climate change and air quality improvement in large cities, which are the major driving force in rapidly changing environmental laws in the power industry. If BPP cannot adapt itself promptly, its business operations will be inevitably effected.

BPP operates businesses involved with various applicable laws and regulations to which it has to fully comply, such as the environmental and safety laws, the labor laws, the trade and investment laws, the security and exchange regulations as well as various permits, etc. This also includes operating businesses by adhering to code of conduct, for example, anti-corruption, fair competition, human rights principle compliance, and non-discrimination. Therefore, failure to comply with those applicable laws will affect BPP's sustainable business operations.

The boundary of this report covers all business units in which BPP has direct control including the three combined heat and power (CHP) plants in China, Temple gas- fired power plant in the United States of America, the offices in Thailand, China, and the U.S.

Management Approach

To prevent risks possibly having a severe impact on business operations, and to build confidence among all groups of stakeholders that BPP is operating businesses in accordance with external laws and regulations, the Global Internal Audit & Compliance (GIA&C) has been set up as a major force to coordinate and monitor legal compliance with 2 major duties, including:

1. The Internal Audit has a duty to assess internal control systems, including compliance with policies, regulations, and operational practice guidelines within the organization.
2. The Corporate Compliance is responsible for promoting, monitoring, and examining operational performances in alignment with applicable laws and external regulations.

Auditing of internal control system and compliance with policies and regulations within the organization

To ensure that all departments have operated in accordance with policies, applicable laws, regulations, and operational practice guidelines, BPP has continuously examined the operational performance and internal control systems within the organization and its subsidiary companies. Such inspections cover major legal and regulatory compliances. BPP's internal audit has been carried out based on the framework of the "Committee of Sponsoring Organizations of the Treadway Commission" or COSO, consisting of 5 areas, including internal control, risks assessment, operational control, information and communication technology system, as well as monitoring system.

Subsequently, the Internal Audit Department has been established as an independent body, with a duty to examine and assure that BPP has an effective internal control system and appropriate legal compliance. The Internal Audit Department is reporting directly to the Audit Committee and the Board of Directors.

Surveillance of environmental quality, safety, and labors as required by laws

BPP set up a surveillance system to monitor environmental qualities to comply with legal requirements and to observe legal change possibility in order to adjust itself promptly. This has implemented through a follow up carried out by the central Corporate Compliance and the internal units of its business entities. This is one of the quality, safety, and environmental management system's requirements.

Additionally, the operating performance in the areas have also been continuously examined via following activities:

1. **Internal audits implemented through BPP's measurement systems**, such as the Continuous Emission Monitoring (CEM) system and the water quality monitoring system, etc.
2. **Auditing by external agencies**, such as measuring water and air quality by external agencies, inspecting the implementation of environmental impact mitigation measures in accordance with the Environmental Impact Assessment (EIA) report, and examining the environment and workplace safety, etc.

Quality Assurance Review (QAR)

BPP together with Banpu Group has assigned all supporting units under the supervision of the Corporate Services Department, namely the Department of Occupation Health, Safety, Environment, and Community Engagement, the Information Technology Department, the Legal Affairs, the Procurement and General Administration as well as the Business Process Management Department, to assess operational qualities and legal compliance. The Quality Assurance Review (QAR) working group from Bangkok Office has been set up to inspect the operational performances of BPP's subsidiary companies in each country. Meanwhile, the QAR working group of each subsidiary will conduct a regular audit of all business units located in that country at least once a year. Since 2020, the review benchmarks have been revised, in alignment with the international standards, while a remote assessment in the form of self-audit and interviews, including a remote evidence verification were used during the COVID-19 epidemic. These benchmarks have been applied for quality assurance review up to present.

BPP has employed standardized criteria for auditing the legal compliance quality to be proper for its business operations, consisting of 5 dimensions, namely, governance, compliance risk management, culture & education, technology, and continuous improvement.

- Governance
- Compliance Risk Management
- Culture & Education
- Technology
- Continuous Improvement

Operational audits by the international certified body

BPP has consistently applied the international standards to its operational management in order to improve the operational standards and build confidence among all groups of stakeholders. Hence, BPP has employed the internationally recognized operating standard systems in its business units in order to create internal control and continuous development, namely the ISO 9001 Quality Management System Standard, the ISO 14001 Environmental Management System Standard, the ISO 45001 Occupational Health and Safety Management System, the ISO 22301 Business Continuity Management Standard, and the ISO 27001 Information Security Management System, and the occupational health and safety management systems in the United States of America, regulated by the Occupational Safety and Health Administration (OSHA).

Country	Business Unit	Certified				
		ISO 9001	ISO 14001	ISO 45001	ISO 22301	ISO 27001
China	Zouping CHP Plant	●	●	●		
	Zhengding CHP Plant	●	●	●		
	Luannan CHP Plant	●	●	●		
	Beijing Office				●	●
Thailand	Bangkok Office*				●	●

*The Headquarters in Thailand incorporated with Banpu Group

Legal compliance audits at joint-venture companies

Because BPP has no direct control in the joint-venture companies, it has cooperated with its business partners who have invested in such a business to audit legal compliance and internal management at least once a year. Moreover, the audits are required to be carried out through the risk reports covering legal compliance every quarter.

Compliance audits for major suppliers

BPP audits legal compliance of suppliers delivering critical products and services, such as maintenance and operations contractors, engineering and construction contractors. The legal compliance audit is specified in the selection and hiring conditions, while an inspection on suppliers when operating is carried out. If any defects are found, BPP will work with such a supplier to plan for corrective actions in line with applicable laws and best practices. This is part of BPP's management system standards. If any supplier's operations are found of legal violations, such suppliers will be counted as breaching the terms of employment. BPP will notify the suppliers to make improvements or may cancel the contract.

Performance

BPP **completely audited legal compliances**, most of which have been carried out online since the COVID-19 epidemic. The audit results showed **no substantial non-compliance incidents involved with violating environment, labors, societies, and human rights, including unethical operations**. In addition, the results of environmental quality measurements, such as air quality, water quality, waste disposal, and all BPP's environmental management were above the level required by applicable laws.

BPP has consistently applied the international standards to its operational management in order to enhance internal control and continual improvement

In the past year, BPP operated proactively in order to control business operations to comply with applicable laws and regulations of each country, in which BPP has invested. BPP has also reviewed the operational results continuously.

- **Heightening the operational standards by adopting the ISO 37301** (Compliance Management Systems – Requirements with guidance for use) as a framework for legal operation and compliance together with risk governance so as to ensure that the organization's legal compliance risks control be the most effective. This was implemented by using a model known as the "Three Lines of Defense" to create risk control mechanisms for operations across the organization. Meanwhile, a framework for implementation and regular monitoring was laid down, including the audits from an independent agency in order to assure the operations' achievements.
- **Developing and improving the Compliance Obligation List (COL)** by interviewing operating staff about working processes in order to compile all activities and applicable laws, with which the departments must comply. Then, every department must conduct the quarterly self-assessment report and submit it to the Corporate Compliance quarterly. Since 2021 up to present, the compliance self-assessment report system has been improved to be better and easy to report the assessment results.
- **Creating a COL for new business** entities BPP just started developing projects, including the joint-venture companies, such as the electronic vehicle business, the solar power business in Japan, and Banpu NEXT Company Limited, etc.
- **Appointing the "Compliance Champion"**, a representative from each department to coordinate, support, and operate legal compliance in order to make risk management processes be the most efficient.
- **Complying with the "Personal Data Protection Act 2019"** by announcing the personal data protection policy and practice as well as communicating with employees about this policy and practice in order to make them understand about personal data, personal collection, and a system to prevent data leakage. In addition to giving advice and suggestions on reducing risks possibly arising from processing personal data within the organization, a communication on personal data has been carried out to educate and raise awareness among employees via various channels.
- **Complying with the Royal Decree on Electronic Meetings**, such as the meeting attendees must present oneself, recording data transmission (log collection), voting either openly or confidentially, preparing meeting documents in both paper and electronic formats, recording video or audio throughout the meeting, and arranging security measurements as required by applicable laws.
- **The annual audit on legal and regulatory compliance has been continuously conducted** by the regulatory compliance agencies by using the questionnaires, remote interviews, and evidence verification via online system as the evaluation methodology.
- **Continuously conducting a meeting to assess legal violation risks** related to environment, social and governance, including labors and human rights infringements in all business entities where BPP has direct control and major joint-venture companies, such as Banpu NEXT and HPC Power Plant.
- **Developing internal media to raise awareness on legal compliance**, including providing knowledge about changes in laws and regulations for all levels of employees on a regular basis.
- **Initiating the Compliance in-Hand application** as the information and service center for legal compliance and compliance risk management, facilitating a search for legal data and various news involved with the organization. The Compliance in-Hand application is an integration of the existing systems to decrease repetitive work.
- For other businesses where BPP has less than 50% of stakes and has no direct control, **the legal and regulatory compliance monitoring has been conducted through the Board of Directors** of such companies by:
  - **Reporting risks,** including compliance risks quarterly in order to further collect and report to the Risk Management Committee and the Audit Committee.

  - **A joint audit with business partners** arranged by BPP's Internal Audit Department at least once a year. There was no significant incident related to legal non-compliance in the previous year.
- **Organizing the online compliance training** for employee representatives from all departments in the Beijing Office. The aim was to create awareness about legal compliance monitoring through working and to build understanding of efficient risk assessment and management process.
- **Conducting a legal compliance review and assessment** or the compliance verification with every department in Banpu NEXT Company Limited, emphasizing personal data processing under the Personal Data Protection Act. 2019 AD in order to mitigate risks in the event of personal data leakage and to improve working methodologies in accordance with the law.

Personal Data Protection in Thailand

Presently, Thailand has announced the Personal Data Protection Act (PDPA) 2019 – a legislation providing personal data protection according to the international standards. The appropriate remedial measures have been set for data owners whose personal data are violated.

In the years 2020 - 2024, Banpu Group has implemented personal data protection operations to comply with the international laws and to respect human rights according to the international principles, such as

- **Establishing a Privacy and Personal Data Protection Policy.**
- **Appointing a Personal Data Protection Officer (DPO).**
- **Designating a personal data protection working group**, responsible for preparing personal data protection standards in accordance with the Thailand and international laws. A communication activity was arranged to create awareness and correct understanding about personal data protection laws to avoid corporate risks. BPP plans to scale up the results by appointing working groups in countries where personal data protection laws have been enacted.
- **Announcing the privacy notice**, recording activities proceeded, stating the purpose of collecting/using/disclosing information, and determining the period for data use and deletion so that personal information are not stored longer than necessary.
- **Creating the Personal Data Protection standard Practice Manual.**
- **Developing the Data Breach Management Procedure in the event of data leakage**.
- **Implementing the Data Subject Rights Management Procedure.**
- **Organizing a crisis communication plan (BCP) exercise** in the event of a personal data breach incident in accordance with specified internal standards and procedures.
- **Creating internal media to communicate and provide knowledge** about personal data protection.
- **Building awareness among employees within the organization** through organizing the "PDPA in Action" lecture and testing basic knowledge about the Personal Data Protection Act.
- **Holding a lecture on the topic of "Navigating Data Privacy and Cyber Security in the AI Era"** in order to raise awareness of the impact on data privacy and cyber security when the AI technology is used within the organization, and when the EU AI Act or "EU Artificial Intelligence Law" comes into effect.
- **Improving risk assessment methodologies to be consistent** with secondary laws, in the event of data leakage.
- **Examining and updating data and activities associated** with Record of Processing Activity (ROPA) to be up to date.

Personal Data Protection Overseas

China

- Appointing a personal data protection working group responsible for preparing personal data protection standards in alignment with the national and international legislations.
- Communicating to create awareness and correct understanding about personal data protection laws.
- Determining a scale-up plan to appoint working groups in countries where personal data protection laws have been enacted.
- Preparing activity records and processing data inventory.
- Requesting consents from employees in accordance with the principles of employee's personal data protection.
- Organizing legal knowledge training for employees.
- Creating the Privacy Impact Assessment Report for personal data exported outside China.
- Monitoring on organic laws of Cybersecurity Law (CSL), Data Security Law (DSL), and Personal Information Protection Law (PIPL) to plan operations in accordance with applicable laws.

Vietnam

- Organizing legal knowledge training for employees.
- Preparing Record of Processing Activity (ROPA).

Market Opportunities

Stakeholders
- Joint-venture companies/ joint-venture partners, shareholders/ investors, financial institutions, customers .

Strategy
- Seeking opportunities to increase the low-carbon power generation capacity and reduce greenhouse gas (GHG) emissions.
- Focusing on enhancing operational efficiency and making profits in assets already commencing operations, as well as maintaining competitive advantages for future growth.
- Expanding investments in power business and business in the value chain in United States of America and other countries where the overall return on investments is in the acceptable level for business operations.
- Mixing investments in both thermal power businesses using high efficiency, low emissions (HELE) technology with various forms of renewable energy.
- Driving Banpu NEXT's growth by focusing on investing in renewable energy, energy technology and smart power utilization.
- Synergizing within Banpu Group, leveraging "Banpu Ecosystem" to reach the technology markets and suppliers, including seamlessly sharing energy expertise in potential countries.

Key Indicators
- Power generation capacity growth

Targets
- By 2030, increase the gas-fired power generating capacity to 1,500 MW.
- By 2030, earnings before interest, taxes, depreciation, amortization (EBITDA) of over 1.8 times when compared with the years 2022-2023.
- By 2030, heighten EBITDA proportion from non-coal relate business assets to 65%.

Performance
- The power generation committed capacity of **3,548 MWe**, consisting of:
  - Thermal power of **3,174 MWe**
  - Renewable energy of **410 MW**

Significance and Reporting Boundary

BPP focuses on producing low-carbon power and looks for opportunities to invest and grow in the electricity and clean energy generation business, using high efficiency and environmentally friendly technologies and reducing GHG emissions. This is to prepare itself for a smooth energy transition in the future, covering not only electricity production from clean energy, but also looking for opportunities to grow in new businesses associated with energy consumption management. This includes being able to easily manage energy on a single platform or "Integrated Digital Platform," resulting in efficient energy utilization, GHG emissions reduction responding to a low-carbon society in the future.

The boundary of this report covers business entities and investments BPP has direct management control, namely BPPUS Company Limited, which has invested in Temple gas-fired power plant in Texas State, the energy trading and retail electricity business in the United States of America, including a direct investment through joint-venture companies between BPPUS and BKV, and the three combined heat and power (CHP) plants in China. In addition, BPP reports the operating results of Banpu NEXT Company Limited as it is the substantial investment in the renewable energy business, energy technology, and smart energy utilization, which is a significant part of BPP growth.

Management Approach

BPP continues seeking business growth opportunities under its plan to scale-up the growth of electricity generation and distribution business. Currently, BPP invests directly and indirectly in more than 40 power plants in strategic countries with economic growth and electricity demand, both in the Asia-Pacific region and United States of America, with an equity-based production capacity of 3,584 MWe.

BPP is focusing on expanding quality megawatts along with low-carbon energy production. Thereby, it is putting great emphasis on a balance of business portfolios between the thermal power business using high efficiency, low emissions (HELE) technology and tirelessly driving the growth of renewable energy and energy technology businesses, in tandem with taking into account the impact of climate change and supporting a low-carbon society. It is also looking for more investment opportunities in the merchant market in potential countries, aiming to increase its gas-fired power generation capacity to 1,500 MWe by the year 2030.

To ensure a smooth transition, BPP puts top priority to balance a transition of current energy patterns to a low-carbon energy in the future by using the following key operating principles:

- **Conducting a feasibility study on using more environmentally friendly energy** to generate electricity, such as using biomass energy in combination with coals used in the CHP plants in China, etc.
- **Driving the energy technology business growth via investing in Banpu NEXT** and seeking opportunities to expand BPP businesses towards the integrated energy services manufacturer in response to higher demand for clean energy.
- **Making investment decisions by thoroughly examining** both the return on investment and the risks relevant to environment, social and governance (ESG) issues, especially those related to climate change.
- **Stabilizing and improving the power plants' efficiency** in order to deliver power to customers continuously as well as to create competitive advantages on the energy trading business in the merchant market, which is likely to replace the Power Purchase Agreement (PPA) in various countries.
- **Investing in the retail power business in Texas State, the United State of America** through a joint venture with BKV, a company in Banpu Group, having expertise in natural gas production. This is an expansion of business investment in the power generation value chain. Currently, there are approximately 57,000 customers.
- **Utilizing digital technology to build competitive advantages**, such as using data to analyze the power plant's energy trading in the merchant market, providing customers the power generation services in conjunction with applications for use in energy management, after sales services, and using applications together with vehicle services via an investment through Banpu NEXT.

Performance

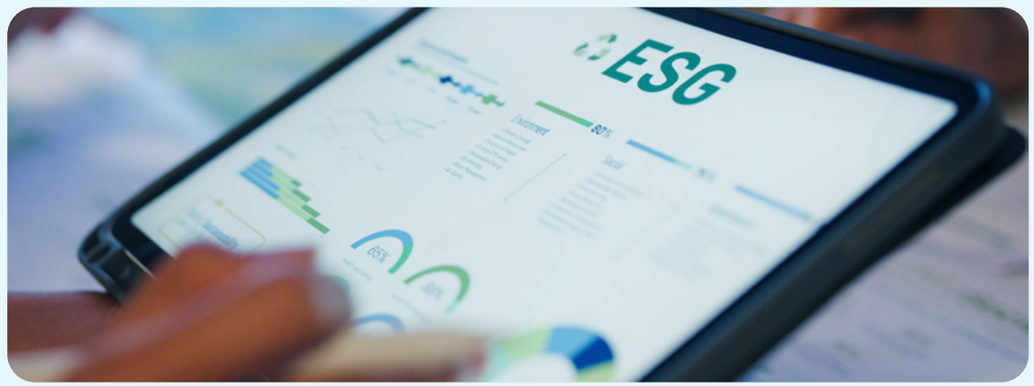
- Recording the equity-based power generation capacity of **3,584 MWe**, divided into 3,174 MWe from thermal power plants, and 410 MW from renewable power plants.
- **Establishing the Energy Transition Unit** to study investments in low-carbon energy production business and energy production lowering GHG emissions.
- **Setting up the BPPUS Power Trading Unit** to operate the power trading business in the U.S., starting from the Congestion Revenue Right (CRR) trading, which is a financial contract used to prevent risks resulted from power supply congestion in the merchant market.
- **Achieving investing in the low-carbon power generation projects through Banpu NEXT, such as:**
  - **Investing in Amp Co., Ltd. (Amp Japan) in Japan**, which is a developer of renewable energy projects from an early stage until commercialization. This joint investment aims to develop 800 MW of solar and wind energy projects towards AMP Japan's production capacity target of 2 GW before the turn off the decade.
  - **Joining hands with Dura Power to officially inaugurate** DP NEXT battery assembly factory in Amata City Industrial Estate, Chonburi Province. The factory can assemble more than 15,000 battery packs per annum according to market demand. It plans to expand its maximum production capacity to 1 GWh in the future to support the rapidly growing electric vehicle market demand in the region. 80% of all batteries produced will be sold domestically, while the remaining 20% will be exported to markets in Southeast Asia, India, and the U.S.
  - **Establishing a joint venture company with Marubeni Corporation** (Marubeni, a Japanese integrated trading and investment business conglomerate, and Fuyo General Lease Co., Ltd. (Fuyo), a leasing and financing services for corporate clients, to offer comprehensive commercial electric vehicle (EV) fleet services in Thailand.
  - **Signing a cooperation agreement with Koh Samui Municipality** to conduct a feasibility study and develop a master plan for driving the Samui Island towards a low-carbon tourism city. It aims to enhance potential and increase opportunities in environmentally friendly tourism.

Banpu NEXT invests in 'Amp Japan', an integrated renewable energy producer, to strengthen renewable energy business in Asia Pacific.

Banpu NEXT, announced a 35% investment in Amp Co., Ltd. (Amp Japan), a leading company in Japan and a developer of renewable energy projects from an early stage until commercialization under Amp Energy Company Limited. This is a joint investment with the Asia-Pacific Sustainable & Decarburization Infrastructure Equity Fund (SDIEF), a fund sponsored by Aravest and SMBC Group. Banpu NEXT will use an investment amounted to USD 35 million.

"Amp Japan" is a subsidiary of Amp Energy – a global energy transition platform. It is headquartered in Tokyo and was established in 2016. Amp Japan is developing and building over 300 MW of solar farm projects and currently developing an additional 800 MW of solar and wind energy projects. The company is a pioneer in Japan's Corporate Power Purchase Agreement (Corporate PPA) and other Non- Feed-in Tariff (FIT) markets, including utility and small-scale solar, wind energy, and battery energy storage systems.

Integrating ESG criteria into investment decision-making processes



BPP recognizes the integration of ESG principles and perspectives into the business development process. This does not only create sustainability but also helps build competitive advantages and confidence among investors and society as a whole. As a result, BPP has taken steps to improve and upgrade the investment decision-making process in 2024 when the ESG criteria were integrated into the procedure of considering projects under making investment decisions so as to make them clearer, for example:

- **Carbon pricing**
- **Water management**
- **Air emission control**
- **Waste management**
- **Safeguarding of biodiversity**
- **Employee engagement and contractor management**
- **Occupational health and safety management**
- **Community engagement**
- **Business ethics**
- **Supply chain management**
- **Risk management, including climate-related risks**
- **Business continuity**

This is to ensure that various projects can create long-term values, along with reducing negative impacts on the environment and society as well as operating in accordance with CG principles transparently and efficiently.

Risk Management

Stakeholders

- Shareholders, financial institutions, business partners, customers, and employees.

Strategy

- Utilizing risk management to help make decisions and operate in accordance with the plan to mitigate risks associated with businesses.
- Implementing key risk indicators (KRIs) to mitigate risks within the organization.
- Enhancing risk management systems in alignment with international standards.

Key Indicators

- Coverage ratio of risk management system.
- Coverage ratio of risk management system associated with ESG issues.

Targets

- Risks management system coverage ratio equals to 100% by 2025.
- The coverage ratio of risk management system relating to ESG issues is equivalent to 100%.

Performance

- The implementation of a risk management system covered all business units, which equaled **100%**.
- The coverage ratio of risk management system involved with ESG issues was **98%**.

Significance and Reporting Boundary

Presently, various environments and situations are changing rapidly, with tons of uncertainties, such as economic fluctuations, regulatory changes or technological advancement, and increased expectations regarding environment, social, and governance (ESG). These factors inevitably affect business operations. As a result, risk management plays a key role in corporate governance. It is also an important mechanism BPP has used for operating its businesses to prevent losses and to stably grow in both strategies and investments. In addition, risk management helps the project construction and production operations meet the set target and create sustainable values for stakeholders.

The boundary of this report covers all business entities, in which BPP has direct control and joint-venture companies.

Risk Management Policy

Management Approach

BPP's risk management structure is divided into 2 levels, including the corporate level and the business unit level.

- **Risk management at business unit level:** For flexibility and being able to monitor various situations closely, a risk manager of each asset will analyze and assess risks of such an asset and report the risk management progress and performance to the "Sustainable Development and Risk Management" Department, responsible for compiling and summarizing each asset's risks before submitting the findings to the Risk Management Committee.
- **Enterprise risk management:** The Risk Management Committee is playing a key role in enterprise risk management. The committee consists of the Chief Executive Officer (CEO) and senior executives from all departments, excluding the Internal Audit Department, to ensure independence in the auditing process.

The Risk Management Committee has the following key responsibilities.

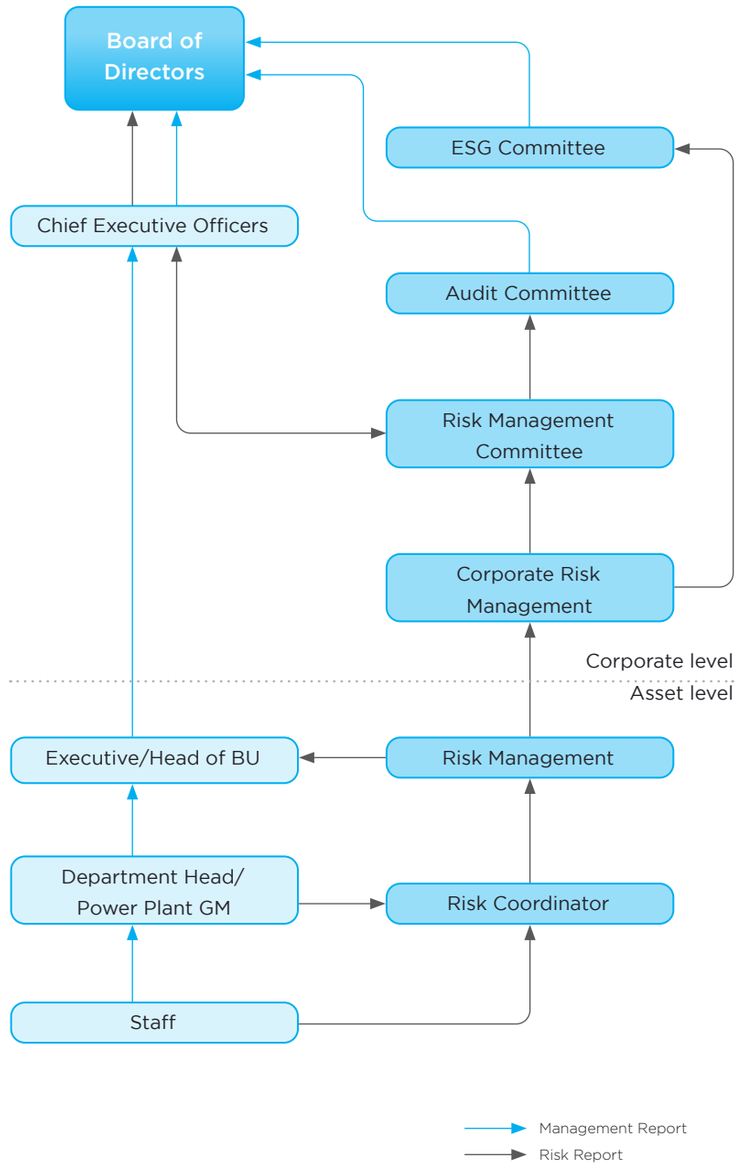
1. **Reviewing and mitigating risks** to ensure that the core enterprise risks be regularly identified and evaluated. In addition, the Risk Management Committee will provide effective risk mitigation measures or plans to be able to achieve BPP's goals, both in the short- and long term.
2. **Providing support relevant to policy** to mitigate risks efficiently, ranging from the business unit level to the corporate strategy level.

3. **Supporting internal and external resources** is necessary for efficient risks management.
4. **Creating awareness of risk management** in all BPP's business units and in the businesses in which BPP has invested.
5. **Reporting risk management results** to the Audit Committee and the Board of Directors every quarter.
6. **Presenting the risk management policy**, including setting up criteria for risk assessment.

BPP has announced its risk management policy and updated it regularly. The Sustainable Development and Risk Management Department was established with direct responsibility on coordinating with all departments and driving effective risk management throughout the organization. A mechanism to find out and identify key business risks covering the areas of ESG has been implemented, while the impact likelihoods to stakeholders have been assessed to consider their priorities prior to defining them as an enterprise risks list. The responsible person has also been assigned to mitigate risks to be at the appetite level, including following up on risk mitigation progress and continuously reviewing risk issues.

Moreover, BPP has integrated the principle of risk management into various procedures within the organization to raise awareness of business uncertainties and promote risk management as part of its operations, in preparation for any events arisen in the future. Risk management is also a key factor in reviewing the core materiality and the annual operating plan.

Risk Management Structure



Risk Category	Risks	Association of Sustainability Materiality Issues
1. Strategic Risks	• Risks associated with investments and operating business in accordance with the plan set. • Risks relating to human resources management and competency development to facilitate future growth. • Risks associated with investments in emerging business and technologies. • Risks associated with increasing stringent ESG requirements globally.	• Marketing opportunities • Innovations • Climate change and GHG emissions strategies
2. Financial Risk	• Exchange rate risks • Interest rate risks	• Risk Management
3. Operational Risk	• Risks associated with power generation • Commercial risks (electricity and coal prices, and account receivable management) • Social, environmental, occupational health, and safety risks • Risks related to natural disasters • Risks associated with cyber security and safety as well as personal data protection • Value chain risks	• Electricity generation • Energy consumption efficiency • Safety • Cyber security
4. Regulatory and legal compliances related risks	• Risks associated with regulatory and legal compliances and changes.	• Climate change and GHG emissions strategies • Electricity generation
5. Emerging risks	• Risks associated with geo-economic confrontations • Risks of misinformation and disinformation.	• Marketing opportunities • Cyber security

Operating Mechanisms

For maximum efficiency on risk management, BPP has integrated risk management into its business strategic plan and operations, by applying risk correlation principles to analyze correlations of each risk in both positive and negative aspects. In addition, key risk issues have been used for assessing core sustainability materiality to manage such risks.

BPP's risk management process begins with defining objectives according to the business plan and allocating them into the business unit level. To identify risks, the operational level employees who have knowledge and expertise in each business unit will determine operational risks under his/her areas in detail. The likelihood and impacts of such risks will be assessed along with preparing practice guidelines to mitigate risks possibly arising. Then, the risk management results will be reported to his/ her supervisors and risk management manager to gather each business unit's risks before submitting them to the Sustainable Development and Risk Management Department where all business unit risks are compiled into the enterprise-level risk report. The enterprise risk report will be quarterly presented to the Risk Management Committee, the Audit Committee, and the Executive Committee.

Additionally, the Risk Management Department will report the ESG associated risks to the ESG Committee to acknowledge and govern ESG risks.

BPP has thoroughly assessed risks related to new business investments, both on investment returns and ESG issues of each new project. The risks assessment result and risks mitigation plan will be presented to the Investment Committee to ensure that risks related to BPP's investments be assessed and managed properly.

Performance

Presently, the risk management systems cover all BPP businesses, including projects under development. The Key Risk Indicators (KRIs) have been identified, while the risk appetite principles have been incorporated into BPP's risk assessment and management. The results have been reported to the Risk Management Committee and the Audit Committee quarterly in order to mitigate risks efficiently, covering ESG aspects.

BPP has also employed risk management systems covering all its business units. The risks management operations have risen in alignment with BPP's increased investments with the following results.

- Implementing the risk management systems in all business units, equivalent to **100%.**
- Coverage ratio of risk management systems related to ESG issues was accountable for **98%.**
- **Assessing strategic risks for the 2030 strategic planning** to make a prudential strategic plan with flexibility and meeting BPP's long-term growth.
- Corruption risk assessment reports of each asset were compiled and reviewed, **while guidelines for managing corruption risks were created** in preparation for a renewal of the Private Sector Collective Action against Corruption (CAC) membership in the year 2025.
- **The workshop** to assess core materiality and corporate risk issues was organized.
- **Arranging training on "ESG Risks and Trends in Power Business"** for BPP's Board of Directors, executives, and employees.
- Raising awareness related to risks and sustainability by **summarizing business news and changes occurring around the world and communicating such news and movements** to executives and employees across the organization every month.

Emerging Risks

Based on BPP's risk assessment results, the following two issues have been identified as emerging risks or existing risks with significant changes:

1. Geo-Economic Confrontations Risks

In the previous year, geopolitical conflicts continued, while elections were held in many countries. The political tensions in various regions were also more severe. These factors caused social divide, competition and polarization between superpowers, leading to more violent global geo-economic confrontations, which are expected to continue for many years to come. As a result, many countries are still facing increased challenges in economic cooperation. This affects the economic system or causes uncertainty in the economic direction, such as fluctuations in interest and exchange rates, an increase in inflation or higher energy prices, as well as governmental policy changes, etc. All these negative factors have a direct impact on business operations. Since BPP has operated businesses in many countries, it is inevitable to avoid such impacts. Moreover, it has business operations in distinct mighty nations, both China and the United States, which may be subject to trade or investment barriers. Subsequently, it will have a negative impact on generating income or growing the business as targeted. Other factors affecting BPP's businesses include an investment uncertainty derived from interest rates, production costs, customers' energy and electricity demand.

2. Risks of Misinformation and Disinformation

Nowadays, the use of digital technology, including artificial intelligence (AI), has become more widespread. AI has been applied to manage data, analyze, process, and build on further to benefit business in terms of management and marketing, including helping develop information and quickly reach many target groups. Sometimes media users or those involved may not check the facts, while bad people are trying to take advantage of such technology by intentionally distorting information and publishing such disinformation to cause damage to businesses or organizations. For example, spreading fake news about the environmental impacts of energy projects, making accusations about operations, or attacking one's image through presenting false information on social media, etc. Using misinformation or disinformation is likely to continue in the future. Such a factor can affect BPP's business operations, image, and credibility, such as losing trust from stakeholders, lacking confidence from investors, or affecting future business opportunities. If false information is not corrected quickly, it may make BPP face both financial and legal damages.

Risk Mitigation and Measurement

Geo-economic Confrontations

- **Studying economic trends, monetary policy, and trade measures in the countries where BPP has invested** to analyze investments and develop a business plan that accommodates uncertain situations while remaining consistent with BPP's long-term goals and strategies.
- **Closely and regularly monitoring and analyzing significant global megatrends**, such as technological advancements, market directions, and various related factors, to assess their impact on the business and long-term strategic plans.
- **Establishing internal measures to enhance operational flexibility**, enabling rapid adaptation to uncertain situations to ensure stability and security for BPP.

Risks of Misinformation and Disinformation

- **Creating transparency and trustworthiness by continuously reporting or disclosing information related to ESG operations and operating results in reliable channels**, such as annual reports, sustainable development (SD) reports, or BPP's official website. This includes using/publishing information having accuracy verified by internal and external organizations.
- **Creating clear communication channels and communicating them proactively** by regularly publishing up-to-date operational results through BPP's official website. This includes continuously monitoring BPP's news from external media in order to be able to quickly respond to the dissemination of inaccurate information by other media. This can be done by publicizing accurate information through reliable channels.
- To prevent risks from using AI that may occur, Banpu Group **has created a policy on the use of AI, using the policy as a guideline for applying AI in operations within the organization**.

Materiality Review & ESG Risks Workshop 2024

On 11 January 2024, BPP organized the Materiality Review & ESG Risks Workshop 2024 for its executives and employees. **The aim was to allow participants to jointly review key materiality related to BPP business.** At the workshop, participants had a chance to discuss and give opinions on the ESG related trends and risks of the electricity business driven by both internal and external factors. Key materiality and risk issues were also used as data for assessment and management so as to help BPP in adapting itself and formulating strategies to appropriately respond to enterprise risks, both in the short- and long- terms.

ESG Summit 2024

BPP has placed great importance on environment, social, and corporate governance (ESG). **It aims to create understanding and awareness of ESG risk management** and set strategic directions to create sustainable growth. In October 2024, BPP's board of directors and involved employees attended the ESG Summit 2024 held by Banpu Group. The summit was attended by 142 people onsite and 216 people participating via online channels. The summit was focused on decarbonization, and using artificial intelligence (AI) for sustainability, including creating readiness for cyber security as well as personal data protection. At the event, executives, employees, and international consultants jointly exchanged their views.

ESG Risks and Trends in Power Business

In November 2024, BPP organized both on-site and online training on the topic of "ESG Risks and Trends in Power Business" for its board of directors, executives, and employees. External speakers from leading consulting firms were invited to give a lecture and provide knowledge about the use of artificial intelligence (AI) for sustainability in the electricity business (AI for Electricity Utilities Business and Sustainability), including examples of its use, such as: AI technology in the power business, Using AI to drive ESG operations, Risks arising from AI. **The training made participants have a greater understanding about AI and able to apply knowledge gained as a guideline for their work. This included setting up corporate strategic goals** to help BPP conduct business and grow sustainably. Moreover, 85.7% of participants were satisfied with this training. They agreed that the training was able to increase their understanding regarding how to apply AI for sustainability. Besides, they will have more awareness on the use of AI in the future.

Business Continuity Management

Stakeholders

- Financial institutions, customers, shareholders, business partners, employees and suppliers

Strategy

- Employing the business continuity plan (BCP) covering key business functions.
- Continuously conducting a BCP exercise at the corporate and country levels.
- Appropriate and adequate information is communicated to the public in times of crisis.

Key Indicators

- Proportion of business units conducting the BCP exercises at the corporate and/or country levels.

Targets

- Proportion of business units arranging the BCP drills at the corporate and/or country levels accounts for 100% in the years 2021 - 2025.
- Proportion of critical business functions conducting the BCP exercises is over 75% in 2024 and 100% in 2025, respectively.

Remark: The 2021 - 2025 targets cover the headquarters in Thailand and China, the three combined heat and power (CHP) in China, exclusion of the gas-fired power plant in United States of America.

Performance

- Proportion of business units conducting the BCP exercises at the corporate and country levels was **100%**.
- Proportion of critical business functions organizing the BCP drills represented **88.3%**.
- Conducting the BCP exercises at the country-level at the headquarters in Thailand and China.
- Exercising the crisis communications plan at the headquarter in Thailand.
- Bangkok Office and Banpu Group as well as China Office **were certified with the ISO 22301** Business Continuity Plan from certified body.

Significance and Reporting Boundary

Rapid and unpredictable changes from both natural disasters, such as earthquakes, epidemics, and human actions, such as terrorism, cyber-attacks, protests, fires, chemical spillages, etc., are all risks affecting BPP's business operations and stakeholders. Subsequently, preparedness for efficiently and immediately responding and restoring operations in a timely manner, with appropriate and adequate communication during emergencies will help reduce BPP's losses. Moreover, it makes BPP resume normal operations in a short period of time, reduce impacts and build confidence among its stakeholders.

The boundary of this report covers business entities, in which BPP has direct control, including the three combined heat and power (CHP) plants in China and the offices in Thailand and China, but exclusion of the businesses in United States of America.

Management Approach

BPP has implemented a business continuity management (BCM) system based on the principles and requirements of the international standard - ISO 22301, covering the process of identifying key work processes, business impact analysis, and risks assessment as well as developing business continuity plans (BCP) and simulation exercises. Main objectives of BCM operation include:

Response: Effectively responding to the incidents and preventing extended damage with appropriate communications to internal and external stakeholders.

Recovery: Being able to restore key essential activities to quickly deliver products and services within the time satisfied by stakeholders.

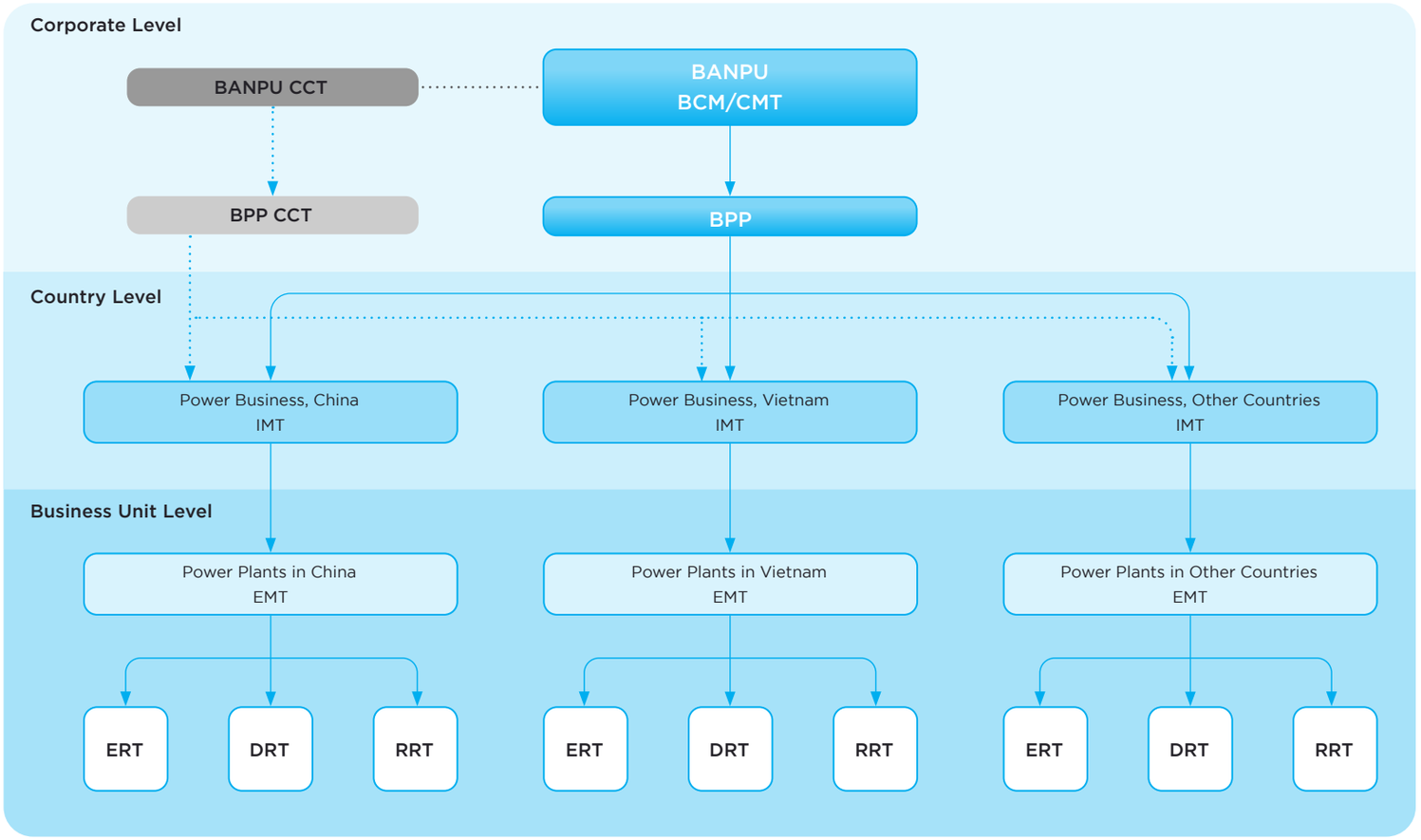
Restore: Restoring all BPP's activities promptly within the time accepted by stakeholders.

A crucial challenge for power business continuity is the damage of large power plants where activity recovery takes time. As a result, BPP puts great importance on risks management, preventing and controlling incident's severity impacts, as well as determining appropriate and timely communication channels with public.

BPP's BCM has been integrated into Banpu Group. It is supervised and managed by Banpu Group, with BPP's CEO serving as a member of the Crisis Management Team (CMT) and designated as the event commander responsible for providing information to the public during a power business crisis. This integrated BCM operation reflects a seamless way of working, optimizing operational resources for maximum effectiveness.

BPP continuously conducts the annual BCP exercise at both corporate and country levels. The drill is arranged alternately, while surveillance and review of the system efficiency is done through internal audit system and management's reviews annually. Moreover, each business unit is encouraged to share what they have experienced and learned in response to various threats to apply those lessons learned in the context of each country.

Business Continuity Management Structure



CMT: Crisis Management Team IMT: Incident Management Team CCT: Crisis Communication Team EMT: Emergency Management Team ERT: Emergency Response Team
DRT: Disaster Recovery Team RRT: Relative Response Team

The BCM of Banpu NEXT, a joint venture company, has been integrated into Banpu Group. Meanwhile, the BCM of joint-venture power plants, namely BLCP Power Plant and HPC Power Plant, is not included in this structure, as they are governed by their respective Boards of Directors. Consequently, BPP has assigned a liaison officer to report data and current situations in preparation for communications related to BPP as a joint-venture company. Additionally, both power plants have their own BCP and conduct BCP drills annually.

Performance

In 2024, BPP was able to operate continuously without any business interruptions due to a long-time implementation of BCM system and BPP's well preparedness by exercising and improving its BCP relentlessly. Key actions carried out in 2024 included:

- The proportion of business units conducting BCP exercises at both corporate and country levels was **100%**. This was achieved through BPP, together with Banpu Group, conducting a corporate-level BCP simulation exercise at the Bangkok Office on September 22, 2024. Moreover, **the country-level BCP drill was held on October 15, 2024, at the office in China**, covering management procedures in accordance with the business continuity plan and the requirements of the ISO 22301 standard.
- The proportion of critical business units conducting BCP exercises was **83.33%.** This was calculated based on 5 out of 6 critical business functions from the three CHP plants in China.
- BPP's crisis communication team (CCT) participated in **the crisis communication plan exercise** at Bangkok Headquarters on 1 November 2024. The aim was to help executives and employees to regularly practice following the crisis communication plan guideline.

Crisis Communications Team (CCT) Exercise

On 1 November 2024, BPP organized the CCT simulation exercise at Bangkok Headquarters. The aim was to prepare BPP's CCT to communicate information to stakeholders appropriately in the event of crisis. The exercise simulated an acute flooding situation in the power plant area and nearby. The acute flood affected the operations and caused damage to the community in the area.

The exercise helped executives and employees understand and experience communicating during the crisis as well as improving the crisis communications practices to be more efficient.

Executives and employees understand and experience communicating during the crisis as well as improving the crisis communications

Business Continuity Plan (BCP) Drill at Country-Level

To ensure that BCM team is ready to respond to any crisis

BPP places top priority on business continuity management (BCM) of its business units in all countries. On 15 October 2024, the country-level BCP simulation exercise was organized at Beijing Headquarters so as to ensure that its national-level BCM team is ready to respond to any crisis, including having abilities to restore business operations according to the BCP set. The exercise simulated situations involved with a cyber-attack, such as an employee's computer being locked and unable to be used, while a threat on a ransom in exchange for unlocking and restoring data in a specified time.

The training results were in line with the set objectives. The national-level BCM team was able to respond to the situation in a timely manner and was able to successfully restore data within 1 hour and 52 minutes, faster than the recovery time target set. The success of this country-level BCP exercise builds confidence in managing high-risk situations, being able to maintain operations' continuity, and protects stakeholders from potential operational disruptions. In addition, BPP can use the exercise results to improve its BCM practices and to manage risks related to operations and cyber security better.

Process Improvement and Innovation

Stakeholders

- Employees, contractors, customers, business partners, shareholders, investors, and the government sector.

Strategy

- Promoting innovation development and production process improvement to enhance competitive advantages and production stability.
- Driving changes in working process towards a completed digital transformation.
- Establishing innovation as one of the corporate core values.

Key Indicators

- The power plants' overall efficiency (OE)
- The cybersecurity and privacy maturity scores (Banpu Group's total scores).

Targets

- The power plants' OE is more than 47.7 - 75.0%.
  - CHP plants > 75.0%
  - Gas-fired power plant > 47.7%.
- The cybersecurity and privacy maturity score is no less than 2.5 (from a full score of 5).

Performance

- The power plants' OE was **48.10 – 84.24%**.
  - CHP plants **84.24%**
  - Gas-fired power plant **48.10%**
- The overall cybersecurity and privacy maturity score was **4.0**.
- Thailand and Beijing offices were certified by the ISO 27001:2013 Information Security Management System Standard.

Information and Cybersecurity Policy

Innovation Policy

Banpu Group's Artificial Intelligence Policy

Significance and Reporting Boundary

"Innovation" in BPP's context is the design and selection of high-efficiency, clean, and environmentally-friendly technology properly for each project. Innovation is also an initiative to enhance work processes to be more efficient in the long-term through conducting a study to improve the procedures continuously. This may include applying emerging technology to current tasks. Therefore, the development of production processes and innovations are the major drivers in increasing competitive advantages, especially using digital technology in the production process, supply chain management, and energy trading.

The boundary of this report covers the offices and power plants, in which BPP has direct management control, including the three CHP plants in China, and Temple gas-fired power plant in the United States of America.

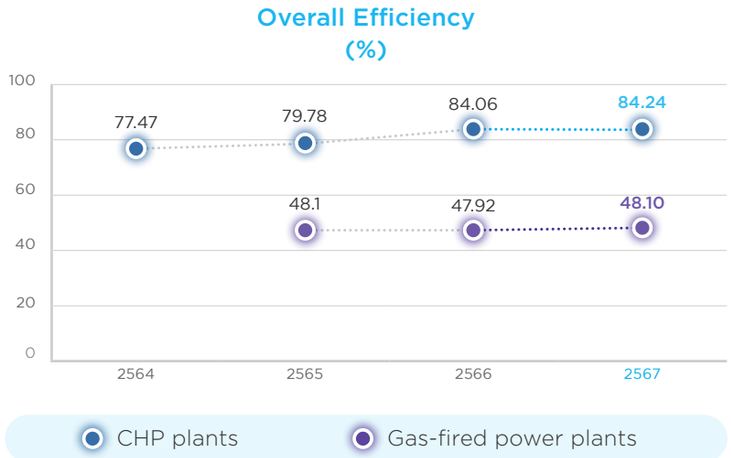
Management Approach

BPP's core business is electricity and energy generation, which must be continuously delivered to customers at a reasonable price. As a result, the main target of production process improvement and innovation development is to enhance the power plant's reliability and efficiency based upon the principle of "Operational Excellence" in combination with innovations carried out through employee's participation at all levels in order to identify problems possibly arising in the working processes and improve them continuously. The process begins with training all employees to have the ability to identify problems possibly arising in their responsible working processes. In addition, the knowledge exchange forum has been arranged between business units in order to create mutual learning. They also have the opportunity to present their own projects initiated and put them into practice with fruitful results.

BPP has driven the innovation towards materialized actions as follows:

- **Fostering innovative value as one of the 3 corporate culture's shared values** through creating various activities to make all employees understand the importance of applying innovation to their daily work.
- **Determining channels for employees to present their innovative projects systematically** to turn those initiatives into tangible practices. The project initiated will be, then, presented to the committee for budget approval for further implementation. BPP will consider all aspects involved.

- **Promoting learning within the organization in the format of a Learning Application Project**, by encouraging employees from various departments to jointly work on projects via using creativity and innovation.
- **Collaborating with Banpu Group to establish the Innovation Committee**, consisting of employee representatives responsible for promoting innovation within the organization, including internally exchanging innovations through knowledge management.
- **Annually organizing the Banpu Global Innovation Awards** to present the outstanding innovation projects initiated and implemented across the organization and at joint-venture companies. At the event, a panel of judges will assess the success of the projects implemented to provide financial returns to the project operators. The criteria used for projects' assessments include the value of investment, risks, financial returns and environment, social and governance (ESG) improvement issues, including sustainability and an expansion to other production units for further executions.



Performance

Implementation of production process improvement and innovation projects at power plants

BPP promotes the process improvement and innovation development projects in all of its power plants, with the main objective to enhance competitive advantages and increase the power plant's efficiency and stability in the long-term. In 2024, BPP set a target for power plant's overall efficiency of more than 47.7 - 75.0%, with over 75.0% from CHP plants, and above 47.7% from gas-fired power plants.

Due to the continuous improvement of production processes and innovations, the power plants, in which BPP has direct control, were able to produce electricity efficiently and stably as planned. In the past year, the CHP plants and gas-fired power plants recorded the overall efficiency of **84.24%** and **48.10%**, respectively, which were in line with the targets set.

The process improvement and innovation projects implemented include:

Zhengding CHP Plant

- The project to conserve thermal energy for maximum efficiency
- The Smart Water management project to increase water resources use efficiency holistically
- The Biomass co-firing project to blend coal and biomass together to be used as fuel at the power plant

Luannan CHP Plant

- The Waste Heat Recovery by Utilizing De-White Facility project
- The Digital Twins project to enhance production efficiency and decrease air pollutants

Zouping CHP Plant

- The improvement of boiler scale removal system project
- The project to recover residual heat from waste gas to increase boiler efficiency

Temple gas-fired Power Plant

- The project to increase power plants' reliability

BLCP Power Plant

- The Bio-Carbon Capture by Algae project
- The Smart Approaches to Energy Saving project

HPC Power Plant

- The Advanced Leakage Monitoring and Alerting software (ALMA) project
- The project to increase boiler's combustion efficiency

Cooling Panel Improvements at HPC Power Plant

HPC Power Plant has been collecting and analyzing its efficiency data since 2019 and found that the main factor affecting its efficiency is the deterioration of the cooling panels and water nozzles, causing the cooling tower unable to work at its maximum potential.

After studying and designing the new heat sinks and nozzles with UV resistance, increasing the heat exchanger area with corrosion resistance, HPC Power Plant has improved its efficiency and **reduced coal consumption by 440,000 tonnes per year, or saved approximately USD 3.87 million per annum**.

Reduced coal consumption by 440,000 tonnes per year, or saved approximately USD 3.87 million per annum

Advanced Leakage Monitoring and Alerting Software (ALMA)

HPC Power Plant has been using the boiler tube leak detection and warning software or the "Advanced Leakage Monitoring and Alerting Software" (ALMA) since 2022. Training has been arranged for production staff to provide them with knowledge and understanding about the power plant's abnormality detection when a boiler tube is leaking, so that they can use the software effectively.

The ALMA is a digital technology application in the field of artificial intelligence (AI) to help detect leaks in boiler pipes, allowing for the detection of leak signals 3 - 5 days in advance. The model is developed from machinery statistics and other related data, such as sound signals, water volumes added into the system, etc. Then, an alert signal will be sent to the production staff, allowing the power plant to make a decision to plan maintenance in advance and reduce the loss from fines due to a short notice on power plant's shutdown.

In 2024, ALMA provided early warnings of irregularities, which helped **reduce fines for breaching the electricity purchase agreements by around THB 25 million.**

Reduce fines for breaching the electricity purchase agreements by around THB 25 million

Information Security Operations of Banpu Group

In addition to improving production processes and innovation development, BPP also focuses on transforming its operations by using digital technology to drive the business towards the future and developing a cyber-risk prevention system for power plants. This covers both Information Technology (IT) and Operational Technology (OT) as the power business is associated with local security, which may be the target of cyber-attacks or threats. Therefore, it is necessary to conduct risk assessments, test security, and establish up-to-date preventive measures. A Global Information Security Officer (GISO) is employed with assignments/duties and responsibilities in supervising information security, digital technology risks, and legal compliance covering the entire Banpu Group. In the past year, the following significant operations were carried out:

- **The 2024 information security and risk assessment** was conducted by an external consulting firm, with an overall score of 4.0 (out of 5), up from 3+ in the previous year. This improvement resulted from more stringent measures to prevent cyber risks from the third-party risk operations.
- **Organizing a business continuity plan (BCP) exercise** to test the response plan in case of a business and personal data breach, with the following objectives:
  1. To test the relevant incident response plan and business & personal data leakage plan.
  2. To review and make understanding about the concepts, roles, and responsibilities of the relevant employees.
  3. Examining the effectiveness of internal communications.
  4. To improve the recovery system methodology to be consistent with current risks and technologies in order to reduce the Recovery Time Objective (RTO).

ISO/IEC 27001:2022 ISO

- **Started implementing the 2022 ISO 27001 Information Security Standard to help strengthen** information security management, reduce risks, and protect data from theft at Bangkok and Beijing offices.

Emphasizing the transformation of operational processes by leveraging digital technology to drive the business into the future.

Personal Data Protection and Cybersecurity

Cybersecurity governance and compliance with relevant laws are important for business operations to create sustainably added value for all stakeholders. BPP has, therefore, raised the governance level in 3 important areas as follows:

1. The issuance of a policy to supervise the use of AI technology within the organization based upon the principle of Responsible Use of AI.
2. Unify governance to cover Information Technology (IT), Operational Technology (OT), and AI Technology.
3. The introduction of international standards for governance, including the ISO 42001:2023 AI Management System (AIMS) for artificial intelligence management systems and the ISO 27001:2022 Information Security Management System (ISMS) for information security management.

In 2024, BPP operated with key plans in 4 target groups as follows:

Emerging Technology: Banpu Group issued a policy to regulate the use of AI technology within the group. The assessment of risks related to AI technology having an ability to create new data (Generative AI) was conducted, while the scope of power plants' cyber risk assessment has been continuously expanded, including the implementation of safety standards.

Business Resilience: The system recovery methodology was designed to be in line with existing risks and technologies to reduce the Recovery Time Objective (RTO). BPP also assessed the feasibility and benefits of having cyber insurance in the future.

People are a key element in cyber security. BPP, therefore, has designed a topic to create cyber security awareness to make employees well aware of new threats from the latest technologies, especially from AI, in alignment with different target groups. The aim is to build upon building awareness to changing behaviors to create a Cyber Culture.

Third-Party: Security and privacy risks from third parties have been managed by adding liability to the contracts for suppliers who need access to BPP's information systems. In addition, BPP has established the criteria to control requests for access to its high-privilege data to be appropriate and traceable.

The implementation of this plan enabled BPP to receive a cybersecurity and privacy maturity score of 4.0 (out of 5) in 2024, up from the 3+ level in 2023.

Bug Bounty Program to Strengthen Cybersecurity

Banpu Group has been implementing the Self-Hacking by White Hackers or the “Bug Bounty” project since 2022. This project is currently in its 3rd consecutive year to strengthen cybersecurity and maintain the resilience of digital services for business operations. The project works with a group of ethical hackers to assess security vulnerabilities around the clock, under strict operating rules and strict confidentiality agreements. The project's cybersecurity vulnerability assessment covers companies in Australia, China, Indonesia, Thailand and the United States of America to achieve the 3 key goals:

1. An assessment of security vulnerabilities from external party use.
2. Continuously searching and monitoring to close risks in time.
3. Being ready to use emerging technologies that will be used in BPP group.

Continuous Self-Hacking by White Hackers in 2024

Searching for cyber risks of digital services within BPP Group

Cyber risks protection

Discovered assessment results of 40 items related to business risks and risks mitigation.

(Covering all business units including: Australia, Indonesia, Thai, and the United States of America)

- Process Improvement
- Controlling quality of digital development system.
- Risk management regarding external party/ people.
- Existing information technology assets management

The results of this project will be used to improve the efficiency of cybersecurity governance processes in a sustainable manner in 3 areas:

1. Quality Assurance of digital system development
2. Third-Party Risk Management (TPRM)
3. IT Asset Management (ITAM)

Supplier Management

Stakeholders

- Suppliers, contractors, customers, financial institutions, business partners, and the government sector.

Strategy

- Developing the Supplier Code of Conduct to cover the areas of business ethics, environment, and society.
- Managing suppliers sustainably in all business units by integrating the ISO 9001 Quality Management System Standard into the ISO 45001 Occupational Health and Safety Management System Standard, and the ISO 14001 Environmental Management System Standard.
- Engaging with suppliers and promoting environment, social and governance (ESG) operations with suppliers.

Key Indicators

- Proportion of new suppliers chosen by using the ESG criteria.
- The number of complaints on supplier management associated with ESG.
- The number of incidents suppliers violating laws, human rights, labor practices, and environment.
- Proportion of local procurement value.
- Suppliers' work safety such as fatality caused by work, and Lost Time Injury Frequency Rate (LTIFR).

Targets

- None of ESG grievances regarding supplier management.
- None of incidents related to suppliers violating laws, human rights, labor practices, and the environment.
- None of supplier's fatalities caused by works.
- Suppliers' LTIFR equals to zero.
- Proportion of Critical Tier-1 Suppliers is completely assessed on ESG risks by the year 2025.
- Proportion of contracts determining ESG criteria completely by the year 2025.

Performance

- **Zero** ESG-related complaint regarding supplier management.
- **No** incidents suppliers violating applicable laws, human rights, labor practices, and environment.
- **None** of the fatalities resulted from supplier's works.
- Suppliers' LTIFR was **zero**

Sustainable Supply Chain Policy

Supplier Code of Conduct

Significance and Reporting Boundary

BPP operates its businesses by placing great importance on sustainable supply chain management because it realizes that supplier's operations have an impact on product and service quality. The supplier is a key factor in creating good reputation and competitive advantages.It is also playing a key role in the ESG operations directly and indirectly. Subsequently, BPP focuses on creating participation and promoting suppliers' ESG operations to create mutual benefits.

The boundary of this report covers the business entities, in which BPP has direct control, namely the three combined heat and power (CHP) plants in China and the gas-fired power plant in the United State of America.

Management Approach

To achieve its goals to create a sustainable value throughout the supply chain, BPP developed the operating guidelines for supplier management in accordance with the Sustainable Supply Chain Policy. The Supplier Code of Conduct was also established to clearly communicate BPP's expectations regarding suppliers. Moreover, BPP has focused on operating with its key suppliers categorized based upon the criteria, such as trading values, product specificity, which may be limited in the market, and suppliers playing a key role in ESG operations at BPP's operational areas. BPP has 3 main supplier groups, including:

Fuel suppliers | Machinery suppliers | Contractors

1. **Fuel suppliers:** Major raw materials for BPP's thermal power are coal and natural gas. The supplier management mitigates risks associated with quality coal supply with prices and quantity in line with the production plan of each production period, which is a key success factor for availability and reliability management.

Additionally, coal and natural gas are categorized as commodity products, the prices of which are volatile with demand in the global market. Meanwhile, coal and natural gas production and transportation from its original production sites may be affected by severe natural disasters caused by climate change.

2. **Machinery suppliers** are manufacturores of machinery parts specific for the power plant's maintenances, which cannot be purchased in the general market.

3. **Contractors:** Contractors are BPP's key trading partners working in the operational areas. As a result, they directly affect the production operations and operational safety. BPP's contractors consist of operation & maintenance contractors, maintenance and service contractors, and engineering & procurement and construction contractors.

BPP manages its suppliers as following approaches:

- **Fairly and transparently selecting suppliers** in accordance with the Code of Conduct principles.
- **Choosing the suppliers by using the Supplier ESG Checklist** for considering selecting suppliers in order to make joint operations the most beneficial and sustainable.
- **Integrating the safety, occupational health, environment, social, and governance targets** into the supply chain management strategies and other relevant policies.
- **Driving all production units towards sustainable supplier management** through the integration of the ISO 9001 Quality Management System Standard, the ISO 45001 Occupational Health and Safety Management Standard, and the ISO 14001 Environmental Management System Standard.
- **Annually examining and reviewing supplier's qualifications related to ESG** to be able to identify and mitigate ESG related risks in the supply chain properly, and to report the result to executives of each production unit for acknowledgement.
- **Promoting joint working with suppliers adhering to the ethical principles with social and environmental responsibility**, respecting human rights, and complying with supplier code of conduct, as well as any associated policies.
- **Employing the procedures to ensure that suppliers comply with applicable laws, and criteria of local regulations, as well as international labor standards**, such as setting up the supplier selection criteria, stipulating selection criteria in the procurement contracts, and examining the environment, social and governance operations of critical suppliers.
- **Fostering local procurement** to create economic contributions to the areas where BPP has operated.
- **Establishing the Supplier Code of Conduct**, giving top priority to suppliers running business directly with BPP or the critical tier-1 suppliers. The Supplier Code of Conduct has been translated into Thai, English, Chinese, Vietnamese, and Japanese languages to communicate efficiently.
- **Supporting suppliers to expand the implementation of sustainable practice guidelines throughout the supply chain** for continuous and effective development.
- **Setting up the key performance indicators and keeping monitoring on operations continuously** so as to ensure that suppliers operate in accordance with the standards and applicable laws, for example inspecting the operation sites of suppliers and contractors.
- **Arranging a safe working environment for contractors**, organizing trainings to educate them about safety and workplace environment, as well as assessing risks on operational activities or Job Safety Analysis (JSA) prior to starting to work.
- **Regularly examining and reviewing contractors when performing their duties in the area** to ensure safety and improve operational quality consistently.
- **Regularly disclosing the supply chain's sustainable performance** to stakeholders.
- **Informing suppliers about the schedule set for submitting invoices and receiving payments for the entire year**. BPP will collect invoices and make payments on the 2nd and 4th week of each month. The payment will be made to suppliers within a period of 30 - 45 days according to the invoice submission cycle.

Performance

In 2024, **BPP received zero grievance related to supplier management and had zero incidents**, **in which Critical Tire-1 Suppliers were involved in violating the ESG-related laws.** The contractors working in the three combined heat and power (CHP) plants in China performed operations safely, being able to achieve the safety targets as follows:

- **Zero** fatality resulted from work.
- **Zero** Lost Time Injury Frequency Rate (LTIFR)
- **Zero** Total Recordable Injury Frequency Rate (TRIFR)
- **Zero** High-Consequence Injury Rate
- **Zero** Fatality Caused by Occupational Ill-health
- **Zero** Recordable Occupational Ill-health Frequency Rate
- **Zero** Tier-1 Process Safety Event Rate

BPP manages its key suppliers as follows:

- **Determining clear criteria and qualifications** for choosing suppliers in accordance with BPP's sustainability policy and Code of Conduct's principles, such as specifying clear criteria and qualifications for selecting suppliers to construct a power generation unit to scale-up production capacities, and to improve the power plants in China. This included supplier operations related to quality, ESG, etc.
- **Conducting procurement transparently** via the bidding processes, clearly determining the evaluation criteria in all steps by communicating details clearly and notifying suppliers through online systems. For example, a coal procurement system of the three CHP plants in China was conducted through the Centralized Coal Procurement to select suppliers whose qualifications meet BPP's requirements.
- **Reviewing supplier's qualifications and histories on operations, expertise**, reputation, and legal compliance to reduce operational risks prior to conducting procurement. This includes arranging the supplier's site visits in the areas, such as key component manufactures for the power plants, and coal mines, etc.
- **The three CHP plants in China drive the contractors' operations through employing the systems.** The three plants have been certified for ISO 9001 Quality Management System Standard, ISO 45001 Occupational Health and Safety Management System Standard, and ISO 14001 Environmental Management System Standard consistently. Furthermore, these three power plants have created safety awareness among their contractors regularly, including improving the safety management system, arranging regular training and verifying contractors' operations to create joint-operational improvement plans. Besides, lessons learned from accidents in China's energy industry have been summarized while a safety culture has been cultivated in all levels. This is considered as part of implementing these management systems to achieve their goals.

Zero complaints related to supplier management and zero incidents involving critical tier-1 suppliers related to legal violations

Supplier Risk

BPP has assessed risks related to suppliers. This assessment is part of the enterprise risks assessment, which is reported to the Risk Management Committee and the Audit Committee every quarter. Risks occurred from key suppliers are as follows:

Risks	Management Approach	Results of Economics Related Risks Assessment
Critical Tier-1 Supplier		
1. Suppliers are unable to deliver coal according to the price, quality, and transportation time requirements.	• **Employing the IRIS application** to help select appropriate and sufficient coal suppliers for each power plant area. This will help reduce the risks associated with having few suppliers. • **Entering the long-term sales contracts** with coal suppliers having reliable performance. • **Expanding the coal storage area** to enable procurement at reasonable prices.	Level 4
2. Suppliers are unable to deliver natural gas that meets the price, quality, and delivery time requirements.	• **Signing a forwarded purchase agreement** to buy natural gas in advance at an amount sufficient to produce electricity for customers who have entered a forwarded contract to purchase electricity.	Level 4
3. A shortage of machinery parts due to procurement delays.	• **Prepare the power plant's critical spare parts** at a level suitable and sufficient for use. • **Having a site visit to suppliers' operational sites** that sell critical machinery parts.	Level 4
4. The operation & maintenance contractor failed to meet the power plant's reliability and safety goals.	• **Organizing training to develop the knowledge and abilities of personnel** to have specific expertise in production control and maintenance and to share knowledge between BPP Group and contractors. • **Implementing a safety and occupational health management system**, together with creating a safety culture and creating awareness among employees and contractors regularly and continuously.	Level 4
5. The maintenance and service contractor was unable to carry out the maintenance according to the quality, safety and time specified.	• **Organizing training to develop personnel's knowledge and competencies** to help them to be equipped with specific expertise in production control and maintenance. The training allowed participants to share knowledge between BPP Group and contractors. • **Implementing a safety and occupational health management system** together with cultivating a safety culture and creating awareness among employees and contractors regularly and continuously.	Level 4
6. Design and construction contractors failed to meet the targets set.	• **Selecting contractors equipped with appropriate expertise** and experience. • **Developing contracts and operation plans** specifying the quality and safety goals, including setting a clear timeline for delivering works and services. • **Continuously communicating with suppliers and inspecting and following up** on operational progress regularly.	Level 3
7. Suppliers cannot operate in compliance with applicable laws and ESG operation standards.	• **Inspecting operations of suppliers at the operating areas**, as well as reviewing work improvement and correction consistently. • **Communicating about BPP's Supplier Code of Conduct** to suppliers for acknowledgement.	Level 2
Non-Critical Tier-1 Supplier		
1. The sub-contractors do not comply with the laws or ESG operating standards.	• **Selecting suppliers whose qualifications meet the criteria** set and comply with applicable laws and ESG regulations. • **Examining subcontractor's operational quality** at the operation sites, including following up on work improvement regularly.	Level 1
2. Fuel transportation suppliers do not comply with legal or ESG operation standards.	• **Choosing suppliers whose qualifications meet the criteria** set and comply with applicable laws and ESG regulations. • **Inspecting suppliers' operations continuously** in order to ensure that they operate in accordance with the agreement and the ESG regulations.	Level 1

Remarks: The impact levels are as follows:
Level 1: Very low, such as operations can function normally.
Level 2: Low, such as some businesses have minimal impacts.
Level 3: Moderate, such as businesses, is affected at a level of adjusting the operating plan.
Level 4: High, such as business operations have been faced with serious obstacles.
Level 5: Very High or a crisis, such as operation halts.

Suppliers Selection According to ESG Guidelines/Practices

In 2024, BPP upgraded its supplier selection process by using the Supplier ESG Checklist into consideration when selecting suppliers. The aim was to ensure that every supplier in the supply chain conducts business based on social and environmental responsibility with ethical manner. Moreover, the supplier's qualifications on ESG are regularly verified and reviewed Meanwhile, the evaluation form having criteria in various dimensions, such as occupational health, safety, and environment, service quality, location availability, technical features, and environmentally friendly management, has been improved.

Such an approach helps BPP in building confidence in its supplier's quality, in terms of operational standards, transparency and compliance with applicable laws and regulations. Moreover, it helps reduce the supply chain risks, such as human rights violations or violations of ESG laws. This approach also supports the organization's sustainability goals and increases business opportunities, as well as creating competitive advantages in a global market, which transitions towards sustainable business operations.

Organizing activities to promote Safety, Occupational Health, and the Environment (SHE) for the power plants' contractors.

Since the sustainable safety culture cultivation requires cooperation from all parties, especially from contractors who play the key role in operating in accordance with the production, occupational health and safety goals, BPP's joint-venture power plants have continuously organized the activities to promote safety, occupational health, and the environment (SHE) for contractors annually. The aim is to clarify policies and goals, in parallel with organizing activities to promote knowledge and create awareness throughout the year.

On 27 November 2024, BLCP Power Plant organized the SHE DAY activity under the concept of Collaboration to Safe! with many people attending the event. Various activities organized at the event included the lecture on techniques for building a safety culture with a topic of Safety Culture Build Up Tips from the experts; the stress management discussions; the photo, videos, and slogans contests to promote a culture of safety; and the RC Walk Rally to promote cooperation between employees and contractors, etc.

On 9 December 2024, HPC Power Plant arranged the SHEQ, Innovation & KM Sharing Day 2024 for its employees and contractors under the concept of Empowering Excellence, which focused on operating towards a mutual success in occupational health, safety, and sustainability of the power plant and contractors.

Customer Management

Stakeholders
- Customers

Strategy
- Managing customers of production units sustainably via an amalgamation of the ISO 9001 Quality Management System Standard, the ISO 45001 Occupational Health and Safety Management System Standard, and the ISO 14001 Environmental Management System Standard.
- Integrating customer management into the code of conduct, environmental, and social policies.
- Conducting a customer satisfaction and expectation survey for continuous improvement.

Key Indicators
- Customer satisfaction scores.
- Proportion of customers' complaints corrected in a timely manner.
- The number of customers' grievances related to privacy data protection.
- The number of customers' complaints associated with safety and environment of product use.

Targets
- Zero customers' complaint related to customer's privacy data protection.
- Customers' satisfaction score > 85%
- Proportion of customers' grievances resolved in a timely manner equals 100%.

Performance
- **100%** of customers' satisfactory scores.
- **None** of complaints from customers relating to customer's privacy data protection.

Significance and Reporting Boundary

BPP dedicates to generating and supplying power and other forms of energy with quality and reliability according to the international standards and customers' needs. Realizing that BPP's operations have stabilized the nation's electricity grid system and are the key factor for the industrial sector's production, leading to better community's well-being, it is, therefore, the responsibility of BPP to deliver products meeting customer's expectations. Consequently, BPP has operated its businesses with honesty and integrity. It has also kept its customers' data in accordance with the standards set. Moreover, the international standards have been integrated into its power generation systems so as to keep the quality and stability of its electricity and energy to meet customer's expectations and create trusts from customers.

The boundary of this report covers all business entities, in which BPP has direct control, namely the three combined heat and power (CHP) plants, the gas-fired power plant, and the power trading business in the United States of America.

Management Approach

BPP's customers are divided based upon business characteristics and operating countries as follows:

CHP Plants in China	Gas-fired Power Plant in the U.S.	Power Trading Business in the U.S.
• Governmental agencies, electricity state enterprises, and legal entities, in which the government is a major shareholder, primary buyers under the Power Purchase Agreement (PPA). • Steam and power buyers from the industrial sector. • The trading sector is buying cold water for a cooling system in the commercial areas. • Retail customers in the residential areas and communities who purchase steam during the winter. • Customers buy fly ash and waste for a purpose of reusing or recycling.	• Customers in the merchant market in Texas State, overseen by the Electric Reliability Council of Texas (ERCOT). The power plant will supply electricity via the grid lines according to ERCOT's orders in real time.	• Retail customers who require various forms of energy, such as sources of fuel and renewable energy, certification standards, quantity of carbon emissions per unit, prices per unit, etc.

Due to the greater variety of businesses, BPP's customer management differs in each country. For example, major groups of customers generating income for the CHP plants in China are the government agencies and state enterprises, which are the main power purchasers under the long-term power purchase agreements, as well as the industrial sector buying steam. As a result, the ISO 9001 Quality Management System Standard has been used in customers management in the production units having to deal with various customers. Furthermore, the principle of quality management is Customer Focus and having a process to understand needs and expectations between manufacturers and customers. Major operations carried out are as follows.

Determining operational targets in alignment with customers' needs and expectations.

Communicating about customers' needs and expectations throughout the organization to create the right understanding among employees.

Measuring customers' satisfaction regularly to promptly response to customer's needs.

Making a systematic customer relationship continuously.

Paying attention to a balance on corresponding to the needs between customers and other stakeholders.

According to the power trading business in the United States of America, BPP focuses on mitigating risks possibly arising since electricity buyers are retail customers with various power demands, such as:

- **Determining the Retail Risk Management Policy** to serve as a guideline for the Retail Pricing Committee and management team in managing market risks of retail electric providers.
- **Specifying the Pricing Policy** to be used as a guideline for setting the daily trading prices. The policy requires to check customers' quotation if it is accurate or up to date, while keeping the price difference according to the targets set.
- **Setting the Credit and Collection Policy** to mitigate credit risks from entering the sales contracts with customers. The policy requires inspecting and evaluating the customer credit rating of retail customers to be used as a guideline for analyzing customer reliability before entering a contract. This will also help in getting a good customer group in the long run as well as reducing the chance of bad debts and write-offs in the future, including limiting losses possibly arising from data disclosure by the contracting party.
- **Utilizing technology to help analyze the market needs** to be used for designing proper packages, services, and prices to meet customer's needs.
- **Creating a customer journey** for retail customers. The customer journey is primarily used for customer management operations and helps in understanding various types of customer behaviors, ranging from before using the service, during using the service, to after services. It can be used to determine marketing strategies and operations in each service phase to create good experience for customers. In addition, BPP has set the key performance indicators (KPIs) measuring both quantitative and qualitative results for every service phase. Then, the results gained will be analyzed and used for service development and improvement to meet customers' needs as much as possible, achieve maximum customer satisfaction and retain customers.

Moreover, BPP also focuses on creating relationships with customers, treating them as the partners of mutual success. This is done by giving top priority to delivering sustainable value to every customer and considering 4 main values as follows:

1) **Product value:** Employing high efficiency, low emissions (HELE) technology and having an ability to control air and water quality as well as managing the environment to meet international standards.
2) **Service value:** To create service values, BPP has improved its production efficiency to be available and reliable in alignment with customers' needs. Its operations are also flexible in reaching customers' demand, including controlling product quality to meet standards and agreements made with customers.
3) **People value:** To build people values, BPP encourages its employees to develop their knowledge and skills. Moreover, the corporate culture filled with qualified staff daring to solve the customers' problems properly and quickly, has been cultivated.
4) **Reputation value:** In order to gain good reputation, BPP operates its businesses professionally in accordance with the code of conduct and good corporate governance.

Additionally, BPP is closely monitoring legal and policy changes to adapt itself to any changes in energy demand from the government sector, aiming to reduce greenhouse gas (GHG) emissions from power and energy generations. It is also an opportunity to transform the business towards renewable energy and energy technology derived from market demand and government support.

Performance

Throughout the year 2024, the three CHP plants in China were able to maintain their availability factor (AF) in accordance with customer's needs from both public and private sectors. The three power plants were still able to continue their production consistently, being able to deliver power, steam, chilliness/heat to customers as agreed. In the past year, key operations carried out were as follows:

- **Conducting customer satisfaction survey with the industrial customers** who are the main purchasers of BPP's three CHP plants. This was part of the implementation of the ISO 9001 Quality Management system. The survey results were as follows:
  - The survey covered **100%** of the total number of customers (a total of **53 customers**).
  - The response rate was **100%**.
  - The customer satisfaction scores were **100%**.
- The power trading business in the United States of America **conducted a satisfaction survey with retail customers**. The customer satisfaction average scores were **95 %** which is higher than target.
- **Zero customers' grievance involved** with personal data protection
  - Communicating about personal data protection and raising awareness of keeping and using customer data.
  - Improved information security in the offices in Thailand and China and received ISO 27001 certification for information security management, strengthening the data security system, reducing risks, and protecting data from theft.
- Zhengding CHP Plant has been **selected by the government sector to operate a solar rooftop project in Zhengding City**. The power plant targets to install solar panels on the roofs of governmental buildings, factories and communities.
- Luannan CHP Plant, which serves **40 industrial steam customers**, has improved its operations in response to customer demand by quickly increasing steam production capacity to meet customer needs. The production capacity can be increased within 4 hours right after receiving an order from customers. As a result, customers can carry out their production agilely. The power plant also provides technical and engineering advice to help customers operate their production smoothly. This has resulted in a high satisfaction rate among all customers, representing **100%** of the satisfaction survey conducted in 2024.
- Temple gas-fired power plant, which is in the ERCOT merchant market, **operates in accordance with the forwarded power-trading plan** to respond to the needs of customers who want to determine their stable electricity costs in advance.

- The power trading business in the United States of America was able to achieve the target to create a customer base of **not less than 57,000 customers** in 2024. In addition, it continued to develop service channels and received additional complaints from customers. To accommodate the expansion number of customers, the number of call center staff has increased, while the customer portal has been created as the information center. Moreover, additional service channels have been employed to receive comments from customers. The aim is to help BPP know and analyze the problem quickly, able to find the root causes and provide solutions for those complaints quickly. Moreover, various suggestions from customers can be used for improving services responding to customer needs more efficiently.

Various suggestions from customers can be used for improving services responding to customer needs more efficiently.

ENVIRONMENT

Banpu Power

leverages High Efficiency, Low Emissions technologies to drive excellent environmental operations.

Electricity Generation

Stakeholders

- Customers, employees, business partners, shareholders, and financial institutions

Strategy

- Scaling-up a power generation capacity by investing in cutting-edge, clean and environmentally friendly technology.
- Creating confidence in power plants' reliability and efficient availability in response to customers' demand through keeping the power plant's maintenance in accordance with international standards.
- Improving power plants' efficiency via the use of innovations.

Key Indicators

- The power generation capacity growth
- The availability factor (AF)
- The forced outage factor (FOF)

Targets

- Increase a generation capacity of 1,500 MW by the year 2030 through investment in a low-carbon energy generation and the energy transition.
- The AF is over 85 - 90%.
  - CHP plants > 90%
  - Gas-fired power plant > 85%
- The FOF is no more than 2.5 - 5.0%.
  - CHP plants < 5%
  - Gas-fired power plant < 2.5%

Performance

- Recording a power generation capacity of **3,584 MW**
- Posting the AF of **88.53 - 94.15%**.
  - CHP plants **94.15%**
  - Gas-fired power plant **88.53%**
- The FOF was **0 - 0.77%**.
  - CHP plants **0%**
  - Gas-fired power plant **0.77%**

Significance and Reporting Boundary

In response to a transition to clean energy production in the future, BPP has established the Beyond Quality Megawatts strategy, focusing on creating growth in a low-carbon business by using cutting-edge, clean and environmentally friendly technologies. This includes scaling-up electricity generation from renewable energy, energy technology, and smart energy utilization. In parallel, BPP has put great importance to continuously improve its existing power plants to enhance their power generation stability and availability at the highest level, with high availability factor (AF) and low forced outage factor (FOF), inclusive of an ability to generate power at maximum efficiency according to the designed value. In addition, BPP has enhanced its ability to compete in the merchant power market in the future, along with delivering electricity and energy in various forms to support smooth economic and social development during the energy transition period.

The boundary of the report covers the power plants where BPP has direct management control, namely the three CHP plants in China and Temple gas-fired power plant in the United States of America. For other power plants, which are joint-ventures, in which BPP has no direct control, only their performances are disclosed on the performance table to be beneficial for stakeholders who want to know about such information. The performance of joint-venture power plants, however, is not consolidated in BPP's power generation database.

Management Approach

- **Production:**

  BPP puts great emphasis on creating stability and improving the power plants' efficiency to continuously deliver energy to customers, by strictly operating productions according to operating procedures. This includes keeping quality maintenances according to specified standards, and determining criteria for supervision, surveillance, audits, risk assessments, as well as regularly monitoring the power plants' operating performances. It also focuses on supply chain management so that fuels and raw materials can be supplied to the production line according to the action plan set.

BPP has improved the efficiency of CHP plants by increasing their flexibility to consume a variety of fuels, such as industrial waste, low-calorific coal, and biomass, etc., to help reduce production costs during the high coal prices period and to be able to decrease GHG emissions. As for a gas-fired power plant in the United States of America, flexibility is a must to adjust its generation capacity to meet demand in the volatile merchant power market. Moreover, the availability factor must be maintained to be able to supply electricity according to the contract terms and to hedge against risks on selling electricity in the merchant market. This includes increasing the opportunity to make profits during periods of peak demand for electricity or when other power plants have production shortages.

BPP has employed management standards regarding quality, occupational health, safety, and environment in all its CHP plants in order to operate their productions according to the entire operating processes. It also promotes innovation utilization, especially digital technology to be applied to measure various parameters in real time to use such data to create productions readiness and stability.

BPP communicates its production and machinery maintenance plans with customers, suppliers, and contractors earlier to create effective collaboration. Collaboration is very significant in maintaining the power plants' reliability and AF. The annual machinery maintenance is, therefore, the main activity making the engine's conditions efficient with a long-service life. As a result, the machines can be operated continuously according to customers' needs and the plans set.

Machinery maintenance of thermal power plants is carried out in accordance with the maintenance standards set by each power plant. The process includes selecting skilled maintenance contractors and evaluating their performances for improvement. Each year, the power plants will set a schedule for performing their maintenance during the time when there is less energy demand in the area. The aim is to prepare machinery before entering the peak energy demand period. Moreover, all power plants avoid carrying out maintenance simultaneously across all production units since they still must supply power and steam to customers even during their maintenance periods.

- **Scaling-up production capacity and investments:**

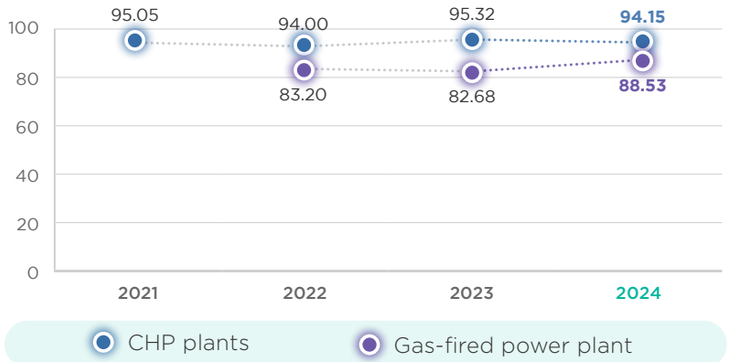
BPP has focused on investing in the power plants equipped with "High Efficiency, Low Emission (HELE)" technology, in alignment with the Beyond Quality Megawatts strategy, especially the gas-fired power plants, the renewable energy power plants, the energy technology, and the smart energy utilization. These investment inputs are in the forms of both business operations with direct management control, and joint-venture companies. Prior to investing, each project must be thoroughly examined regarding both risks and return on investments, including assessing the project's environment, social, and governance (ESG) factors. Additionally, the variants related to ESG issues, such as carbon prices, greenhouse gas (GHG) emissions intensity, etc. are taken into consideration for each investment to ensure that BPP invest in the business able to grow sustainably. Meanwhile, risks are mitigated to an appetite level. Moreover, BPP is looking for opportunities to expand into the integrated energy provider and the low-carbon energy producer to response to increasing demand in clean energy in the future.

BPP has focused on investing in the power plants equipped with "High Efficiency, Low Emission (HELE)" technology, in alignment with the Beyond Quality Megawatts

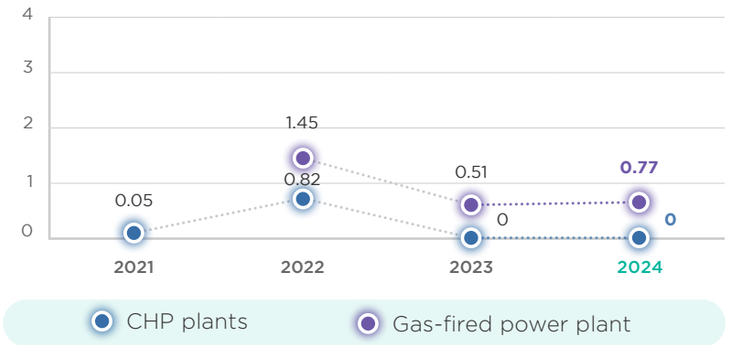
Performance

- BPP has maintained and improved its power plants continuously to be able to generate electricity consistently and to keep the AF meeting customers' demand. Consequently, the power plants' AF **88.53 - 94.15%**, and the FOF **0 - 0.77%**.
- The CHP plants in China recorded the AF **94.15%,** and FOF **0%**, achieving the targets set. This was due to the power plants' efficient maintenance plan and efficiency improvement, being flexible in using various fuels, such as using coal with low calorific value, and co-firing biomass with coal, etc.
- The gas-fired power plant in the United States of America achieved the set targets, with AF of **88.53%** and FOF **0.77%**, achieving the set targets. This is due to effective maintenance planning and ongoing improvement projects to enhance reliability.
- Reviewing and setting the electricity generation targets for 2024 - 2025 according to the types of power plants by adding the targets for gas-fired power plants to appropriately measure the performance of each type of power plants.

Availability Factor (AF) (%)



Forced Outage Factor (FOF) (%)



- Recording electricity generation mix of 9,061 GWh, divided based upon energy sources as follows:

Energy Sources	Electricity Generation Mix		Revenue (million THB)
	Gigawatt-hour (GWh)	%	
Coal	933	10.3	1,850
Natural gas	7,360	81.2	19,703
Solar power[1]	4	>0.1	34
Solar power[2]	679	7.5	1,227[3]
Wind power[2]	85	1.0	244[3]
Total	**9,061**	**100**	**23,058**

Remarks: [1]Ponder Solar Power Plant, the Solar Rooftop Project of Zhengding CHP Plant, in which BPP has direct control.
[2]Solar power plants, wind power plants, in which BPP has invested through Banpu NEXT (exclusion of solar rooftop projects).
[3]100% of Banpu NEXT's revenue, which has been invested in the project no less than 50%.

- Recording the equity-based electricity capacity mix of 3,584 MW, which can be divided based on energy sources as follows:

Energy Sources	Equity Based Electricity Capacity Mix	
	Megawatts	%
Coal	2,412	67.3
Natural gas	762	21.3
Solar power[1]	351	9.8
Wind power[2]	59	1.6
Total	**3,584**	**100**

Remarks: [1]Ponder Solar Power Plant, the Solar Rooftop Project of Zhengding CHP Plant, in which BPP has direct control, the solar power plants and solar rooftop projects, which have been invested through Banpu NEXT.
[2]The wind power plants having been invested through Banpu NEXT.

Current Status

Generation capacity **3,584 MW**

Targets

Increasing generation capacity of **1,500 MW** by 2030 through investing in the low-carbon business and energy transition.

- The three CHP plants in China have been successively certified for the ISO 9001 Quality Management System, ISO14001 Environmental Management System and ISO 45001 Occupational Health and Safety Management System by external certified bodies for carrying out their production in accordance with the international standards.

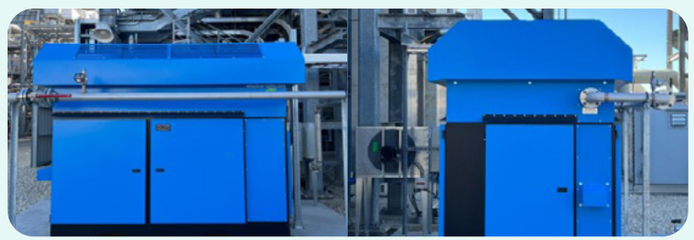
The Project to Enhance Reliability at Temple Gas-fired Power Plant

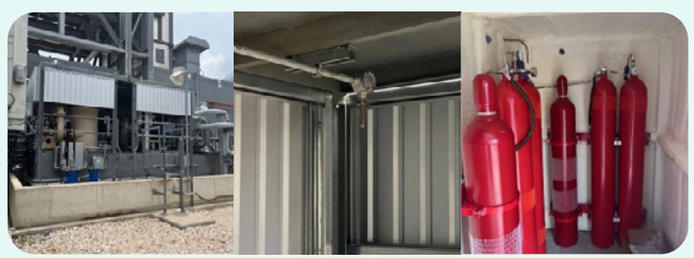
Temple gas-fired power plant in the United States of America faces significant power generation challenges due to its location in Texas State, which experiences severe weather conditions during the peak demand periods. In addition, operating in a merchant power market requires high production availability to promptly respond to electricity demand and increase opportunities to sell electricity during the periods of power shortages from other sources.

In 2024, Temple gas-fired power plant installed additional equipment in order to enhance its production availability and improve operational efficiency, including:

1. **The cooling tower motor shield protector** was installed to protect the motor from environmental influences, such as water, heat or severe weather conditions. This device, therefore, plays a crucial role in maintaining the power plants' motors, which are exposed to excessively high or low temperatures able to deteriorate or damage the motor. It was installed in April with an investment of approximately USD 6,000.
2. **The 3rd air compressor** can use electricity from both a diesel generator and a backup transformer to help maintain the important equipment operations in the event of a power outage.
3. **Combustion turbine lube oil fire protection system** helps reduce possible damage to the gas turbine lubrication oil in the event of a fire, in accordance with the National Fire Protection Association (NFPA) Standard 850, describing the practices for fire protection in power plants and high-voltage direct current converter stations. A water mist fire protection system using high-pressure gas tanks and unpressurized water to release water mist to extinguish fires, was installed. The installation of this equipment began in November 2024, with an investment of approximately USD 1,000,000.

Overall efficiency to 48.10%





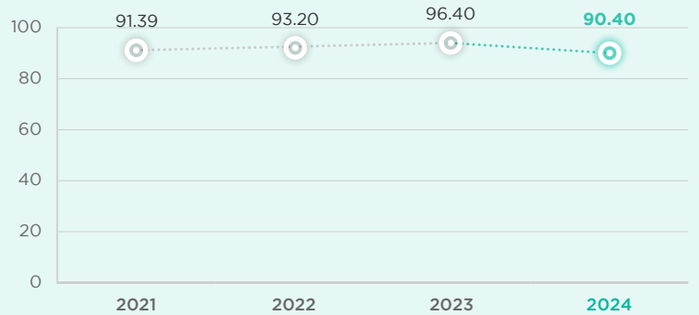
The implementation of this project has helped increase Temple gas-fired power plant's overall efficiency to 48.10%, or 0.18% higher than the previous year (47.92% in 2023). It has also decreased the repair cost of critical equipment damaged by severe weather conditions, extended the life of equipment, and enhanced emergency preparedness.

Performance of Joint-Venture Power Plants

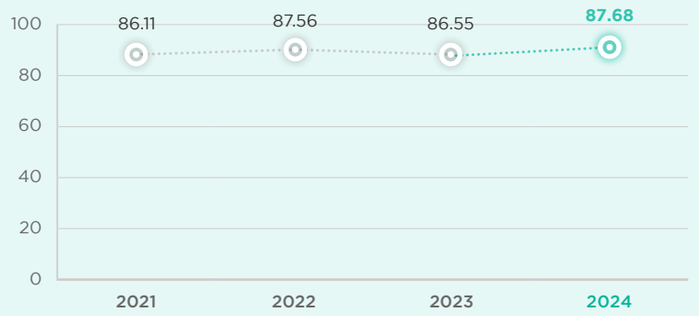
BPP has invested in thermal power plants in Thailand and Lao PDR, namely BLCP Power Plant and HPC Power Plant, respectively. The two power plants are base-load power plants under the Power Purchase Agreement (PPA) between the power plants and the Electricity Generating Authority of Thailand (EGAT). To maintain stability of the power distribution system and the overall picture of the country's electricity costs, the details of available hours and the annual maintenance plan of BLCP and HPC power plants are specified in the PPAs throughout the 25-year contract period. According to practices under these PPAs, the power plants must submit the annual machinery maintenance plans to EGAT and clearly and completely operate in accordance with the goals within the specified timeframe as notifying EGAT.

Due to the implementation of the annual maintenance plan and continuous improvement of operational efficiency, last year, BLCP and HPC power plants had the AF of **90.40%** and **87.68%**, respectively, achieving the target of being able to supply electricity to EGAT as specified in the PPA. In addition, BPP has assigned the asset management unit to closely monitor the performance of these power plants and to exchange opinions, including experiences between the power plants and the joint venture companies to continuously improve power plants' efficiency.

Availability Factor of BLCP Power Plant (%)



Availability Factor of HPC Power Plant (%)



Climate Change and GHG Emissions

Stakeholders

- The government sector, investors, shareholders, communities, financial institutions, business partners, the public sector, and media

Strategy

- Decreasing GHG emissions intensity by increasing power plant's efficiency through promoting innovation and implementing high efficiency and environmentally-friendly technology.
- No more investment in coal-fired power plants.
- Investing in gas-fired power plants, renewable energy, energy technology, and GHG emissions reduction projects in order to create stability during the energy transition period and to be part of a low-carbon society in the future.
- Building competency on adapting to risks associated with climate change.
- Disclosing data related to climate change in accordance to the Task Force on Climate-related Financial Disclosures (TCFD).
- Operating in alignment with the Net Zero Roadmap together with Banpu Group.

Key Indicators

- The GHG emissions intensity.
- An investment in renewable power generation projects.
- Proportion of Earnings Before Interest Taxes Depreciation Amortization (EBITDA) from the low-carbon energy business.

Targets

- Reduce the GHG emissions intensity (Scope 1&2) < 0.549 tonnes CO_2e/MWh during the year 2024 - 2025.
  - CHP plants < 0.676 tonnes CO_2e/MWh
  - Gas-fired power plants < 0.441 tonnes CO_2e/MWh.
- EBITDA proportion from a low-carbon energy business is no less than 65% by the year 2030.
- The renewable energy production capacity is not less than 800 MW.

Performance

- The GHG emissions intensity (Scope 1&2) was **0.430 tonnes CO_2e/MWh**, decreasing **21.7%**, when compared with the target set
  - The GHG emissions intensity of CHP plants was **0.497 tonnes CO_2e/MWh**.
  - The gas-fired power plant's GHG emissions intensity was **0.377 tonnes CO_2e/MWh**.
- EBITDA proportion from low-carbon energy business was equivalent to **27%**.
- The renewable energy generation capacity was **410 MW**.

Climate Change Policy

Significance and Reporting Boundary

Climate change is a key factor having an impact on sustainable development and human well-being. Subsequently, it becomes the global issue drawing participation across the globe to lower GHG emissions and alleviate its impacts. Many countries have jointly set up common goals to decrease GHG emissions in order to control a rise of the earth's average temperature to well below 2 degrees Celsius. As a result, the policies and applicable laws have been established in many countries to foster GHG emission reductions and efficient energy consumption, such as a system permitting to trade GHGs or the "Emission Trading Scheme" (ETS), limitation of fuel consumption for energy production, promotion of more renewable energy investments, and carbon tax, etc. Hence, these are both challenges and significant opportunities for BPP to grow in the energy business.

BPP's GHG emissions activities are summarized as follows:

Direct GHG Emissions (Scope 1)

- Using natural gas, coal and biomass, as well as activated carbons – waste released from manufactories used as fuels to generate power, steam and heat.
- Utilizing diesels to ignite boiler's combustions, large equipment, substitute power generators, and internal transportation vehicles, etc.
- Using gasoline to operate vehicles.
- Using calcium carbonates ($CaCO_3$) in the air quality control system.
- A use of SF_6.

Indirect GHG Emissions (Scope 2)

- A purchase of power from external sources.

Other Indirect GHG Emissions (Scope 3)

- The procurement and production process of raw materials, chemicals, construction materials, equipment, and machinery used in power plants, including procurement work.
- The process of procurement, production, and transportation of purchased fuels and energy, such as natural gas, coal, oil, and electricity.
- An investment in joint venture companies, such as BLCP Power Plant, HPC Power Plant, Shanxi Lu Guang Power Plant, and Banpu NEXT.

The boundary of this report covers the power plants, in which BPP has direct management control according to the "GHG Protocol Corporate Accounting and Reporting Standard" (Revise Edition), which is in line with that of Banpu Group. This includes the three CHP plants in China and Temple gas-fired power plant in the United States of America. The renewable power plants and thermal power plants, which are joint-venture companies, of which BBP doesn't have direct control, but are interested by stakeholders, only their performances are reported in the performance table. These data are not integrated into BPP's GHG emissions database either.

Management Approach

As BPP operates a power and energy generation business, it directly consumes fuels for energy productions. Consequently, BPP mainly focuses on reducing direct GHG emissions (Scope 1), mainly from fuel consumption. BPP's direct GHG emissions are equivalent to 99% of its total GHG emissions amount since its operations are the upstream business, generating power and other energy supplied for industrial and residential consumptions.

BPP sees the opportunity and capability to lower GHG emissions by improving energy use efficiency, minimizing losses in the production process, and conducting a study on alternative fuels to achieve its GHG reduction target. It is also looking for opportunities to invest in the energy infrastructure and the battery energy storage system (BESS).

BPP closely monitors on policy changes and assesses risks associated with climate change in preparation for adapting itself to a transition of policies, and applicable laws in various countries. For example, implementing a business continuity management system, reviewing risks and opportunities relevant to climate change in accordance with the Task Force on Climate-related Financial Disclosures (TCFD), including determining the carbon pricing for consideration on investing in various projects.

Structures of Climate Change Governance

Governing Entities/ Committees	Responsibilities	Frequency
Board Levels		
Board Levels	• Regulating and making strategic decisions for BPP's growth in the long-term by putting concerns on ESG, including climate change. • Governing the operational direction and growth in alignment with vision and missions. • Considering returns associated with performances according to the ESG targets.	Monthly
The Environment, Social and Governance (ESG) Committee	• Supervising ESG operations, inclusive of key materiality relating to climate change and GHG emissions, energy use, and seeking opportunities on new business involved, such as decarbonization projects. • Reviewing the ESG policies and targets to screen and provide opinions before seeking approval from the Board of Directors. • Monitoring and auditing ESG performance, including GHG emissions and energy consumption to meet the set targets.	Quarterly
Managerial and Operational Levels		
Chief Executive Officer (CEO)	• Setting up BPP's ESG goals, including the GHG emissions and energy use targets to be used for operational performance assessments. • Reporting the operational results to the Compensation Committee.	Every 6 month
The Risks Management Committee	• CEO is the chairman of the committee, while high-ranking executives are the committee members. • Identifying, assessing and managing risks and opportunities, including issues related to climate change in order to report risks management to the Audit Committee.	Quarterly
The Climate Change Committee	• Jointly working with Banpu Group to drive the holistic climate change operations, and related risks management to decrease GHG emissions.	Quarterly or more frequently, as necessary
The Task Force on Climate-related Financial Disclosures Working Group (TCFD Working Group)	• Analyzing and assessing financial risks and opportunities, as well as disclosing information in accordance with the TCFD guidelines. The committee is jointly working with Banpu Group.	Quarterly or more frequently, as necessary
The Decarbonization Project Study Committee	• Jointly working with Banpu Group to conduct a feasibility study to set the operational target and plan driving towards Net Zero, including various GHG emissions reduction projects.	Quarterly or more frequently, as necessary

BPP uses management approaches to reduce GHG emissions in various businesses as follows:

1. Existing Thermal Power Plants

- **The combined heat and power (CHP) plants, in which BPP has management control**, consisting of the three CHP plants in China, have high energy efficiency. As a result, the CHP plants' energy loss during their maximum production capacity of power and steam is 25%, while the thermal power plants solely generating electricity will lose energy around 65% once producing power. As a result, the CHP plants have low energy consumption rate and marginal GHG emissions intensity. Customer's demand for steam in certain periods, however, directly affects the energy efficiency and GHG emissions of CHP plants. BPP, therefore, focuses on utilizing innovations to improve its power plant's efficiency and production processes, as well as to operate the power plants to be flexible in response to dynamic demand for steam. In addition, the experiment has been conducted by burning biomass together with coal to reduce the amount of carbon emissions. Besides, BPP together with Banpu Group has verified the accuracy of GHG emissions database. Thereby, all three CHP plants have been inspected and certified for GHG emissions since 2018 to present. Moreover, the CHP plants are also looking for business opportunities to become an integrated energy producer and provider, such as installing solar cells on rooftops for government agencies, etc.
- **The gas-fired power plant, in which BPP has direct control**, namely Temple gas-fired power plant, located in the United States of America has high energy efficiency and uses natural gas in generating power supplied to the merchant power markets. Since the gas-fired plants emit lower GHG emissions than the thermal power plants, BPP focuses on managing and carrying out the annual maintenance continuously to meet the quality standards. This will affect the power plant's efficiency in terms of GHG emissions intensity and energy consumption rate, water use rate and a reduction of losses in the production system. In addition, a joint verification on accuracy of GHG emissions database has been arranged together with Banpu Group. Temple gas-fired power plant has been examined and certified for GHG emissions data since 2023 to present.
- **The joint-venture thermal power plants**, namely BLCP Power Plant, HPC Power Plant, and Shanxi Lu Guang Power Plant focus on quality management and efficient annual maintenance, including using the information system to predict a machinery maintenance before it is broken down (Predictive Maintenance), etc. This will affect the power plants' efficiency on reducing the fuel consumption per unit of products and maintaining the availability factor (AF) as designed. It is also a key performance indicator reflecting the power plant's availability and efficiency and directly resulting in decreasing the GHG emissions intensity. The Asset Management Unit is assigned to jointly monitor the power plants' GHG emission operations with the business partners who have invested in such power plants. In addition, activities to reduce GHG emissions are promoted, such as a use of electric trucks to transport limestone at HPC Power Plant, a project to conduct a feasibility study on using ammonia as a substituted fuel at BLCP Power Plant, a project to conduct a feasibility study on installing solar cells, constructing a small hydroelectric power plant, and using biomass at HPC Power Plant, etc.

2. Renewable Power Plant and Energy Technology Projects, which are the joint-venture companies.

BPP has invested 50% of stakes in Banpu NEXT to operate the renewable energy generated from solar power plants and wind power plants, including the energy technology business as well as the clean energy generation service together with the integrated energy management solution to reduce GHG emissions, such as the solar power generation system on the rooftops, the energy storage system, the electric vehicle business, the smart community development business and the energy management system business, etc. In addition, BPP is also expanding its clean energy business in the United States of America by investing in the construction of a 2.5 MW Ponder Solar Power Plant, located in the Barnett Shale of Banpu Group. The aim is to respond to the clean energy demand in the power merchant market.

3. Renewable Power Plant and Energy Technology Projects

BPP has a policy of not investing further in coal-fired power plants. It determines investment strategies towards the highly-efficient and environmentally-friendly power plant projects by focusing on gas-fired power plants, which consume stable fuels for production. Additionally, the gas-fired power plant has high flexibility in adjusting its production in response to demand in the power merchant market. BPP also continues investing in renewable energy and energy technology through Banpu NEXT as well as looking for investment opportunities in a small nuclear power plant, which is considered as one of the clean energy patterns, having a tendency to grow in the future.

4. Carbon Reduction Projects

BPP sets up strategies for conducting business sustainably and responding to GHG emissions reduction. Therefore, a target on EBITDA proportion from a low-carbon business has been set out to be at least 65% by the year 2030. In addition, BPP began investing in the Cotton Cove project in the U.S., which employs the Carbon Capture, Utilization, and Storage (CCUS) technology. The Cotton Cove project is a joint-investment between BPP and BKV dCarbon Ventures Company. Moreover, BPP is also looking for opportunities in the environmentally-friendly energy business, such as ammonia, hydrogen, fuels from biomass, etc.

Data Collection:

The amount of diesel, biodiesel, and benzene is compiled by accumulating figures from receipts, while the coal quantity is obtained from a scale attached to a conveyor belt before being proceeded to the power plant's production process. Meanwhile, the amount of flue gas is collected from gas flow meters. As for natural gas used in the production of power plants in the United States of America, it is obtained from meters measuring the heat value according to actual use.

A calculation of energy consumption volume:

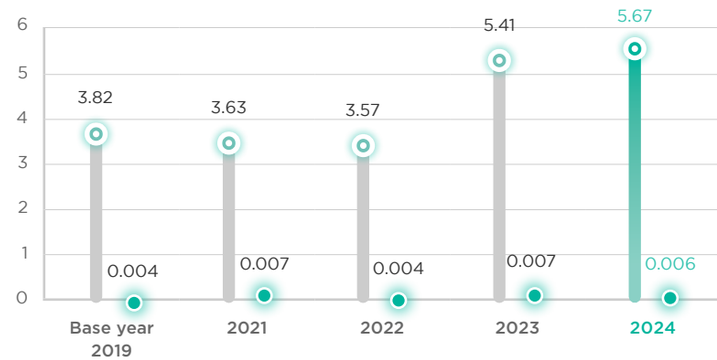
BPP uses the energy conversion factor based on the GHG Protocol: Emission Factors from Cross Sector Tools for calculating the consumption volume of diesel, biodiesel, and benzene. Meanwhile, the consumption of coal and waste gas is gathered from expenses incurred from the monthly measurements.

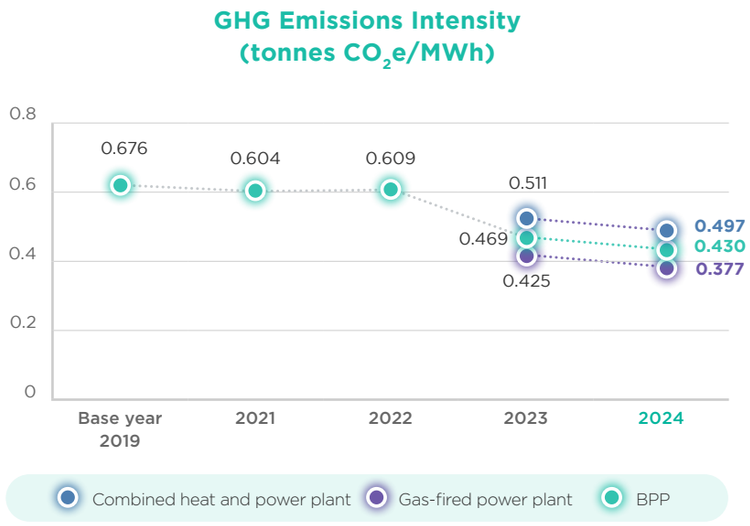
Calculation of GHG emissions amount: BPP collects the amount of GHG emissions only for businesses, in which it has operational control by using the "Global Warming Potential" (GWP), with reference to the "Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report" (AR5). The emission factors used are based upon "A Corporate Accounting and Reporting Standard (Revised Edition)", while specific coefficients will be used if there is a region-specific emission coefficient. The gas used in GHG emissions' calculations consists of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), and sulfur hexafluoride (SF_6).

Performance

- BPP recorded the GHG emission intensity of **0.430 tonnes CO_2e/MWh**, a decrease of **21.7%** when compared with the target of not over 0.549 tonnes CO_2e/MWh, achieving the GHG emissions target set.
- The CHP plants in China posted the GHG emissions intensity (Scope 1&2) of **0.497 tonnes CO_2e/MWh**, decreasing **26.5%** when compared with the target of not over 0.676 tonnes CO_2e/MWh. This was due to a continuous improvement of BPP's power plants' efficiency through many innovative projects, such as the project to reduce losses of water and energy used in the system, the project to improve boilers to be able to combust fuels with various heat values, and the project to biomass co-firing and coal to decrease GHG emissions, etc. This also included adaptation to the government regulations specifying the amount of coal used in the power plants and the emission trading scheme. In the previous year, all BPP's CHP plants in China were able to control their GHG emissions to meet the government standards and had the opportunity to sell or collect the Carbon Emissions Allowance (CEA) totaling **292,047 tonnes CO_2e**, generating revenue of more than RMB 28 million.
- The gas-fired power plant in United States of America recorded the GHG emissions intensity (Scope 1&2) of **0.377 tonnes CO_2e/MWh**, **a reduction by 14.5%**, when compared to the target of not exceeding 0.441 tonnes CO_2e/MWh. This was a result of the power plant's continuous management and annual maintenance, which will reduce the loss of energy and water used in the production system and help decrease GHG emissions.
- Reviewing and setting targets on GHG emissions intensity (Scope 1&2) for the years 2024 - 2025 according to the type of power plants, including the CHP plants and the gas-fired power plants in order to properly measure the performance of each type of power plants. The new target set for GHG emissions intensity (Scope 1&2) is **no more than 0.549 tonnes CO_2e/MWh**, representing an **18.8%** reduction in GHG emissions from the 2019 baseline (0.676 tonnes CO_2e/MWh).

The Amount of Direct and Indirect GHG Emissions (million tonnes CO_2e)





Remarks: Operating performance of Temple gas-fired power plant has been included since 2023.

- **Disclosing information regarding other indirect GHG emissions (Scope 3)** during the years 2023 - 2024 from 3 types of activities:
  - Activity 2: Capital goods
  - Activity 3: Activities related to fuel and energy
  - Activity 15: Investments
- **EBITDA proportion from the low-carbon energy** was 27%, in comparison with the target of no less than 65% by the year 2030.
- **Investing in renewable energy and energy technology businesses through Banpu NEXT** a joint-venture company, in which BPP holds 50% of stakes. In 2024, BPP recorded an equity-based power generation capacity of **410 MW** from renewable energy (326 MW from commencing commercial operation (COD) power plants and 84 MW from under development power plants).
- **Expanding the renewable energy business in United States of America** by commencing commercial operation of Ponder Solar Power Plant in August 2024, with a production capacity of 2.5 MW. Ponder Solar Power Plant is located in the Barnett Shale area of BKV Corporation (BKV), a subsidiary of Banpu Group.
- **Investing in the "Cotton Cove" project, which is the Carbon Capture, Utilization, and Storage (CCUS) business**, located at the Barnet Shale in Texas State, United States of America, with 49% stake investment. Presently, the project is under development, expected to commence commercial operations by the year 2026.
- **Investing in the battery energy storage business**, which is the technology supporting the energy business transition through an investment in Tono Matsuzaki Battery Park project, located in Tono City, Iwate Prefecture in Japan. Currently, the project is in the process of connecting the transmission line to that of electricity buyers (Grid connection) and testing the system. It is expected to supply commercial electricity by June 2025.
- **Enhancing capabilities to adapt oneself to climate change related risks** such as:
  - Operational Risk Management: BPP has employed a Business Continuity Management System (BCMS) in preparation for any events causing operational halts resulted from natural disasters, such as floods and seasonal fluctuations. The aim is to be able to operate continuously, or to recover operations quickly, being able to deliver products and services meeting stakeholders' expectations. In addition, the business continuity management exercises have been regularly arranged, while BPP has been certified by the ISO 22301 Business Continuity Management System.
  - Changes in policies and regulations related to energy and GHG emissions: BPP has established a unit to monitor, examine and anticipate regulatory changes from local and central authorities in all areas in which it has operated so as to adapt itself to the changing environmental quality standards, which are more severe. BPP is also seeking more investment opportunities in renewable energy business so that government has provided more subsidies.
- **Organizing trainings to create understanding and awareness about climate change** - a challenge and an opportunity for BPP, for the Board of Directors, executives, and employees, such as the standards used to classify and group economic activities that are environmentally friendly (Green Taxonomy), global trends, and Thailand's operations towards the climate change, etc.
- **Implementing the innovative projects** to improve energy consumption efficiency, and to reduce GHG emissions, such as:
  - **The power plant improvement project** to blend low-calorific coal used as a fuel at Zhengding CHP Plant.
  - **The project to use digital systems in energy management** was implemented at Luannan CHP Plant.
  - **The project to enhance the intelligent monitoring and control system** at the heat exchanger stations, aiming to create safety and heighten efficiency of Zhengding CHP Plant.
  - **The project to reduce heat loss from the white smoke reduction** process implemented at Zhengding CHP Plant.
  - **Zhengding CHP Plant was selected as the developer of the Zhengding Rooftop Solar PV project** to install solar panels on the roofs of governmental buildings, factories, and communities, totaling 66 MW.
  - **The complex to simple boiler slag removal system reform project**, carried out at Zouping CHP Plant.
  - **The biomass co-firing project** to use biomass and coal to be burnt together at Zhengding CHP Plant.

Assessments of risks, impacts, and opportunities resulted from climate change for the years 2022 - 2030.

Risks	Impacts/Opportunities	Financial Impact Forecast	Strategies and Operations	Time Period Expected Risks to Arise
1. Physical Risk				
1.1 Changes in climate patterns and seasonal fluctuations	• The deviated winter birth time affects the power plants' production and maintenance plans. • The significantly higher than normal-level temperatures have resulted in a decrease in thermal energy volumes sold to residential units, and an increase of costs from controlling discharged water temperatures. • Significantly higher/lower than normal-level temperatures cause the machines unable to operate because they exceed the design pattern. • The light and wind intensity deviating from estimation causes the renewable energy power plants to generate less electricity than the target set.	−	• Controlling maintenances to meet the quality, time, and costs targets. • Designing a production unit with multiple sub-production units to be flexible and having options to operate the most efficient production process in alignment with the community's demand for thermal energy. • Investing in power plants that were designed to withstand higher/lower than normal-level temperatures, which will help in creating opportunities to generate power when other power plants or renewable power plants are out of production in the power merchant market, such as Temple gas-fired power plant. • Evaluating the project's worthiness before making an investment by allowing for higher light and wind discrepancies.	0 - 5 Years
1.2 Severe natural disasters, such as storms and floods	• Production halts effected by natural disasters, have resulted in expenses related to investments in natural disaster prevention and damage repairs, as well as creating opportunity loss in production.	−	• Investing in storms and floods prevention in the units with high production risks, or those having a frequency of recurrences, by focusing on cost effectiveness in relation to the power plant's lifespan. • Designing and constructing the projects by paying high attention to natural disaster factors. • Procuring property damage insurance and business interruption insurance suitable for various events.	0 - 5 Years
1.3 Rising Sea Levels	• Having an impact on production units located in coastal areas, where construction costs are likely to incur from preventing floods.	→	• BLCP Power Plant, a joint venture company, was designed and constructed to exceed an estimation of the rising sea-levels over the power plant's life time. • Other power plants are not affected since they are not located in the coastal area.	10 Years Up
1.4 Fluctuations in rainfall volumes resulted by El Nino and La Nina phenomena.	• Lower than normal-level rainfall has resulted in a shortage of fresh water in the areas. • The amount of rainfall has increased more than its normal level, resulting in floods in the area.	−	• All 3 CHP plants have taken steps to reduce water loss in the system, while the extension units are designed to be able to recycle water as much as possible until they do not discharge water anymore (Zero Discharge). • Temple gas-fired power plant takes water from the community to be treated for using in its production. The power plant also has water reservoirs for supplying water within the system without discharging. • BLCP Power Plant uses sea water for its cooling system and produces fresh water from seawater through a reverse osmosis methodology, making it unnecessary to draw fresh water in the area, including creating opportunities for the power plant to sell the fresh water produced to nearby industrial factories. • HPC Power Plant manages its 2 water sources and monitors the water level regularly so as to manage to have sufficient water for use throughout the year. • Checking the power plant's drainage system regularly, installing a water pump with sufficient power to pump water in the area in case of more than normal-level rainfall.	0 - 5 Years
2. Transition Risk				
2.1 Policy and legal changes	• The establishment of policies and laws by the government sector to reduce GHG emissions to reach a "Net-Zero" target, has resulted in the limitation of fuel consumption and GHG emissions. This move has been rising rapidly in China and Japan, creating costs in improving the production process. • Expenses incurred from carbon tax. • Higher financial cost or receiving no supports for fossil fuel projects/lower financial cost for clean energy projects. • Opportunities to invest in renewable power plants subsidized by the government sector.	−	• Improving the power plant efficiency to maximize energy consumption capabilities and reduce GHG emissions. Presently, all 3 CHP plants in China are able to control the volume of GHG emissions to be better than the criteria set by the government, creating an opportunity to sell carbon emission allowance surplus. • The joint-venture power plants, namely BLCP Power Plant and HPC Power Plant are under the long-term power purchase agreements (PPA) and the regulations to mitigate risks related to legal changes to a minimum level. • Looking for opportunities to convert the use of fossil fuels such as biomass, biodiesel, ammonia, etc. • Adjusting the business plan to become an integrated electricity service provider, such as providing solar rooftop installation services in China. • Investing in technology helps in GHG emissions reduction, such as Carbon Capture Utilization and Storage (CCUS). • Using expenses incurred from carbon taxes to calculate investment worthiness of each project. • Looking for opportunities to sell carbon credits from clean energy production. • Upgrading the ESG operation to a decent level, with international recognition to build confidence among stakeholders and financial institutions.	0 - 5 Years

Risks	Impacts/Opportunities	Financial Impact Forecast	Strategies and Operations	Time Period Expected Risks to Arise
2.2 The demand for clean energy is increasing, while the technology and infrastructure for transmitting electricity in the area is still immature.	• Fluctuations in light intensity and wind speeds have resulted in inconsistent electricity production from renewable energy. • Lack of stability in the transmission and distribution system in some areas. • The concentration of renewable power plants in certain areas causes higher volumes of produced power than demand in the area, leading to losses.	−	• Investing in energy technologies, such as energy storage systems to create stability for supplying electricity generated from renewable energy. • Employing digital technology to analyze data for forecasting energy production and consumption in each area, including competitive advantages for energy trading in the merchant market. • Investing in demand-side management technology. • Looking for investing in the power transmission infrastructure.	0 - 5 Years
2.3 Rising prices of fossil fuels	• Prices of coal and other fossil fuels are rising due to lower production volumes /opportunity to use other fuels subsidized by the government sector.	→	• Investing in the power plants using different fuels with appropriate proportion to manage fuel risks. • The power plants with long-term PPAs, namely BLCP and HPC power plants are not affected since the fuel costs are borne by the purchasers. • The gas-fired power plants entered into the power purchase agreement in advance and made forward contracts to buy fuel in appropriate proportion to reduce energy price risk. • A control of coal prices by the Chinese government has made coal prices in China less volatile than those of the world markets. • Managing coal purchases, such as using applications to compare prices, and making purchasing decisions at the right time, procuring coal with a long-term contract, and expanding storage areas to stock more coal. • Seeking opportunities to use other fuels, such as biomass, natural gas, waste, etc.	0 - 5 Years
2.4 The government's control on/ restriction of water consumption and rising water prices.	• The governmental restriction on using fresh water in the production process has resulted in power plant's improvements to reduce the amount of water consumption as required by the government. • A shortage of fresh water in the area heightens water prices.	−	• All three CHP plants have taken steps in reducing water loss in the system, while the extension unit is designed to reuse water as much as possible until the wastewater is not discharged from the power plants anymore. • Temple gas-fired power plant was designed to have reservoirs to supply water within the system without discharging water externally. • BLCP Power Plant produces fresh water from seawater through the Reverse Osmosis methodology, making it unnecessary to draw fresh water in the area. • HPC Power Plant manages its 2 water sources, and monitors water management continuously so as to have enough water for use throughout the year.	1 - 5 Years
2.5 Higher insurance costs	• The insurance companies increase their insurance premiums for natural disasters, which are more severe and higher frequency. • The insurance companies increase premiums or have a policy to withdraw the insurance of coal-related businesses.	−	• Investing in equipment installation to prevent and reduce damage severity from natural disasters. • Applying for insurance earlier to increase options and negotiate the terms of insurance coverage.	0 - 5 Years
3. Business Opportunities				
Business development associated with renewable energy, energy technology, and CCUS	• Solar power plants • Wind power plants • Energy technologies, such as energy solutions, smart city projects, electronic vehicles • Biomass • CCUS • BESS	+	• Investing in renewable energy and energy technology through an investment in Banpu NEXT, in which BPP holds 50% of stakes. • Investing in technology helps reduce GHG emissions, such as through CCUS. • Seeking opportunities to invest in clean energy, such as hydrogen, small nuclear power plants, etc.	0 - 5 Years

→ No impacts or minimal impacts + Having positive impacts − Having negative impacts

Remarks: Conducting assessments for all businesses having a significant investment proportion or over 30%.

Other Indirect GHG Emissions (Scope 3)

Since 2023, BPP has assessed other indirect GHG emissions (Scope 3) throughout the supply chain by using the criteria in accordance with the World Resource Institute (WRI) Greenhouse Gas Accounting Standards to determine the relevance of activities in 15 categories. In 2024, other indirect GHG emissions (Scope 3) totaled 14,066,691 tonnes CO_2e from the following activities:

Activities	Association with BPP	The Amount of GHG Emissions (tonnes CO_2e)	Calculation Methodology
Category 1: Purchased goods and services	Being involved with the procurement and production process of raw materials and chemicals used in the power plants and service from contractors.	No calculation is performed due to the minimal proportion compared to other activities.	-
Category 2: Capital goods	Being involved with the procurement and production process of capital good purchased such as machinery, spare parts, vehicles and construction materials used in the power plants and offices.	255,693	• Average-data calculation methodology • Data of the amount of fuel and electricity purchased for production. • Coefficients from The UK Government GHG Conversion Factors for Company Reporting and EIA Life Cycle Upstream Emission Factors 2023 (Pilot Edition)
Category 3: Fuel- and energy-related activities (not include in Scope 1 or Scope 2)	Being involved with the production procurement process and transportation of purchased fuels and energy, such as natural gas, coal, oil, and electricity.	1,092,748	• Spend-based calculation methodology • Information regarding costs of goods and services procured by the organization. • Coefficients from the database of environmental impact models from the Environmentally Extended Input-Output (EEIO)
Category 4: Upstream transportation and distribution	Being related to the transportation of power plant's raw materials and machinery carried out by partners or contractors.	There is no calculation since natural gas is delivered via pipelines, while other fuels, such as coal and oil are from various trading partners. This activity is, therefore, only a small portion when compared with other activities.	-
Category 5: Waste generated in operations	Being associated with production's waste management.	No calculation is performed due to the minimal proportion compared to other activities.	-
Category 6: Business travel	Being involved with employee's business trips via airplanes, trains, and cars.	No calculation is performed due to the minimal proportion compared to other activities.	-
Category 7: Employee commuting	Being related to BPP employees commuting from their residences to the offices by their own cars, or other public transportation.	No calculation is performed due to the minimal proportion compared to other activities	-
Category 8: Upstream leased assets	BPP does not lease any assets for production, but it only rents the office spaces.	No calculation is performed due to the minimal proportion compared to other activities.	-
Category 9: Downstream transportation and distribution	Not relevant since BPP doesn't own the power transmission lines, steam, hot and cold water pipelines.	-	-
Category 10: Processing of sold products	Not relevant since BPP's products are in the energy form, such as electricity, steam and hot water. As a result, these products are not processed.	-	-
Category 11: A use of sold products	Since BPP's products are in the form of energy, such as electricity, steam, and hot water, the customers' energy use is an indirect GHG emission (Scope 2).	-	-
Category 12: End-of-life treatment of sold products	Not relevant because BPP's products are in the form of energy, such as electricity, steam, and hot water. As a result, there is no waste disposal process for the products.	-	-
Category 13: Downstream leased assets	Not relevant because BPP does not operate an asset rental business and does not have any assets available for rent.	-	-
Category 14: Franchises	Not relevant, as BPP does not operate a franchise business.	-	-
Category 15: Investments	Being related to an investment in joint-venture companies, consisting of BLCP, HPC, Shanxi Lu Guang power plants, and Banpu NEXT.	12,718,250	• Investment-specific calculations methodology • Scope 1 and 2 GHG emissions data of companies, in which BPP has invested and BPP's shareholding proportion. • IGCC Nakoso data is not included because BPP sold its shares in December 2024.

The Complex to Simple Boiler Slag Removal System Reform

Before

Dewatering bins | Pipeline | Slag discharge pump

After

Slag conveyor

The original design of the boiler slag removal system of Zouping CHP Power Plant consisted of a slag conveyor belt beneath the boiler, hydraulic slag pumps, water separation tanks in a total of 28 sets, including a slag transport pipeline system with over 1,000 meters long. The analysis on the problem of boiler slag removal system found that 65% of the problems was from slag transportation. This was due to severe corrosion from the high velocity mixture of slag and water.

As a result, Zouping CHP Plant has studied and improved its slag transportation system by using a slag conveyor belt together with a slag storage tank to replace the previous system equipped with a water separation tank, a slag transport pipe, and a slag pump. This has made the system more efficient. A reduction of device numbers and a decrease of transportation distances can **reduce maintenance costs and electricity costs by approximately USD 0.2 million per annum as well as lower GHG emissions by 987 tonnes CO_2e/ year.**

Biomass Co-firing to Reduce GHG Emissions

To meet the requirements of China's transition towards a green and low-carbon energy production system, Zhengding CHP Plant is BPP's first power plant to make a trial of co-firing biomass and coal at Boiler No. 2. The aim is to reduce the GHG emissions intensity and increase revenue from selling rights to release the GHG. According to the experiment, it was found that co-firing biomass together with coal can be done stably and efficiently. Subsequently, Zhengding CHP Plant plans to increase the biomass mixing ratio, starting from the year 2025 onwards. The power plant also sets up a goal to have **a biomass mixing ratio of 10% and earning income from selling rights to release GHG of approximately RMB 6.5 million per year by 2026**.

Co-firing biomass with coal not only increases the power plants' revenue and reduces GHG emissions but also decreases the impact of agricultural waste disposal on the environment, including utilizing resources efficiently and helping heighten farmers' income in the area. In addition, it can stimulate the development of related industrial value chains, create employment opportunities, and promote local economic development.

Battery Energy Storage System Project in Japan

Today, the global energy transition is becoming increasingly important. This is because the demand for energy continues to increase in parallel with the need to reduce GHG emissions. Therefore, the battery energy storage system (BESS) is a technology playing a key role in supporting the transition to a sustainable energy system.

BPP uses BESS in the Tono Matsuzaki Battery Park project, selected by the Ministry of Economy, Trade and Industry (METI) to be part of the project to support the installation of energy storage batteries in fiscal year 2021, to accelerate the adoption of renewable energy. The Tono Matsuzaki Battery Park project is located on an area of approximately 3,000 square meters in Tono City, Iwate Prefecture.

This project will receive electricity from the system during periods of off-peak demand to be stored in batteries with a total capacity of approximately 14,500 KWs and distribute the power during periods of peak demand. It entered into a long-term power purchase agreement of 25 years. Currently, the project's construction has been completed and is in the process of grid connection as well as testing the system. It is expected to begin supplying commercial electricity in June 2025.

The battery energy storage system (BESS) is a technology playing a key role in supporting the transition to a sustainable energy system

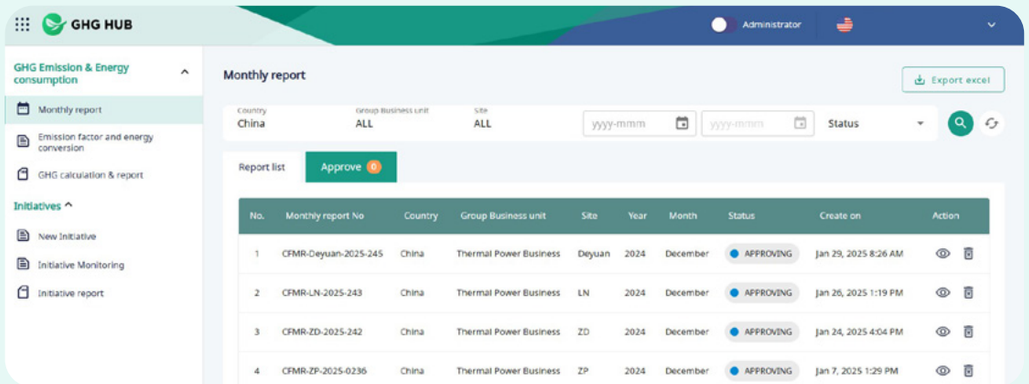
Bio-Carbon Capture by Algae at BLCP Power Plant

To support Thailand's goal on carbon neutrality by the year 2050 and to achieve a Net Zero by 2065, BLCP Power Plant has begun studying how to reduce carbon emissions, focusing on developing a project to capture carbon dioxide (CO_2) from gases generated from the fuel combustion by using algae. This project is a carbon capture and utilization process having been successful at both the laboratory and prototype levels in Thailand.

According to the study, it has shown that Nostoc Commune has the potential to absorb CO_2 4 to 6 times more than trees by using CO_2 as an important carbon source. In addition, the Nostoc algae can be cultivated with natural light, taking only 28 days to grow and requiring little care. This project **can reduce carbon emissions by 2.5 million tonnes CO_2e/year.**

In 2024, Banpu Group and BLCP Power Plant planned to develop and build upon this success by focusing on increasing the seaweed cultivation efficiency to reduce production costs and processing seaweed into high value products, such as cosmetics, nutritional supplements, and fertilizers. In order to be an alternative to reduce carbon emissions, the production potential towards the industry and commerce is under examination. In addition, it is in the process of studying to find other seaweed strains to further develop into high value products.

GHG Hub Application to Manage the Organization's Greenhouse Gas (GHG)



Banpu Group has developed the GHG Hub application to support GHG management within the organization. The application is divided into 4 main parts as follows:

- **Part 1 (Begin using in 2024):**
  The application has been used to collect and calculate energy use, including the GHG emissions intensity of businesses under Banpu Group.
- **Part 2 (Starting using in 2024):**
  The application has been used to collect information on the implementation of projects to reduce energy use and GHGs of businesses of Banpu Group.
- **Part 3 (Expected to be implemented in 2025):**
  The application is used for tracking and recording registration data of projects having the potential to avoid or capture carbon, such as carbon credits, and Energy Attribute Certificates (EACS). This data will be used in the management and trading of Banpu Group's carbon credits.
- **Part 4** is used to forecast and calculate the amount of future GHG emissions for each business.

In addition, the GHG Hub has helped reduce errors in recording information or changing information later. The coefficients used in the calculations are always updated, while the organization's GHG base is transparent and verifiable, being able to be used for setting up goals and business operation plans to reduce GHG emissions effectively.

The Path of Banpu Group towards Net-Zero

The path towards the Net-Zero is an effort to reduce GHG emissions, consisting of 3 main steps, including:

1. **Calculation of GHG emissions**: Banpu Group has calculated and disclosed direct (Scope 1) and indirect (Scope 2) GHG emissions for business operations under Banpu Group's control. Meanwhile, other indirect GHG emissions (Scope 3) are currently being processed. It plans to fully calculate and disclose the top 3 sources of emissions by 2026.
2. **Target setting:** In line with its efforts to limit an increase of temperatures to not over 1.5 degrees Celsius, Banpu Group has set a target of reaching the Net-Zero by the year 2050 and reducing GHG emissions by at least 20% by the year 2030, using the year 2023 as the baseline.
3. **Operations development to reduce carbon:** A key success factor to achieve this goal is the implementation of GHG reduction plans, possibly done by changing operations and adopting new technology. Banpu Group has integrated its GHG emissions reduction plans into the annual strategic business meetings. In addition, the projects related to GHG reduction are monitored and supervised by the Climate Change Committee on a quarterly basis.

As part of Banpu Group, BPP has established the Beyond Quality Megawatts strategy in order to achieve its short- and long-term goals, such as utilizing technology to improve the power plants' efficiency and using biomass in production to release GHGs. In addition, BPP is looking for investment opportunities in the low-carbon energy and energy technology businesses. It also regularly discloses the GHG emissions information verified by external agencies so as to make stakeholders well aware of the operational results according to the goals set.

Energy Efficiency

Stakeholders
- Customers, business partners, investors, contractors

Strategy
- Reducing energy loss and controlling energy use for maximum efficiency.
- Employing high efficiency and environmentally friendly technology.
- Fostering the projects and innovations involved with energy conservation.

Key Indicators
- Energy consumption intensity

Targets
- Energy consumption intensity ≤ 2.84 GJ/MWh
  - CHP plants ≤ 1.55 GJ/MWh
  - Gas-fired power plants ≤ 3.94 GJ/MWh

Performance
- Energy consumption intensity **2.48 GJ/MWh**
  - CHP plants **0.72 GJ/MWh**
  - Gas-fired power plants **3.88 GJ/MWh**

Significance and Reporting Boundary

Fuels used for generating power, steam, and other forms of energy are the major cost of power plants. Consequently, energy consumption efficiency directly affects costs, and competitive advantages, as well as greenhouse gas (GHG) emissions. Meanwhile, the applicable regulations controlling the amount of coal consumption in China is still the challenge BPP has to adapt itself to immediately cope with such changes, inclusion of enhancing the energy consumption of existing power plants and developing the future power projects to consume less energy and create competitive advantages in the power merchant market, as well as to be part of alleviating the climate change.

Activities associated with energy consumption in the production process include:

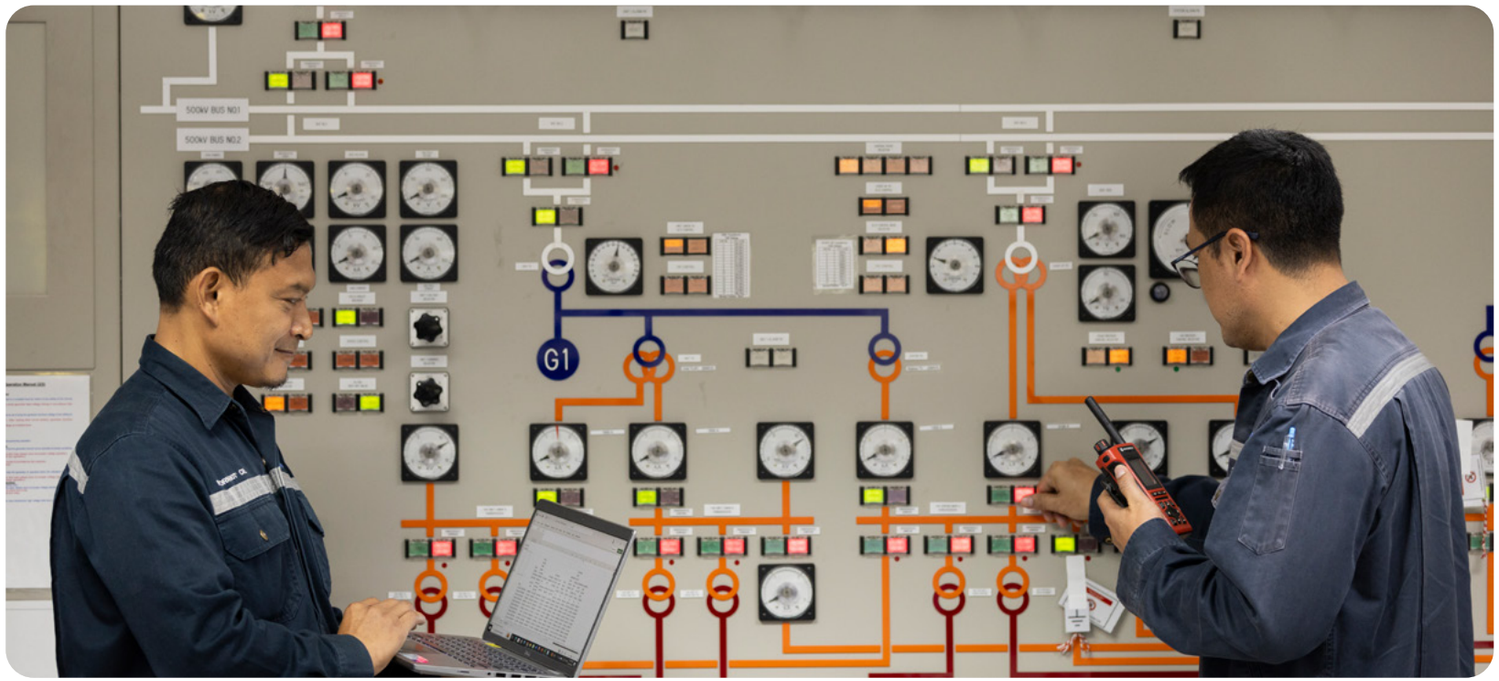
- Using natural gas as a fuel for production of gas-fired power plants.
- Utilizing coals as a fuel to produce power and steam of CHP plants.
- Using diesels to ignite boilers and operate heavy machines.
- Using benzenes and diesels for transportation.
- Buying electricity from external sources.
- A use of power using the equipment and systems within the power plant itself to support power plant's operational efficiency.
- Making a trial on co-firing coal with biomass, industrial waste, and other substances in the power plants.

The boundary of this report covers the power plants, in which BPP has direct control, including the three combined heat and power (CHP) plants in China, and Temple gas-fired power plant in the United States of America. According to other power plants, which are joint-ventures where BPP has no direct control, BPP reports only their performance in the performance table in order to be beneficial for stakeholders who want to know such information. The performance of those joint-venture power plants, however, is not included in BPP's energy consumption database.

Management Approach

BPP focuses on managing all of its power plants to have maximum efficiency by using following management approaches:

- **Opting to use environmentally friendly technology with high efficiency on energy use.**
- **Planning for stable and efficient maintenance** by creating the appropriate maintenance plan to increase the availability factor (AF), reduce the planned outage factor and the unplanned outage factor, as well as to decrease energy losses from operation stoppages and commencements.



- **Improving steam boiler efficiency** to have complete combustion.
- **Looking for opportunities to reduce heat and energy loss in the system**, including reusing the energy.

Managing power plant operations **efficiently and reliably,** with appropriate maintenance planning.

- **Upgrading all auxiliary machinery systems,** such as improving the water quality in steam boilers in order to extend the boiler's lifespan, decrease the amount of discharged water and make-up water in the system.
- **Finding opportunities to use other fuels available in the area**, improving power plants to be able to use wider fuels, such as biomass fuel, waste gas from metal smelting plants, natural gas, etc.
- **Making a plan for fuel procurement from various sources** to create alternative fuel procurement with quality and reasonable prices and to mitigate fuel shortage risks.
- **Developing an application for integrated energy management in power plants**, starting from purchasing, storage, mixing and fuel combustion in the production process.

Data Collection:

- Gas-fired power plant: The amount of natural gas used in electricity production is collected from heat meters based upon actual usage.
- CHP plants: The amount of coal used in power plants in China is collected from a scale at the coal conveyor belt before being fed into the power plant's production process. Meanwhile, the amount of gas is obtained from a gas flow meter.
- Other fuel quantities, including diesel, biodiesel, and gasoline, are collected from data on the receipt.

Calculation of energy consumption amount:

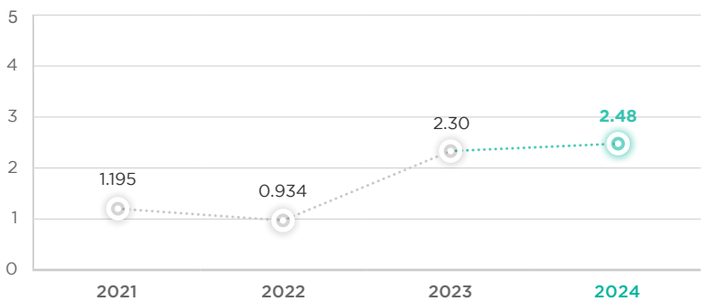
BPP uses an energy conversion factor based on the GHG Protocol: Emission Factors from Cross Sector Tools for diesel, biodiesel, and gasoline, including monthly measurements for coal and gas.

Performance

- BPP recorded the energy consumption intensity of **2.48 GJ/MWh**, achieving the energy use target of not over 2.84 GJ/MWh, or better than the target by **12.7%**. This was driven by BPP's focus on managing the power plant's energy consumption efficiency to be maximum, reducing energy loss in thermal power and other resources, in parallel with implementing the carbon emission reduction project in all production units.
- The CHP plants in China had an energy consumption intensity of **0.72 GJ/MWh**, achieving the energy consumption target of no more than 1.55 GJ/MWh, which was better than the target by **53.6%**. This was due to a continued improvement of production process, such as adjusting the operational methodology to be proper with the volumes of customer's demand for steam and electricity at each time, and cooperating with the government sector to improve the heat supply station to reduce steam loss to be minimal, as well as implementing innovation projects to decrease energy consumption in the power plants, etc.

- The gas-fired power plant in the United States of America posted the energy consumption intensity of **3.88 GJ/MWh**, achieving the energy consumption target of not over 3.94 GJ/MWh, which was better than the set target by **1.5%**. This was due to an improvement of power plant's reliability and efficiency to be higher. Normally, the gas-fired power plant only sells electricity and must adjust their production capacity in real time according to the electricity demand in the power merchant market at different times. Consequently, the gas-fired power plants have higher energy consumption intensity than the CHP plants, which have relatively fixed production schedules and sell both electricity and steam.
- Reviewing and setting up the energy consumption intensity targets for years 2024-2025 based upon the types of power plants, including CHP power plants and gas-fired power plant so as to appropriately measure the performance of each type of power plant.

Energy Consumption Intensity (GJ/MWh)

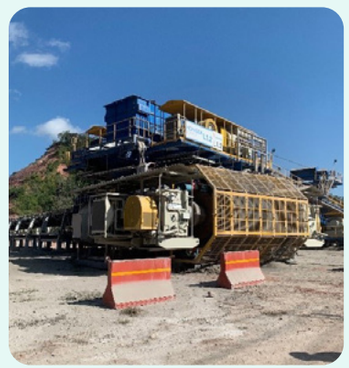


Remark: The performance of Temple gas-fired power plant has been included since 2023.

- **Regularly checking and comparing the ratio of imported energy and energy produced**, including the energy consumption in each production unit since it is the main cost of electricity production, showing the efficiency of energy use.

- **Seeking opportunities to reduce the use of fossil fuels causing greenhouse gas (GHG)**, including implementing several energy efficiency projects, such as using biomass derived from agricultural waste as fuel, installing solar panels on coal storage buildings, on roads, and in parking lots, etc.
- **Improving the power plant's energy efficiency**, such as:
  - Upgrading fuel spraying techniques
  - Reducing energy losses in the system, such as the pipe system loss, energy use of supporting machinery, etc.
  - Employing digital technology to develop applications and install devices for holistic energy management.
  - Enhancing power plant's ability to use other fuels such as coal with lower calorific value, biomass, etc.
- **Selling other products related to electricity generation according to market demand**, such as steam and chilled water, able to reduce energy loss and energy consumption intensity.

Using Regenerative Braking System Technology to Save Energy in Soil Conveyor Systems



HPC Mine-mouth Power Plant, a joint venture of BPP, located in Lao PDR, has initiated an energy conservation project in the soil conveyor belt system in the area, by cooperating with the contractors to invest in using the regenerative braking system technology to control the motor driving the conveyor belt during the downhill period. This allows precise control of the motor speed and torque. It also saves energy by reusing the power generated from braking system to be used in other areas, resulting in a reduction of energy costs by approximately THB 8.6 million per annum.

Reduction of energy costs by approximately THB 8.6 million per annum.

Smart Approaches for Energy Saving

To cope with an increase in fuel prices by more than 25%, in 2024, BLCP Power Plant, a joint-venture of BPP, has set up guidelines to reduce costs and increase operational efficiency through the development of energy conservation projects, including:

1. **Management of power plant's start-up and stop-up, in the form of "one-side operation"** by adjusting the operating system to use minimal energy. This has reduced energy consumption by 10 MW per start-up, saving USD 22,000 per time, or approximately USD 44,000 per annum.
2. **Starting the transformer in cold standby state**, which uses power only 0.5 MW, instead of commencing with hot standby state requiring up to 30 MW of power. This has resulted in energy savings of USD 0.6 million per annum.
3. **Reducing the temperatures of steam turbines** by using coal fuel instead of oil to operate steam boilers can save USD 16,000 per annum.
4. **Decreasing steam turbine temperatures by using air instead of natural cooling during the power plant shutdown**, which helps reduce the shutdown period from 10 days to only 3 days. It also increases the opportunity to sell electricity out of contact available hours (OCAH) and provides additional time for maintenance. This is equivalent to an additional revenue of USD 4.75 million per annum.

According to the implementation of the afore-mentioned activities, BLCP Power Plant expects to **reduce costs by approximately USD 49 million or around THB 1,800 million over a period of 9 years, able to reduce GHG emissions by 407 tonnes CO_2e per year** or about 3,700 tonnes CO_2e over 9 years, which is equivalent to planting 342,000 trees.

This project does not only reduce costs and increase revenue for the power plant, but it also promotes energy and environmental conservation, including in preparation for future policies and laws related to energy use and GHG emissions.

Reduce costs by approximately
USD 49 million
(over a period of 9 years)

Reduce GHG emissions by
407 tonnes CO_2e per year

Equivalent to planting
342,000 trees

Air Quality

Stakeholders

- Communities, employees, contractors, and the government sector

Strategy

- Investing in the power plants with high efficiency and environmentally-friendly.
- Improving the pollutant capture system to be more efficient.
- Selecting to use proper fuel quality to reduce pollutants emitted from its origin.
- Improving the combustion system efficiency.

Key Indicators

- Sulfur dioxide (SO_2) emission intensity
- Oxide of nitrogen (NO_x) emission intensity
- Particulate matters (PM) emission intensity

Targets

- SO_2 emission intensity ≤ 0.0336 kg/MWh.
  - CHP plants ≤ 0.0766 kg/MWh
  - Gas-fired power plant ≤ 0.0022 kg/MWh
- NO_x emission intensity ≤ 0.0555 kg/MWh
  - CHP plants ≤ 0.1184 kg/MWh
  - Gas-fired power plant ≤ 0.0261 kg/MWh
- PM emission intensity ≤ 0.0216 kg/MWh
  - CHP plants ≤ 0.0230 kg/MWh
  - Gas-fired power plant ≤ 0.0203 kg/MWh

Performance

- The air quality emitted from stacks was in accordance with applicable laws.
- SO_2 emission intensity was at **0.0089 kg/MWh**
  - CHP plants **0.0173 kg/MWh**
  - Gas-fired power plant **0.0022 kg/MWh**
- NO_x emission intensity was at **0.0305 kg/MWh**
  - CHP plants **0.0367 kg/MWh** for CHP plants
  - Gas-fired power plant **0.0255 kg/MWh**
- PM emission intensity was at **0.0127 kg/MWh**
  - CHP plants **0.0018 kg/MWh** for CHP plants
  - Gas-fired power plant **0.0212 kg/MWh**

Significance and Reporting Boundary

Sulfur dioxide (SO_2), and oxides of nitrogen (NO_x), as well as particulate matters (PM) volumes are the key indicators of air quality for BPP's thermal power plants and gas-fired power plants since high pollutants may have impacts on human health in the area. Recently, the government sector has put top priority to control the air quality in large cities with severe air pollution, such as the standards and measures to protect air quality in China have been increasingly rigorous for many years. This is also a challenge for BPP to improve its pollutant capture efficiency, and to control the air quality emitted to comply with applicable laws in order to create confidence among societies and communities in the area.

The boundary of this report covers the power plants, in which BPP has direct control, including the three combined heat and power (CHP) plants and Temple gas-fired power plant in the United States of America. According to other power plants, which are the joint-venture companies where BPP has no direct control, but are interested by stakeholders, only their performances are disclosed in the table annexed. Such results are not included in BPP's pollutant emissions database.

Management Approach

BPP has implemented measures to control air quality in accordance with applicable laws in order to keep the air quality at a safe level for the health of its employees and surrounding communities.

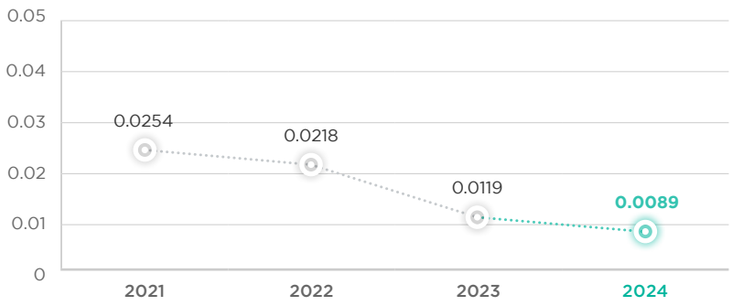
- **Investing in gas-fired power plants and renewable power plants** to decrease the pollutant emissions intensity.
- **Using suitable innovations** to improve a pollutant capture system before releasing pollution from stacks, such as a SO_2 precipitator called the "Flue Gas Desulfurization" (FGD), a particular matter (PM) treatment system, namely the Electrostatic Precipitator, and a dust filter- Bagfilter, etc.
- **Choosing to use coal with low sulfur contents** to reduce the SO_2 amount generated at its original point. In addition, BPP is looking to enter into a long-term purchase agreement for quality coal reserves as specified. The online trading system has also been implemented so as to allow the coal traders to sell coal with quality meeting BPP's requirements.

- **Using clean technology to help boilers combust completely,** such as employing effective production and environmentally friendly technology called the "High Efficiency, Low Emissions" (HELE), utilizing clean technology for boiler's combustions named the Pulverized Fuel Combustion and the Fluidized Bed Combustion to decrease SO_2 and NO_x as well as PMs during the boiler's combustion stage, etc.
- **Implementing a continuous monitoring system** for air quality discharges throughout the power production process, and setting up preventive measures, as well as being regularly examined by external agencies.
- **Assessing and managing air quality risks regularly** in order to determine preventive and corrective measures, such as risks related to imperfect machinery, risks associated with coal quality, risks from weather conditions and seasonal temperatures, etc.
- **Employing digital technology to develop the operating system** at Luannan CHP Plant in order to increase the operation efficiency by controlling the appropriate oxygen value in the combustion process. This helps control pollutants to a low level.

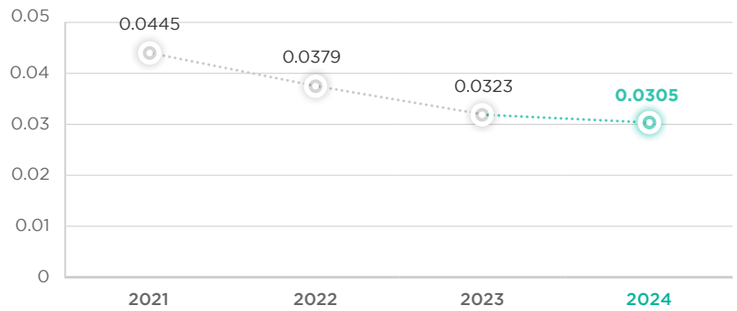
Performance

- BPP recorded the SO_2 emissions intensity of **0.0089 kg/MWh**, the NO_x emissions intensity of **0.0305 kg/MWh**, the PM emissions intensity of **0.0127 kg/MWh**, achieving all air quality targets set.
- The CHP plants in China posted the SO_2 emissions intensity of **0.0173 kg/MWh**, the NO_x emissions intensity of **0.0367 kg/MWh**, and the PM emissions intensity of **0.0018 kg/MWh**, reaching the air quality targets set. The amount of pollutants released from stacks of the CHP plants depends on coal quality used for combustion, efficiency of combustion and pollutant capture before releasing. All three CHP plants in China have continuously improved their efficiencies on combustion and pollutants capturing before releasing them, such as using digital technology to increase production efficiency and reduce air pollution at Luannan CHP Plant. This has resulted in the emissions reduction of SO_2, NO_x, and PM, which are power plants' significant indicators. This included the air quality released from stacks, which is better than the standards set by laws.
- The gas-fired power plant in the United States of America recorded the SO_2 emissions intensity of **0.0022 kg/MWh**, the NO_x emissions intensity of **0.0255 kg/MWh** and the PM emissions intensity of **0.0212 kg/MWh**, achieving the set air quality targets. The PM emissions intensity, however, was slightly higher than the set target by 4.4%. Thereby, the power plant has regularly inspected and maintained its machinery as well as enhanced the NOx sensor's accuracy to be more accurate so as to heighten the real-time fuel combustion efficiency to be better. This includes the implementation of a continuous air quality monitoring system throughout the power generation operation.
- Reviewing and setting the targets for SO_2, NO_x, and PM emissions for the year 2024 - 2025 based on each type of power plants, including CHP plants and gas-fired power plants in order to measure the performance of each type of power plants appropriately.

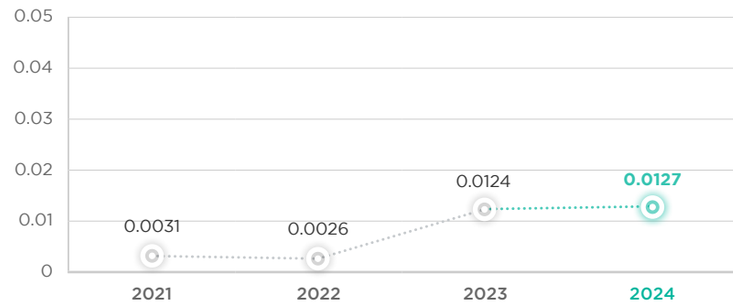
SO_2 Emission Intensity (kg/MWh)



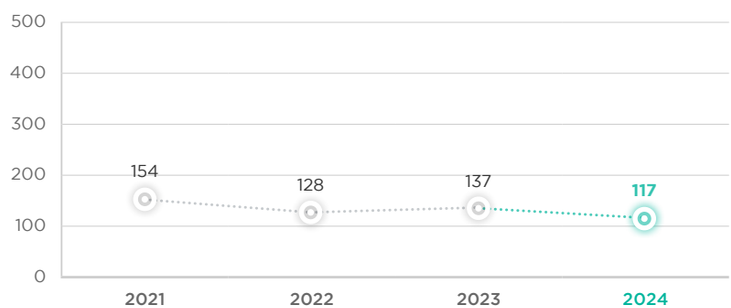
NO_x Emission Intensity (kg/MWh)



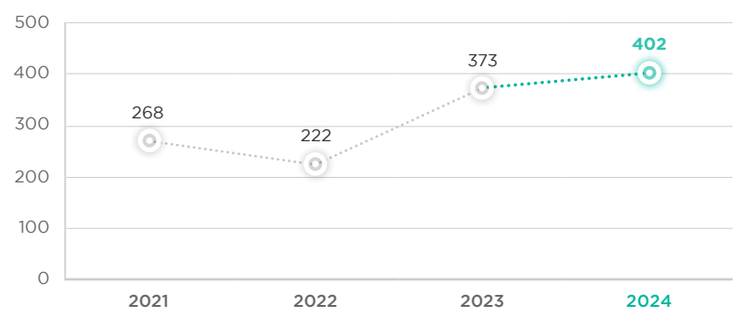
PM Emission Intensity (kg/MWh)



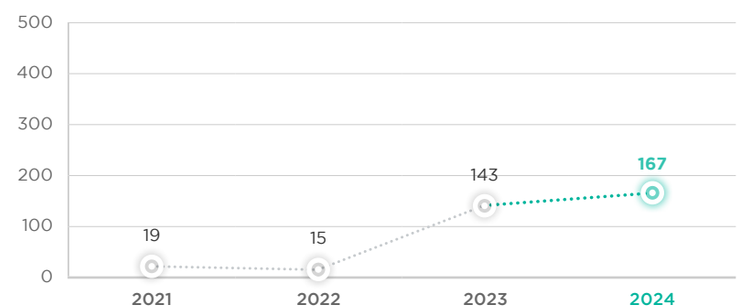
The Amount of SO_2 Emissions (tonnes)



The Amount of NO_x Emissions (tonnes)



The Amount of PM Emissions (tonnes)



Remark: The operating performance of Temple gas-fired power plant has been included since 2023.

Employing the “Digital Twins” to Increase Production Efficiency and Reduce Air Pollution Emissions

Since the current operation system of Luannan CHP Plant’s has become more complicated, leading to several issues. One significant problem is that the adjustment of operational parameters relies heavily on the experience of individual operators.

To solve the problem, Luannan CHP Plant collaborated with a technology company to develop the Digital Twins system – a comprehensive system utilizing the real-time data together with the hi-tech digital, including client, edge computing, cloud computing, big data, and AI technologies. This Digital Twins system can enhance the overall operational efficiency of Luannan CHP Plant by controlling optimal value of oxygen in the combustion process, leading to optimal boiler combustion. This can minimize air emissions loading intensity of NO_x to 17%, SO_x 19% and particulate matters 16%, when compared to the year 2022. In 2023, the “Digital Twins” system also helped decrease the chemical amount used for improving air quality, including urea and limestone powder totaling 580 tonnes or equivalent to USD 26,290.

As a result, BPP can ensure compliance with the air emission regulations in China and reduce risks associated with fines and surrounding community complaints, especially the air emissions aspect. On the contrary, the system can reduce coal consumption of 8,658 tonnes or decrease fuel costs of around USD 1,323,150 in 2023. Besides, the employees can also gain valuable skills in cutting-edge technologies, while BPP can scale-up the system to other CHP plants.

Minimize air emissions loading intensity
(when compared to the year 2022)

- NO_x minimize to **17%**
- SO_x minimize to **19%**
- PM minimize to **16%**

Reduce coal consumption of **8,658 tonnes**

Decrease fuel costs of around **USD 1,323,150**

Water Resources

Stakeholders

- Communities, government sector and customers

Strategy

- Improving production processes, reducing water loss in the system, maximizing water resources consumption.
- Implementing holistic water management for both drawing raw water to the system and discharging water to the public in order to decrease the impacts from water use in the area.
- Promoting water management in the area in cooperation with stakeholders.

Key Indicators

- Water consumption intensity
- The quality of water discharge is in comparison with the standards as required by applicable laws.

Targets

- Water consumption intensity ≤ 0.917 cubic meters/MWh
  - CHP plants ≤ 0.868 cubic meter/MWh
  - Gas-fired power plant ≤ 0.958 cubic meters/MWh
- The quality of water discharge is in accordance with legal standards.

Performance

- Water consumption intensity was **0.817 cubic meters/MWh**.
  - CHP plants **0.717 cubic meters/MWh**
  - Gas-fired power plant **0.897 cubic meters/MWh**
- The quality of water discharge was in alignment with the standards required by applicable laws.

Significance and Reporting Boundary

The climate change impact is an important issue making the situation related to water risks become more severe in the future since water is a main driver for thermal power plants' production processes, such as generating steam in a boiler, controlling temperatures in a cooling system, including air quality, and etc. Hence, the efficient management of water resources used in the production process and discharged water, both qualitatively and quantitatively, will help lessen the impacts on communities from limited freshwater resources, and from water quality problems possibly affect the environment. It also mitigates BPP's risks associated with production costs, compliance with applicable laws, and community relations.

The boundary of this report covers the power plants, in which BPP has direct control, namely the three combined heat and power (CHP) plants in China, and Temple gas-fired power plant in the United States of America. For the benefit of stakeholders, BPP discloses the operating results of other power plants which have no direct control on the performance tables. However, such results are not integrated into BPP's water management database.

Management Approach

To ensure that its operations comply with good operating standards and meet the water quality requirements of each country, BPP has set a water use intensity in the production process and monitored performance against the annual targets. In addition, BPP has created a water system concept model for every power plant to be used for monitoring and managing water resources in a transparent and efficient manner.

Monitoring performance against the annual targets

Creating a water system concept model for every power plant

Using the Water Management Hierarchy approach

Water Management Policy

The Water Management Hierarchy approach is used in managing water to achieve maximum benefit, as follows:

Guideline 1: Elimination
Cutting off water use in certain processes, which is considered as the first option if possible.

Guideline 2: Reduction
Taking action or trying to reduce water use in the process when water consumption cannot be eliminated.

Guideline 3: Direct reuse/outsourcing
Using water in many processes without going through a treatment process/purchasing water from outside manufacturers.

Guideline 4: Regeneration reuse/recycling
Water will go through a treatment process before being reused or recycled.

Guideline 5: Fresh water
Consider using fresh water when wastewater cannot be reused or recycled.

Since China's CHP plants' water sources for steam generation systems are from ground water and water supplied by external manufacturers, the water management is focused on recycling water as much as possible to reduce the amount of discharged water with quality complying with applicable laws. On the other hand, the gas-fired power plant in the United States of America, uses water only from external producers supplying used water from the community to the power plant. In addition, large water storage ponds are in the power plants' areas to treat and reuse water. Water is treated by using biological treatment methods, controlling the amount of algae and acidity-alkalinity, significantly helping reduce the amount of chemicals used in water treatment. This is to prepare water quality before entering the "Zero-Liquid Discharge" treatment system, making the water quality meet standards and be used in the power plant's production processes. Such holistic water management makes the power plant have sufficient water reserves and do not release wastewater generated from their production into nearby natural water sources anymore.

To ensure that the water management is implemented while the released water quality is in accordance with applicable laws, BPP measures its water quality before being discharged to outside. The water quality measurement is conducted by BPP and external agencies. However, the types of pollutants measured, the frequency and measurement methodologies of each business unit may differ according to the requirements of each project and as required by laws in each area. Measures are in place to prevent chemical leakage and contamination at the original source. In addition, measures and procedures are determined in the event of any emergency so as to reduce impacts likely arising in the event of an incident regarding water resources and to be able to rehabilitate effectively in an appropriate time.

Focusing on recycling water as much as possible to reduce the amount of discharged water with quality complying with applicable laws.

BPP reviews its assessment of water-related risks and impacts on an annual basis in order to understand water risks and impacts, such as risks related to water shortages, drought, and laws, etc. Moreover, the measures are prepared to mitigate risks and various inspections. The assessment is made by using the water risk map (Aqueduct) of the World Resources Institute (WRI).

BPP has integrated the power plants' water risk assessment results into the organization's risk assessment. The risk management measures are as follows:

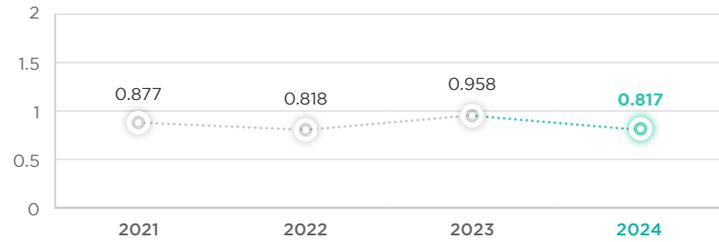
Topics	Risk Management Measures
Dependency-related water risks considered in risk assessment	• Focusing on reducing water use in the production process, directly using water, and putting water through a treatment process for reuse/recycling. • Constructing a clarifier pond within the area to control water quality and recycle water.
Impact-related water risks considered in risk assessment	• Determining qualitative and quantitative indicators of water at various points possibly be affected in order to monitor and find appropriate management measures. • Establishing measures to prevent chemical leakage and contamination at the original source, including measurements and procedures in the event of any emergency.
Assessment of future water quantities available	• Annually assessing water-related risks and impacts, covering water shortages and future water needs. • Carrying out a project to reduce the amount of water used in high-risk power plants, such as installing a water recycling system at the power plant extension to reduce the use of water resources in the area and minimizing the wastewater released to outside, including building a clarifier pond within the area to control water quality and bring it back for recycling.
Assessment of future water quality related risks	• Annually assessing water-related risks and impacts, covering future water quality. • Measuring water quality being released to the outside. The measurement is regularly conducted by BPP and external agencies to ensure that the water quality be in accordance with applicable laws.
Assessment of impacts on local stakeholders	• Using risks and impacts related to water, such as sharing water with the community, releasing water into water sources, etc., to assess social impacts before starting the project. • Promoting stakeholders' engagement, especially local communities and a research sector in order to conserve water resources, and to improve water quality and management in the area.
Dependency-related water risks considered in risk assessment	• Monitoring on new water-related laws issued by the central and national regulatory agencies, such as laws prohibiting the use of groundwater installed within project areas in China. • Anticipating potential impacts and using them for risk assessments in order to find appropriate risk mitigation measures.

For BPP's performance measurement, the business water use data is collected according to the GRI 303 (2018) standards to provide information for water management. The water drawn from water sources consists of the amount of surface water pumped from water sources, the amount of groundwater pumped for use, and the amount of water supplied by external agencies. This does not include the amount of rainfall in the area since BPP doesn't use such precipitation. The data collected are based upon the assumption that local water reservoirs have a minimal capacity, when compared with the water amount drawn from all water sources. For all data of water amount are collected from water meters.

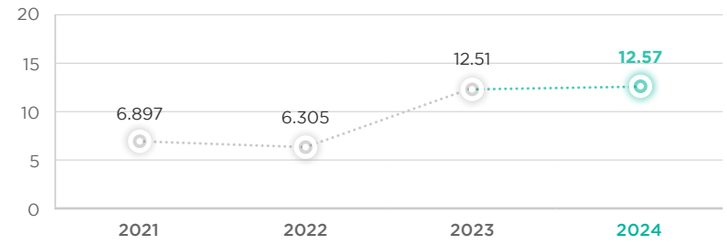
Performance

- BPP's water use intensity was **0.817 cubic meters/MWh**, achieving the water use intensity of not over 0.917 cubic meters/MWh or better than the target by **10.9%**. In addition, BPP was able to control every power plant's released water quality to meet the standards set by applicable laws. There were no chemical leakage incidents contaminating the water sources.
- The CHP plants in China recorded a water consumption intensity of **0.717 cubic meters/MWh**, achieving the water use intensity target of not exceeding 0.868 cubic meters/MWh, or better than the target by **17.4%**. This was a result of the power plant implementing a project to reduce water use and heat loss in the system to comply with China's law on using groundwater in the industrial sector. In addition, water is recycled for reuse in order to reduce the amount of water withdrawal from natural water sources. All water discharged from the power plant is sent for treatment by an external authorized water treatment service provider.
- The gas-fired power plant in the United States of America recorded a water use intensity of **0.897 cubic meters/MWh**, achieving the water use intensity target of not over 0.958 cubic meters/MWh, or better than the set target by **6.4%**, consisting of reclaim water from the community only without discharging water to external water sources.
- Reviewing and setting up the water consumption intensity targets for the years 2024 - 2025 according to types of power plants, including CHP plants and gas-fired power plants in order to measure the performance of each type of power plants appropriately.

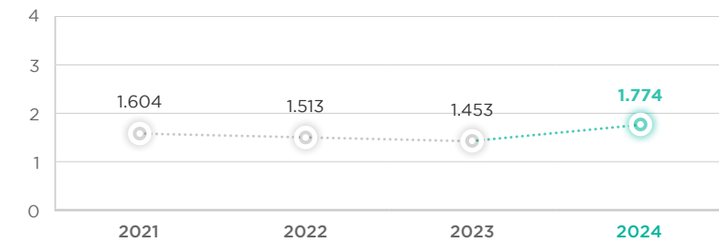
Water Consumption Intensity (cubic meters/MWh)



Water Withdrawal (million cubic meters)



Water Discharge (million cubic meters)



Remark: The performance of Temple gas-fired power plant has been included since 2023.

Water Risks Assessment

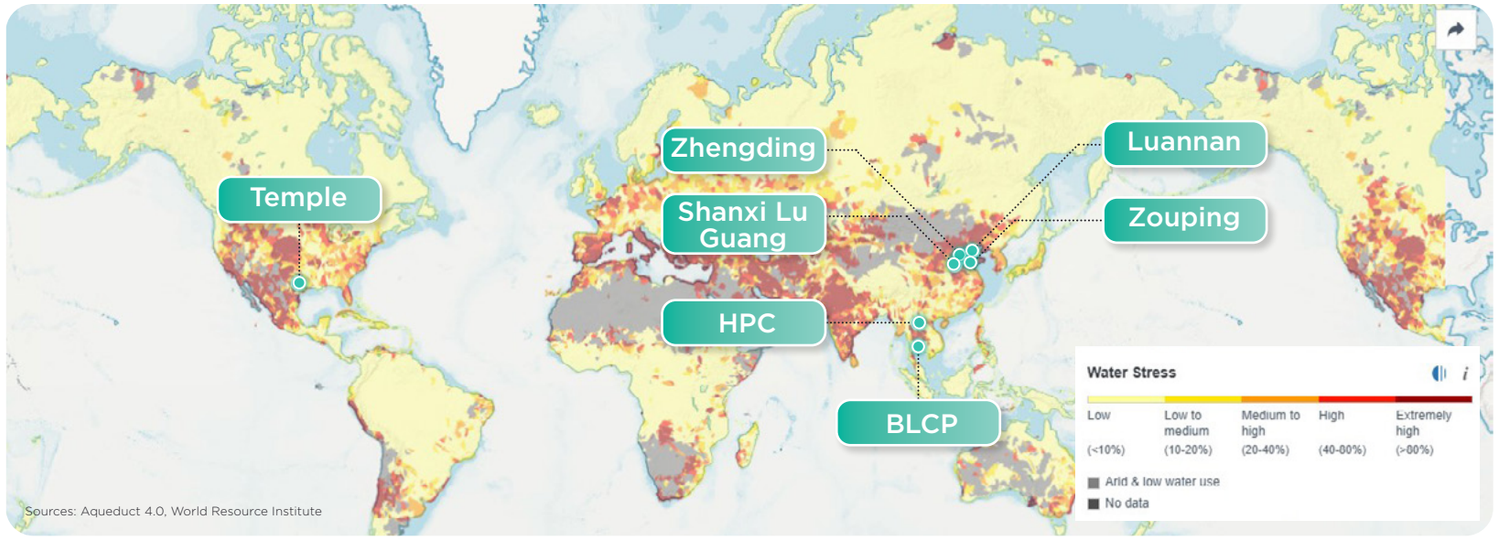
BPP annually assesses water-related risks from all locations of its thermal power plants due to their high demand for water in the production process. BPP uses the "WRI Aqueduct Water Risk Atlas (Aqueduct 4.0)" – a program demonstrating categories of areas with water resource risks, in terms of physical, quantity and quality, regulatory & reputational risks, as well as anticipating future risks, as a reference to assess its water-related risks.

The 2024 assessment, using data on areas currently faced with water shortage risk, and the year 2030 forecast, found that the water-related risks are unchanged from the previous year's assessment. The assessment results and risk management measures can be summarized as follows:

- The CHP plants in China, namely Luannan, Zhengding, and Zouping, in which BPP has direct control are located in the areas with extremely-high risks associated with water resources. Therefore, the power plants have made improvements to reduce the amount of water consumption and water discharges to comply with the government's regulations. Meanwhile, the power plant's extensions have also installed a recycling system in order to reuse all of their released water.
- Temple gas-fired power plant in the United States of America, in which BPP has direct control has a low to medium water resource risk, while its risk related to water shortages is relatively medium to high. The power plant has installed a water recycling system. As a result, it is able to reduce water consumption in the area with no discharged water.
- According to the joint-venture thermal power plants, namely BLCP Power Plant in Thailand and HPC Power Plant in Lao PDR, it was found that BLCP Power Plant has high risk associated with water scarcity since the plant is located on the sea. BLCP Power Plant, therefore, has invested in a construction of the desalination plant, producing fresh water and tap water from seawater through the reverse osmosis seawater desalination plant, with a capacity of 1,000 cubic meters/day. The aim is to alleviate the water shortage crisis in the eastern region by producing sufficient water for the people and farmers. Since 2020, the desalination plant has helped in reducing the total amount of fresh water consumed in the area 100%. HPC Power Plant, though, having low risks related to water shortage, the power plant has managed water sources in the area, namely Nam Leuk and Nam Khan water sources. In addition, the power plant in collaboration with the experts conducted a study on using models to forecast water balances in the areas, set up indicators for measuring water quantities in various points for surveillance and determining appropriate measures. The clarifier ponds were constructed within the area to control water quality and to recycle water discharges.

Annually assessing water-related risks

from all thermal power plants



Power Plants	Overall Water Risk	Physical Risk Quantity		Physical Risk Quality	Regulatory and Reputational Risk	Future in 2030 Business as Usual	
		Water Stress	Drought Risk			Water Stress	Water Demand
Luannan	Extremely high	Extremely high	Medium - High	High	Medium - High	Extremely high	> 30 cm/year
Zhengding	Extremely high	Extremely high	Medium - High	Medium - High	Medium - High	Extremely high	> 30 cm/year
Zouping	Extremely high	Extremely high	Medium - High	High	Medium - High	High	> 30 cm/year
Shanxi Lu Guang*	Extremely high	Extremely high	Medium - High	Medium - High	High	Extremely high	10- 30 cm/year
HPC*	Medium - High	Low	Low - Medium	High	Extremely high	Low	1 - 3 cm/year
BLCP*	Medium - High	High	Medium - High	Medium - High	Low - Medium	High	10 - 30 cm/year
Temple	Low - Medium	Medium - High	Medium	Low	Low - Medium	Medium - High	3 - 10 cm/year

*The joint-venture company, in which BPP has no management control.

Improving Water Consumption Intensity and Heat Loss Rate of Zhengding CHP Plant

The legal enforcement on using groundwater in the Chinese industrial sector has made Zhengding CHP Plant change its water use from groundwater to surface runoff. This has directly resulted in an increase in water costs by approximately 2 times.

Zhengding CHP Power Plant, however, has seen an opportunity to reduce water consumption and lost heat in the system to increase operational efficiency and reduce production costs. The power plant has designed and installed pipe and pump systems to circulate water use at its chemical storage plants and cooling towers. The designed pump installation has resulted in **a reduction of water withdrawal from surface water sources by approximately 280,000 tonnes, equivalent to the production costs of around USD 205,000**. In addition, the investment costs for heating systems could be reduced by USD 27,453, while the heat loss costs have been decreased by USD 123,536 per year. This project is part of BPP's project to promote innovation in organizations.

Waste

Stakeholders

- Communities, customers, employees, shareholders, business partners, suppliers, and the government sector

Strategy

- Reducing waste use at its original sources.
- Promoting waste reuse and recycling.
- Implementing measures to prevent and correct hazardous waste leakage.

Key Indicators

- The amount of hazardous waste directed to disposal.
- The amount of non-hazardous waste directed to disposal.
- Hazardous waste to landfill.
- The number of significant leakage incidents.
- Proportion of ash eliminated by reuse or recycling.
- Proportion of gypsum treated by reuse or recycling.

Targets

- Hazardous waste directed to disposal ≤ 210 tonnes.
  - CHP plants ≤ 210 tonnes
  - Gas-fired power plant 0 tonne
- Non-hazardous waste directed to disposal ≤ 793 tonnes
  - CHP plants ≤ 793 tonnes
  - Gas-fired power plant 0 tonne
- No hazardous waste to landfill.
- None of significant incidents related to leakage
- Proportion of ash eliminated by reuse or recycling is no less than 100%.
- Proportion of gypsum destroyed by reuse or recycling is not less than 100%.

Performance

- Hazardous waste direct to disposal was **3 tonnes**.
  - CHP plants **3 tonnes**
  - Gas-fired power plant **0 tonne**
- Non-hazardous waste direct to disposal **286 tonnes**.
  - CHP plants **279 tonnes**
  - Gas-fired power plant **7 tonnes**
- **None** of hazardous waste to landfill
- **None** of significant incidents relating to leakage
- Proportion of ash disposed by reuse or recycling was accountable for **100%**
- Proportion of gypsum eliminated by reuse or recycling represented **100%**

Waste Management Policy

Significance and Reporting Boundary

The valuable resources conservation and utilization is the best practice to minimize waste generated from operations as much as possible. The appropriate and efficient waste management can also help lower costs on waste disposals, including reducing impacts on environment and surrounding communities caused by hazardous waste leakages and improper disposal from thermal power plants. In addition to non-hazardous and hazardous waste, there are ash and gypsum created from fuel combustions and air quality treatment processes, which can be utilized and added value by selling them as mixtures of construction materials.

The boundary of this report covers the power plants, in which BPP has direct control, namely the three combined heat and power (CHP) plants in China, and Temple gas-fired power plant in the United States of America. As for other power plants, which are the subsidiary companies where BPP has no direct management control, BPP discloses only their performances on the performance table in order to provide benefits to stakeholders who want to know such information. The performance data of those power plants, however, are not included in BPP's waste database.

Management Approach

BPP determines the targets to eliminate waste and monitors its performance against the annual target in order to ensure that the operation is carried out in accordance with the best practice and legal requirements of each country. BPP's waste management approach is based on the 3Rs principle, including:

Reduce **Reuse** **Recycle**

Moreover, BPP promotes the practice guideline for eliminating waste throughout the supply chain. It also classifies waste from its power plants into 3 categories, of which the management approach are concluded as follows:

Non-hazardous waste | Hazardous waste | Ash and gypsum

Types of Waste	Examples	Associations		Management Approaches
		CHP Plants	Gas-fired Power Plants	
Non-hazardous waste	• Papers and office equipment • Metal scraps, materials and equipment, as well as packaging • Organic waste generated from offices and area maintenances	●	●	• Reducing consumption volumes • Storage and classification for reuse and recycling
Hazardous waste	• Used oils and lubricants • Used batteries • Chemicals used to improve water quality and other chemicals, including packaging • Waste resulted from the power plant's maintenance	●	●	• A consumption reduction • Seeking opportunities to change hazardous chemicals to ones able to be better treated or reused • Reducing the use of packages by transporting and installing hazardous waste in chemical storage tanks. • Storing and classifying waste for reusing and recycling. • Determining preventive measures and management in the event of chemical leakage. • Transportation, disposal and distribution for recycling must comply with the standards set by law. • Delivering waste for disposal, by certified external parties.
Ash and gypsum	• Fly and bottom ash • Gypsum	●		• Segregating fly ash sizes to meet customers' needs and market demand. • Exploring the market to sell fly ash, bottom ash, and gypsum for utilization such as construction materials. • Arranging adequate areas for storing ash and gypsum appropriately. • Delivering ash and gypsum to the certified external parties for disposals.

Waste Disposal Systems

Procurement
- Selecting suppliers with sound operational standards
- Reducing a use of packaging

Storage
- Storing waste in accordance with best practices and legal compliance
- Inspecting hazardous waste storage area regularly to prevent leakage

Transportation
- Transporting waste in accordance with standards and applicable laws
- Choosing and evaluating the standardized transporting contractors

Elimination
- Classifying waste types for resue or recycling
- Selling or disposing waste with appropriate proper operations in accordance with best practice and legal compliance
- Regularly recording waste disposal data

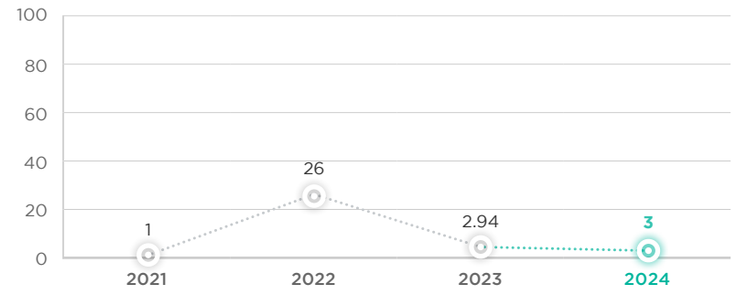
To assess waste management performance, BPP has collected waste data in accordance with the GRI 306 Waste (2020) standard since the year 2021, by compiling the amount of waste generated and delivered for disposal through weighing and recording data prior to either management or disposals. The amount of waste transported for disposal by outside agencies has been recorded from the receipts. Moreover, agencies permitted by the government are selected to transport and dispose of waste so as to ensure that the waste management meets standards according to the requirements of each country and have the least impact on the environment.

Meanwhile, ash and synthetic gypsum – by-products produced by the CHP plants, are included as the non-hazardous waste. These by-product sizes are separated in order to create added values and sell to customers in the construction industry.

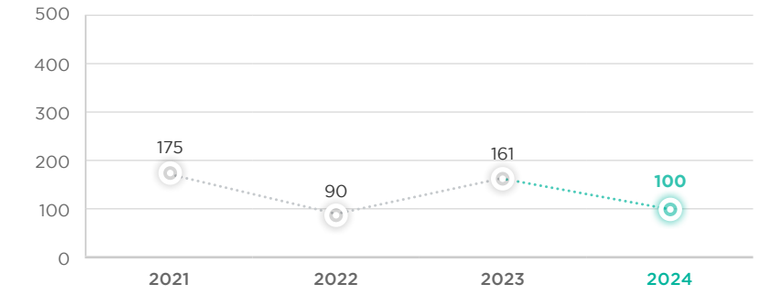
Performance

- BPP recorded the total waste amount of **700,556 tonnes**, divided into **103 tonnes** of hazardous waste and **700,453 tonnes** of non-hazardous waste (including ash and gypsum). All of the waste generated was managed by external agencies. There was no waste being eliminated in the power plant's areas. In 2024, hazardous waste directly eliminated was 3 tonnes, while non-hazardous waste directly disposed was 286 tonnes. In addition, there was **no hazardous waste to landfill**. Meanwhile 100% of ash and gypsum was eliminated by reusing and recycling. Also, there was none of significant incidents involved with oil or chemical leakage. BPP achieved the overall waste management target as set.
- The CHP plants in China recorded hazardous waste directly eliminated in an amount of **3 tonnes** and non-hazardous waste directly disposed in an amount of **279 tonnes**. On the other hand, **100%** of ash and gypsum was eliminated by reusing and recycling, achieving the waste management target as set. For fly ash, BPP has segregated its sizes prior to selling as parts of construction materials. Such sizes segregation has added values for fly-ash, making it to get higher selling prices since the ash qualification meets customer's needs.
- The gas-fired power plant in the United States of America generated **none** of hazardous waste directly eliminated, achieving the hazardous waste management target as set. The non-hazardous waste directly disposed in an amount of **7 tonnes** was above the target set. This non-hazardous waste generated in the offices was disposed to landfill by the certified external agency.
- Reviewing and setting up the targets to manage hazardous and non-hazardous waste for the years 2024 - 2025 according to the types of power plants, including CHP plants and gas-fired power plant so as to measure each type of power plant's performance appropriately.
- Examining and correcting the waste management policy in order to respond to the gas-fired power plant business and stakeholders' expectations.

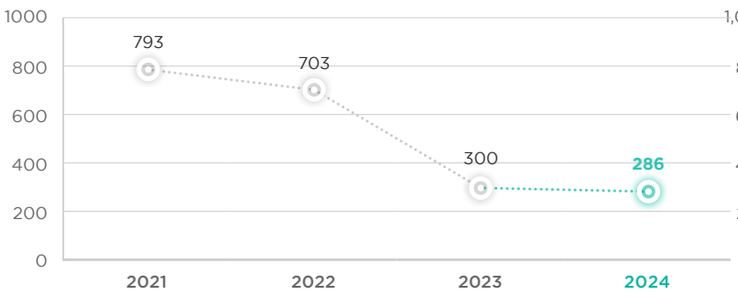
Hazardous Waste Direct to Disposal (tonnes)



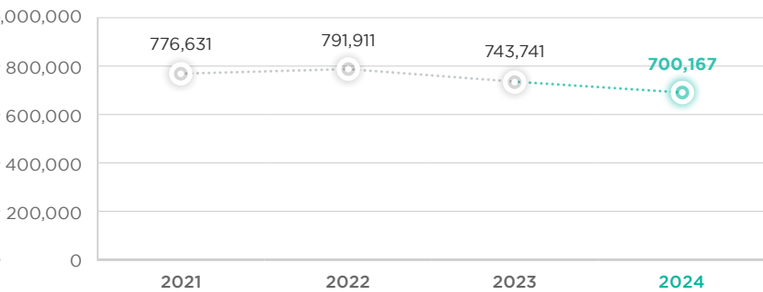
Hazardous Waste Divered from Disposal (tonnes)



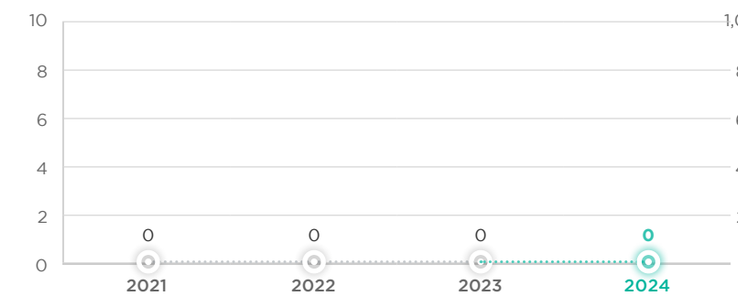
Non-hazardous Waste Directed to Disposal (tonnes)



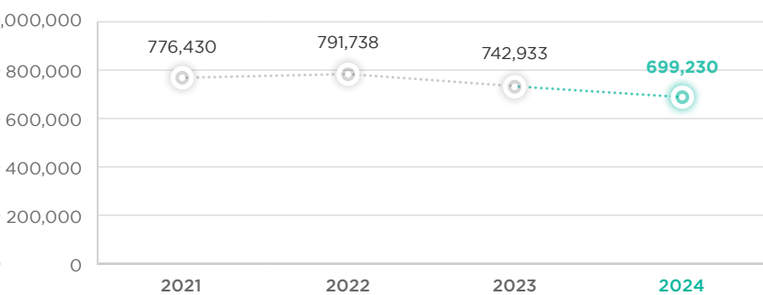
Non-hazardous Waste Diverted from Disposal (tonnes)



Ash and Gypsum from CHP plants Direced to Disposal (tonnes)



Ash and Gypsum from CHP Plants Diverted from Disposal (tonnes)



Remarks:
- The operational performance of Temple Gas-fired Power Plant has been included since the year 2023.
- Non-hazardous waste includes ash and gypsum since it passed the qualification analysis and is not dangerous.

Educating Employees on Waste Management

Seeing the importance of employees as a good citizen who can play a key role in conserving resources, Banpu Group invited Mr. Chanat Wuttiwikaikan or Kong Greengreen, a famous content creator to be a guest speaker at the “Safety Day” event, held on 6 November, 2024. An inspiring session on how to protect the earth in a fun and easy way through social media was given by Kong Greengreen, with an aim to provide knowledge to Banpu Group’s employees and educate them about facts regarding waste problems in Thailand. This included telling participating employees how to separate different types of waste and the ways to reduce waste, such as using cloth bags instead of plastic bags, reusing or recycling waste for maximum benefits, etc. At the event, activities involved with correct sorting of waste into different types of trash bins were organized, with over 100 employees attending the event.

Wenyu Riverside Cleanup Project to Create Environmental Awareness Among Employees

Banpu Investment (China) Ltd. or BIC, BPP's subsidiary in China, joined hands with the Beijing Environmental Protection Foundation (Beijing Watcher) to organize a beach clean-up activity along the Wenyu River in Beijing City on 19 April, 2024, with more than 40 employee volunteers participating. At the event, the employees were divided into 4 groups to collect trash from the beautiful beach area, such as cigarette butts, bottle caps, used plastic bags, etc., and a 28 kg total weight of garbage was collected.

This activity has not only improved the scenery along the river, but it has also helped employees understand the dangers of waste affecting the environment as well as the importance of better protecting river ecosystems. Moreover, it has created participation from employees and local agencies, demonstrating the employees’ social responsibility in every country in which BPP has operated.

Rayong River Garbage Barrier Project to Prevent and Reduce Garbage in the Mangrove Forests Released into the Sea

A survey conducted by the Rayong Municipality revealed that in 2023, the Rayong River accumulated an average of 1,270 kg of garbage per month, totaling about 15.24 tonnes per year. Especially in the mangrove areas used by the Kao Yod Small Boat Fishery Group, the accumulated garbage reached 4,571 kg per year, equal to 30% of the total garbage in the river.

In 2024, BLCP Power Plant in cooperation with the Kao Yod Small Boat Fishery Group (under the project to build a garbage barrier in Rayong River) and the government agencies, built a 40-meter garbage barrier made from about 400 pieces of bamboo with a 4 inches-circumference and a 2.5 meters-length (being placed along the walkway bridge). The barrier is the use of environmentally-friendly natural resources locally, expected to help reduce the amount of waste in the mangrove forests by up to 2,800 kg/year or accounting for 61% of the total garbage in the area.

In addition, the activity to collect garbage in the Rayong River was organized by a cooperation from many sectors, including the Kao Yot Small Boat Fisheries Group, the Pak Nam Sub-district Ecotourism Group, the Conservation Group to restore the Rayong River and mangrove forests, the Rayong Provincial Administrative Organization, the Provincial Fisheries, the Marine and Coastal Resources Office No.1, the Rayong Municipality, the media, and employee volunteers from BLCP Power Plant. Over 100 people participated in this activity. In conclusion, this project has helped create collaboration between the government agencies, the private sector, and the communities in conserving and restoring the Rayong River's coastal ecosystem.

Built a **40**-meter garbage barrier

Reduce the amount of waste in the mangrove forests **2,800** kg/year

Creating collaboration between the government agencies, the private sector, and the communities in conserving and restoring the coastal ecosystem.

Biodiversity

Stakeholders
- Communities, society, and the government sector

Strategy
- Avoid conducting operations in the areas with high biodiversity value.
- Conducting a study and assessing risks relevant to biodiversity in the operating and project's areas to avoid, and to develop preventive and corrective measures.

Key Indicators
- The proportion of business units that have assessed potential impacts on biodiversity
- The proportion of business units assessed for biodiversity value (If there is any business unit located in the areas assessed as having high impacts on biodiversity.).

Targets
- The proportion of business units that have assessed potential impacts on biodiversity is 100%.
- The proportion of business units assessed for biodiversity value is 100%.

Performance
- Completely assess potential impacts on biodiversity across **all business units' areas**.
- **None** of the business units are located in areas with high biodiversity value.
- **None** of complaints or instances of non-compliance with biodiversity-related laws.

Significance and Reporting Boundary

At present, biodiversity loss is an ongoing issue for many reasons, including deforestation, excessive exploitation of biological resources beyond their balance point, climate change, threats from invasive alien species, and pollution caused by human activities, especially in areas with high biodiversity. BPP is well aware of these high-biodiversity areas and strives to conduct its business with caution, considering the potential impacts of its projects. The company aims to avoid, prevent, and minimize any negative effects through proactive measures.

The boundary of this report covers the power plants where BPP has direct control, namely the three combined heat and power (CHP) plants in China, and Temple gas-fired power plant in the United States of America.

Management Approach

BPP has established guidelines for biodiversity management by avoiding creating impacts on biodiversity as the first place. The process begins with selecting operational zones that do not affect the areas with high biodiversity. BPP is committed to conducting the biodiversity operations as follows:

- Committing to operating the projects **creating the Net Positive Impacts on biodiversity** by using management approaches as follows:

Avoidance
Avoiding implementing the activities causing negative impacts on biodiversity.

Rehabilitation
Rehabilitating the affected areas.

Reduce
Reducing the unavoidable impacts by determining the clear action plan and measurements.

Offset
Operating projects to offset the biodiversity impacts.

Biodiversity Policy

- Avoiding implementing projects in the areas with high biodiversity.
- Assessing potential impacts on biodiversity at all production units where BPP has management control, and reviewing the assessments regularly, or when changes arise. This is to ensure that the operation will not have an impact on biodiversity in the area.
- Conducting studies and assessing the biodiversity value to collect data and prepare an action plan to reduce the impact before commencing the project.
- Considering the biodiversity impacts in every phase of the project, starting from survey, construction, operation, to project's expiration period.
- Assuring stakeholders that **none of BPP's operations are in the World Heritage area (the International Union for Conservation of Nature (IUCN) category 1 - 4)**, while expressing commitment to **Zero Deforestation** as stated in the Biodiversity Policy.
- Engaging with stakeholders, especially local communities and academic institutions, to implement the biodiversity conservation projects.
- Continuously supporting the research projects on biodiversity.
- Following up trends on changes in laws or practices related to biodiversity in order to assess potential risks, such as collaborating with Banpu Group to create a report according to the Taskforce on Nature-related Financial Disclosures (TNFD) in order to increase data disclosure transparency, developing competencies on risk management, and promoting operations having positive impacts on natures, etc.

Biodiversity Risks Assessment

BPP assesses biodiversity risks together with studying environmental impacts of its newly invested projects by employing outside experts. This is part of the project's risks and feasibility assessments. For current business units, BPP assesses biodiversity risks by using secondary data to study changes in space use via satellite images. Moreover, it is keeping an eye on changes in applicable laws/requirements for using the area as well as incidents related to biodiversity possibly resulting from the power plants' operations, etc. The study area of each power plant is defined in a 5 km radius surrounding the power plants, representing an area of approximately 80 square kilometers, while the environmental impact on biodiversity is regularly monitored.

Ensuring that **none of BPP's operations are located within World Heritage and protected areas.**

Performance

- **BPP operates neither power plants nor business units located in areas with high biodiversity**, such as the World Heritage Area, the protected areas by the International Union for Conservation of Nature (IUCN) Category 1-4. That means BPP's operations are not located in the strict natural reservation areas, national parks, natural monuments, and habitat/species management areas or wildlife sanctuary zones.
- **In 2024, BPP assessed the biodiversity impact risks**, covering all four thermal power plants, in which BPP has management control, including Zhengding CHP Plant, Luannan CHP Plant, Zouping CHP Plant in China, and Temple gas-fired power plant in United State of America. The total area of these power plants is 182 hectares. According to the study, it was found that all BPP's power plants have low biodiversity risk as follows:
  - **The three CHP plants in China:** The areas used around the three CHP plants are still the urban areas where most of the activities conducted are the industrial undertakings, while some are agricultural and residential areas. The study results revealed that there is no incident related to biodiversity impacts derived from the air quality and power plants' operations. Moreover, there have not been any conservation areas announced near the three CHP plants.
  - **Temple gas-fired power plant:** Since the power plant is located in an empty and agricultural area in Texas State, the United States of America, its biodiversity risk is relatively low. Moreover, no incidents related to biodiversity impacts arising from air quality and the power plant's operations has been reported.
- A disclosure of biodiversity risks assessment on BPP website.

The Aquatic Animals Releasing Project Carried Out for the 22nd Consecutive Year to Continuously Strengthen Rayong's Marine Ecosystem

On 15 October 2024, BLCP Power Plant, which is BPP's joint-venture company, collaborated with the business partners and the governmental sector to arrange the aquatic animal releasing activity at Ban Phayun Fisheries Group in Rayong Province. Having been organized for the 22nd consecutive year, the project is aimed at increasing aquatic animals, maintaining a balance of ecological system, increasing fishermens income, creating awareness on marine resources conservation and environmental protection in residential communities, as well as creating good relationships among the government agencies, local communities, and industrial operators in Rayong Province.

A total of 3,200,099 aquatic species were released in the year 2024, including 3,000,000 crab mites, 200,000 shrimp larvae, and 99 blue swimming crab mothers. All these aquatic species were taken from the aquatic animal breeding farms of 7 small boat fishing groups under the local small boat fishing community enterprise from Mueang Rayong District and Bang Chang Samakkhi District.

A total of 3,200,099 aquatic species were released in the year 2024, including 3,000,000 crab mites, 200,000 shrimp larvae, and 99 blue swimming crab mothers.

SOCIAL

Banpu Power

has created sustainable value for stakeholders and society.

Labor Practices

Stakeholders

- Employees, the government sector, business partners

Strategy

- Labor practices are in accordance with the international best practice.
- Fostering equality, non-discrimination, and stopping harassment or violation of rights in the workplace.
- Determining channels for employee communications, complaints filing, and remedial processes.

Key Indicators

- The number of incidents associated with violations of labor laws and practices.

Targets

- None of the incidents is associated with violations of labor laws and practices.

Performance

- **Zero** incidents associated with violations of labor laws and practices.

Human Resources Management Policy of Banpu Group

Significance and Reporting Boundary

BPP believes that employees are one of the significant resources in driving organizational growth, especially for the power business that needs personnel with specific expertise. In addition to providing a good and safe working environment, BPP also sets up standards for labor practices in accordance with the international labor best practice and human rights standards, while employees are fairly and equally treated in all human resource management processes. The aim is to make all personnel working for the organization happy and have a good quality of life, which will later lead to the organization sustainable success.

The boundary of this report covers the business entities, in which BPP has direct control, including the offices in Thailand, China, and United States of America, the three combined heat and power (CHP) plants in China, and the gas-fired power plant in the United States of America.

Performance

Equitability | **Performance-based Management** | **Competency-based Management**

BPP has designed the human resource management and employee welfare systems in all HR processes by adhering to the "Banpu Heart" corporate culture and the three human resources management principles, consisting of equitability, performance-based management, and competency-based management, together with employee diversity management, regarding races, religions, languages, cultures, ages, knowledge, perspectives, and working experiences in all areas, where BPP has operated its businesses. This is to encourage employees to utilize their diversified strengths to add in values and create competitive advantages, enabling them to work together happily, flexibly, and agilely, as well as properly to their job positions and lifestyles. This includes daring to change and creating innovation in every aspect. The goal is to drive BPP's businesses towards the corporate sustainability goal.

In addition, the human resource management suitable for the new context of BPP's business operations will focus on transforming the organization towards a new era of management and operations expansion in multiple countries, in alignment with the organization's strategy. The labor practices, therefore, must comply with the international labor management standards and in accordance with the labor laws of such countries, while all employees in every operating country must be treated equally and unitedly according to the DEI (Diversity, Equity, and Inclusion) principle.

BPP has managed its human resources as following:

- **Promoting collaborative work under diversity** in all countries where BPP has operated businesses to strengthen teamwork and drive sustainable business growth through innovations.
- **Striving to develop professional personnel** by enhancing their competencies and providing them equal opportunities regardless of nationality, race, languages, and genders.

- **Respecting and complying with human rights principles** BPP has determined the Human Rights Policy by attaching with the principles of liberty, equality, and human dignity, regardless of genders, races, religions, or skin colors. It has paid great attention to labor laws and respected human rights in alignment with the Universal Declaration of Human Rights (UDHR), the United Nations Global Compact (UNGC), the International Labor Organization (ILO), and the labor laws of all countries where it has operated business. This covers labor operations of BPP employees and stakeholders, such as business partners, suppliers, communities, joint-ventures, and external contractors. BPP's labor practices consist of all aspects of human rights, including:
  - **Forced labors employment** BPP does not accept forced labor in any form. In addition, physical punishments, threats or violence are not used as disciplinary or control measures.
  - **Exploitation of child labor** BPP has clearly determined the minimum age of hiring employees in accordance with the labor laws of each country to prevent risks associated with child labor employment.
  - **Female labor** BPP does not assign works harmful to health or body as required by laws to female employees, while the pregnant employees are accommodated to work or live in an appropriate environment, including unable to lay off, demote positions or reduce various welfare benefits of female employees due to pregnancy.
  - **Hiring migrant workers** BPP and its business partners strictly comply with the laws on both employment contracts and work permits when hiring migrant workers to enhance competitive advantages and to grow together sustainably.
  - **Working environment and workers' quality of life** The appropriate and sound employment conditions are promoted for employees, including maintaining a safe working environment to ensure that employees have a good life quality and can perform their duties without affecting their physical and mental health. BPP has also operated in accordance with the occupational health and safety standards and reviewed related regulations regularly to develop and improve them appropriately.
  - **Freedom of association and collective bargaining** BPP respects employees' rights and gives them the freedom to join various associations, unions, federations, and collective bargaining. It will not impede the trade union operations or labor federation or obstruct the exercise of employees' rights to become members of a labor union. This includes providing them with convenience and will treat the representatives equally to other employees.
  - **Supporting business partners and contractors in the supply chain** BPP treats its business partners and contractors in the supply chain in accordance with the human rights principles, including not being involved with human rights violations.

Established the Human Rights Policy based on liberty, equality, and human dignity, regardless of discrimination.

Performance

- **Respecting for non-discrimination and anti-harassment** BPP treats its employees in accordance with Banpu Group's non-discrimination and anti-harassment policy. It protects and prevents its employees at all levels from being discriminated and harassed in various forms, including sexual harassment to create a good and safe working environment.
- **Employees recruitment, and selection** BPP considers the qualifications, knowledge, and abilities of all applicants equally, mainly to match the needs of each job position.
- **Remuneration management** BPP adheres to the principles of justice and equality, including the pay for performance to manage compensation to be internally fair and competitive.
- **Respecting and complying with the laws**, rules, regulations, and local customs of all areas relevant to every area where the business operates is a fundamental practice that all employees must adhere to.
- **Employee training and development** BPP encourages and provides opportunities for all employees to use and develop their abilities to their full potential equally. The competency-based principle is strictly used to train and develop personnel with competencies meeting the needs of each job position, a department, and the organization.
- **Complaint channel system** Employees can submit requests/ complaints through the Compensation Committee established as a channel for employees to submit matters for consideration and later to be presented to the management. In addition, the employees can directly consult or hand in their complaints on various matters through supervisors and the Human Resources Management Department. If employees wish to submit matters anonymously, such as discomfort at work, team conflicts, disputes with supervisors, untransparent working practices, including sexual harassment, they can submit such complaints via the online grievance system. BPP has determined a complaint investigation process and disciplinary punishment as specified in the work rules.

- **None** of incidents related to labor laws and practice violations, discriminations, rights infringements, sexual harassments, and other persecutions in the workplace.
- **Inspecting the work environment and taking corrective actions to meet the standards required** by applicable laws in all operational areas, including the contractors' operations in the areas.
- **Improving the Human Rights Policy to cover child labor and pregnancy employee support**. The Human Rights Policy was communicated to all employees and is disclosed on BPP's website.
- **Communicating about labor best practices**, such as key indicators for labor practices, human rights, human capital development, talent attraction and retention.
- **Employee representatives are eligible to negotiate with** BPP about deals affecting the employees by participating in the welfare committee meeting with Banpu Group quarterly. In 2024, BPP made many improvements regarding welfare, including regulations affecting employees in a positive way and in alignment with the labor laws. In 2024, BPP upgraded leave days and benefits for its employees by taking equality into account as well as adjusted the regulations affecting employees to be better, such as revamping benefits in alignment with the Marriage Equality Act, adding leave days for employee's birth months, creating the mental balance day, extending the maternity leave rights for female employees and parental leave for male employees as well as providing the annual health-check for retired employees until the age of 65 years, etc.

Human Rights and BPP Business Operations

BPP is committed to conducting businesses respecting and protecting human rights in accordance with international standards

BPP is committed to conducting businesses respecting and protecting human rights in accordance with international standards in order to build confidence in its operations among the stakeholders. The human rights risks have been managed and assessed in 6 areas: employment, occupational health and safety, customers and products, communities, security, contractors and supply chains, all of which support the corporate governance and sustainable growth.

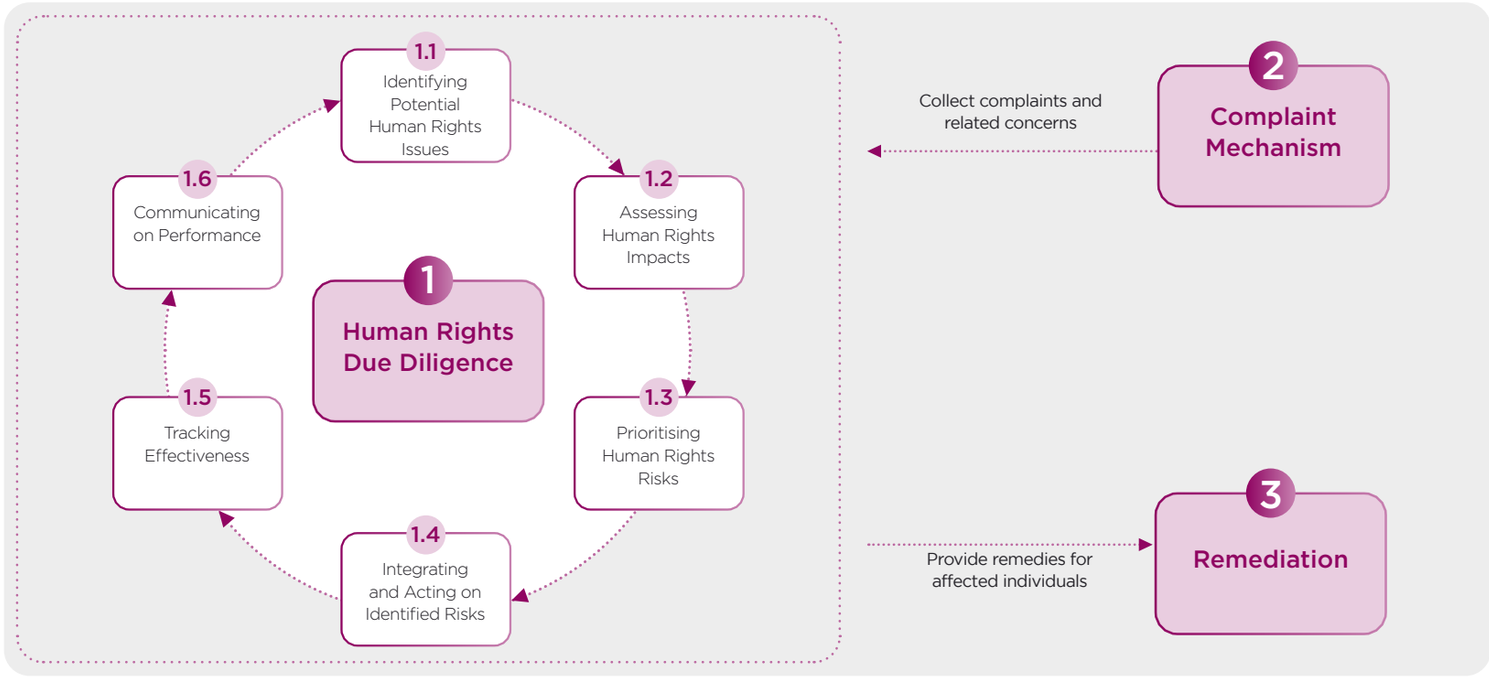
BPP together with Banpu Group have announced the guidelines for conducting a comprehensive human rights risk assessment or Humans Rights Due Diligence (HRDD) to be used as an instruction for identifying, evaluating, preventing, and mitigating human rights risks on operations, products, and services in accordance with the international standards and guidelines, namely the International Human Rights Bills, the UN Guiding Principles on Business and Human Rights (UNGP), the OECD Due Diligence Guidelines for Responsible Business Conduct, and the International Labor Organization's (ILO) Declaration on Fundamental Principles and Rights at Work. As such, HRDD is an important tool to identify, prevent, and manage human rights risks and impacts within BPP's operations and the supply chain. It has been updated and referred to in alignment with the industry standards and best practices so as to ensure that BPP operates in line with the international standards and continually develop its human rights guidelines.

The HRDD procedure consists of complaint investigation and remediation processes, which have 4 main steps:

1. **Identifying, assessing, and prioritizing actual or potential human rights risks.**
2. **Integrating and implementing according to the identified risks.**
3. **Monitoring and measuring performance.**
4. **Communicating with internal and external stakeholders.**

In addition, a complaint investigation mechanism allowing affected people or stakeholders to submit concerns or grievances about human rights violations through a secure and accessible channel, has been provided. In the event that the violation cannot be prevented, BPP has determined the remedies to mitigate such impacts. This may include compensation, restitution, or changes in operating practices to prevent further damage.

Complaint Investigation Mechanism



To instill confidence among all stakeholders that its operations are conducted ethically and responsibly, respecting human rights, BPP reviews its HRDD every 3 years or whenever there are significant changes. Additionally, the impacts arising from BPP's operations are regularly assessed, and stakeholders' feedback is collected to drive improvements.

Equality in **all levels within the organization** and commitment to maintaining the long-term human rights standards.

- Human Rights Policy
- Banpu Group's Human Rights Due Diligence Practice Guidelines

Key Operations

1. Communicating about human rights on the topic of **Human Rights Due Diligence (HRDD)** guidelines to all levels of employees within the organization. The aim was to make employees understand the relationship among the business, the organizational supply chain and the key stakeholders associated with human rights. In addition, the human rights assessment guidelines leading to an improvement of business operations with human rights responsibility in all areas have been proposed.
2. **A Human Rights Due Diligence (HRDD)** was conducted at BLCP Power Plant – BPP's joint venture company, by the external consulting firm. BLCP's HRDD was conducted with stakeholders both outside and within the organization, including employees, suppliers, customers, contractors, and communities covering the environment, social and governance areas, etc. This is considered as a proactive management system to prevent and mitigate human rights impacts on stakeholders. The HRDD results found that BLCP Power Plant has no human rights related risks.
3. **Using HRDD results to develop and improve the human rights practices**, such as determining a supplier code of conduct in line with the international standards, improving and providing clear and secured communications, and reporting channels for stakeholders. Equality in all levels within the organization has been promoted by announcing the equality policy to demonstrate BPP's commitment to maintaining the long-term human rights standards.
4. Conducting the organization's HRDD by assessing the human rights risks according to **guidelines for comprehensive examination of human rights status of listed companies**, which was arranged by the Securities and Exchange Commission (SEC) in collaboration with the Faculty of Law, Chulalongkorn University. According to the assessment, BPP's risks related to human rights issues are relatively low. BPP has used the results to improve its human rights operations as well as communicated such assessment results to create awareness among its employees in order to prevent human rights violations and to promote the tangible integration of human rights work into the current business operations.

Talent Attraction and Retention

Stakeholders

- Employees

Strategy

- Executing a practical employee selection process, able to choose employees equipped with work-based competency and values in line with the corporate culture.
- Examining the corporate performance data to create a manpower strategic plan to effectively respond to corporate growth, and to build a talent database or Talent Pool.
- Implementing a High Potential Development Program (HiPo) and organizing trainings on emerging skills necessary for the power business transition.
- Organizing internal activities to promote organizational engagement and to enhance employee well-being.

Key Indicators

- The high potential employee retention rate

Targets

- The talent retention rate is equal to 100%.

Performance

- The high potential employee's retention rate was **100%**.

Significance and Reporting Boundary

Attracting potential people to join the organization and retaining employees to stay with the company is a pivotal factor supporting BPP to pursue its growth strategies and to achieve the short- and long- term targets. The power and energy businesses are in needs of manpower with specific qualifications and experience required by the labor market. As a result, BPP has to have a process to attract and retain employees with the organization continuously.

The boundary of this report covers business entities, in which BPP has direct control, including the office in Thailand, the office and the three combined heat and power (CHP) plants in China, the office and power plant in the United States of America.

Management Approach

BPP's management approach to attract and maintain the employees to stay with the organization is as follows:

1. Strategic Workforce and Succession Planning
2. Recruitment and Career Growth
3. Internal Job Posting
4. Remuneration beyond basic welfare to support comprehensive care, diversity, and employees' participation.
5. Cultivating Banpu Heart corporate culture through Banpu Change Leaders
6. Talent Development
7. Hearing Employees' Opinions for Improvement

1. Strategic Workforce and Succession Planning

BPP develops strategic workforce planning by combining a business strategy with a personnel data analysis to ensure that its personnel are sufficient and efficient to support the future organizational growth. For succession planning and high potential management, BPP together with the succession plan committee continually selects and follows on critical positions by focusing on developing employee's potential through various projects, such as the Banpu Global Leader Program (BGLP), the individual coaching, and the individual development program (IDP).

In 2024, BPP initiated the Banpu Global Talent and Mobility project to develop international leaders and strengthen personnel competency in every country, focusing on 3 main areas:

1) **Developing Global Careers with Cultural Awareness** aims to build confidence and work efficiency in an international environment along with developing understandings and cultural adaptation.
2) **Enhancing Business Support and Knowledge Transfer** is aimed at supporting business operations across the regions and promoting the exchange of knowledge and experience internationally.
3) **Developing a Holistic Career Growth** emphasizes career path creation being flexible and consistent with the organization's goals as well as developing adaptability and cultural understandings.

In addition, BPP is committed to developing human resources to support business operations continuity and to build a strong organization in the long-term, ready to drive personnel to grow steadily with global potential.

2. Recruitment and Career Growth

To enhance mutual success between employees and the organization, BPP is dedicated to creating a transparent and inclusive selection and hiring process consistent with the organization's culture. In addition, it believes that encouraging employees to have a clear career goal and opening them opportunities for development in various forms, are the key success factors helping create the sustainability for the organization and employees simultaneously.

- **Employee Recruitment Process:** To get the appropriate employee, Banpu Group has used the Culture Fit test and the Behavioral-Based Interview to primarily assess applicants' behaviors and attitudes. The aim is to evaluate the consistency between the applicant's qualifications and values towards the corporate culture. Thereby, the applicant must pass the set criteria for further entering the next selection process.
- **New Staff Onboarding:** A welcome and onboarding process has been initiated for new employees who got selection. BPP has implemented the onboarding process to help the newcomers to adjust oneself to the new working environment. This is to support employees to work smoothly once commencing their work. The processes provided include:

A mentorship system provides the experienced mentors who have undergone with the team in the organization for more than a year to give advice to the newly hired employees.

On-the-job training system allows newcomers to learn and develop their skills related to actual work.

Happiness index check is used for following up and evaluating newcomer's happiness to ensure that he/she be able to adapt oneself to the new working environment smoothly.

- **Internal job Posting** is open for existing employees to apply for other positions interested within the organization. This is similar to applying for a new job, of which processes are of the same standard for selecting external candidates. This internal job posting provides opportunities for personnel for self-development in various fields.
- **Design Your Own Career** To support the employee's career growth, BPP arranges training related to career development by providing them opportunities to plan career growth with his/her supervisors in various forms, such as:

Being assigned to work on projects
to create challenges and learn new skills.

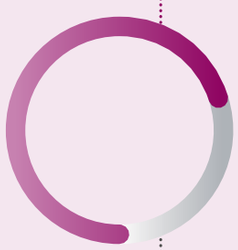
Job Transfer
to scale-up work experiences in related fields.

Temporary Job Rotation
to understand the job field close to his/her line of work.

Working in affiliates overseas (expatriates)
in the short-, medium-, and long-terms in order to learn various work areas.

3. Employee Performance Assessments

BPP has employed the performance management system to create fairness and manage performance and remunerations in accordance with the corporate goals. The employee's performance appraisal is carried out twice a year across the organization. The elements of employee performance assessment are divided into 2 core parts:



70%

Work-related KPI assessment

focuses mainly on performance, which represents 70% of total scores.

30%

Behavior-based KPI assessment

an appraisal of employee's behaviors according to the corporate culture attributes, emphasizes behavior development that supports appropriate and efficient work. The behavioral KPI accounts for 30% of total scores.

BPP has executed a standard comparison process for all departments within the organization

In addition, BPP has determined the Leadership KPIs, which are included in the performance-based assessment of middle management and above. The assessment covers an appraisal of leadership skills and behaviors on taking care of subordinates in the responsible line of work. The leadership KPI is assessed by subordinates one step down.

In addition, BPP has implemented **a 360-degree voluntary evaluation system**, allowing employees to ask for opinions on oneself performances and behaviors from supervisors, colleagues from other functions, and subordinates. The aim is to help employees to improve themselves. The information of employees and those providing comments or suggestions will be kept privately.

In order to obtain accurate performance evaluation results and be able to distinguish employees with excellent performance from those with normal accomplishment according to the organization's standards, BPP has executed a standard comparison process for all departments within the organization, covering determination of key performance indicators (Work-related KPI) and the performance evaluation result in the first half and second half of the year. In addition, the performance classification criteria have been adjusted to be more rigorous, making it possible to accurately classify employees with excellent performance. As a result, BPP can give financial rewards to this group of employees significantly.

For those whose performance are below the standards set, the Performance Assistant Program (PAP) has been implemented for this group of employees to help return their performance to normal standards within a specified period.

4. Remuneration beyond basic welfare to support comprehensive care, diversity, and employees' participation.

BPP places great importance on taking care of employees, especially health promotion and the creation of a sound working environment through providing comprehensive welfare and responding to the diverse needs of employees, such as leave annual health examination, and group health insurance. In addition to basic benefits, BPP also provides additional welfare fostering good health in every dimension to increase work efficiency, satisfaction, and employee participation/engagement. It does not only help reduce sick leave and absenteeism from work, but also increases organization efficiency and success, leading to the sustainable development in terms of quality of life, financial, and social stability.

Physical health promotion welfare

- **Sports and music clubs** have been set up to promote participation and support a work-life balance.
- **Fitness service with trainers;** Employees can get exercise advice from the trainers to create good health in the long-term.
- **Various exercise activities,** such as yoga classes, aerobics and intramural sports competitions.
- **Annual influenza vaccines** are provided for employees to prevent seasonal diseases and reduce health risks.
- **On-site Dental Delivery** facilitates employees receiving dental care at their workplace.
- **Massage services for treating office syndrome by disabled people:** This service is part of supporting physical health and employing people with disabilities in accordance with the law on employment of persons with disabilities.
- **Online doctor consultation project (Health at Work)** accommodates employees to access doctor consultations through online channels and facilitate the delivery of medicines.

Mental health promotion welfare

- **Employee Assistance Program or iSTRONG** provides personal psychological counseling with all confidential information to help the employees deal with personal problems or work stress.
- **The Boost Me Up project** uses a holistic approach to provide mental health, physical health, and financial health to employees through development of activities and consultation from experts.

Flexible work environment

- **Flexible Workplace:** Employees can work from anywhere along with creating a working plan with supervisors to create a work-life balance.
- **Flexible Insurance Plan:** Employees can adjust their health insurance coverage to suit their needs and ages.
- **Flexible Benefit:** Employees can be reimbursed for expenses related to themselves and their families, exclusion of illegal expenses or investments.

Banpu Heart

5. Cultivating Banpu Heart corporate culture through Banpu Change Leaders (BCL)

BPP has long been cultivating the Banpu Heart corporate culture. But, how to instill and maintain this corporate culture is very significant. If the existing employees, and newly hired staff understand the culture well and behave in accordance to the 3 shared values, namely Passionate, Innovative and Committed, while those working oversea have knowledge and understanding of joint-working behaviors in alignment with Banpu Heart, they will finally work with each other happily and commit to the overall corporate performance.

To promote corporate culture, BPP has set up Banpu Change Leader (BCL), an employee representative from various departments who will be a Banpu Heart role model. These BCLs will be the change agents to encourage BPP people to behave in accordance with Banpu Heart corporate culture and encourage them to be a change leader helping BCLs to draw participation in Banpu Heart culture activities. They will be representatives who will build the corporate culture from the operational level to the managerial level (Bottom-up Culture Building). Currently, there are BCL representatives from various countries who have designed and implemented their own activities, including cultivating the Banpu Heart culture harmonized with the culture and BPP's businesses in each country, such as Thailand, China, Japan, and Indonesia.

6. Talent Development

Every year, the Human Resources Department will consult with heads of various departments to consider selecting employees who have outstanding performance with high potential, and whose behavior is consistent with the corporate core values on an ongoing basis (Hi-Potential Employee Calibration). These employees are called HiPos, who are employees who have high potential and ready to be further developed and grow with the organization in the future. BPP, therefore, has developed plans to provide knowledge and train these HiPos to prepare themselves for his/her career growth, becoming an executive in the future.

7. Hearing Employees' Opinions for Improvement

BPP believes that listening to feedback and making continuous improvements is essential to building trust and strengthening relationships between employees and the organization. It also promotes BPP to be an attractive and sustainable workplace in the long term. BPP listens to its employees' opinions through various efficient channels as follows:

Employee Engagement Survey
has been conducted to measure employee satisfaction and commitment to the organization, including analyzing data to improve and develop strategies.

Focus Group meetings
allow employees to express their opinions in depth by emphasizing diversity in perspectives and experiences.

Welfare Committee Meeting
was organized to create a communication channel between employees and executives to gather suggestions regarding welfare and benefits.

Open Dialogue
encourages employees to express their opinions on significant issues in a transparent manner.

All comments and suggestions will be analyzed and processed for further improving and developing the organization in various aspects, for example, changing policies or welfare to be in line with employee's needs, designing activities and projects to strengthen bonds, developing work processes to increase efficiency and employee satisfaction, designing employee development courses for career growth in the organization, etc.

Performance

- The high potential employee's retention rate was equivalent to **100%.**
- The employee voluntary turnover rate was **2.62%.**
- According to Banpu Group's employee engagement survey related to attracting other people to work with the organization, it was found that:
  - **62%** and **92%** of employees in Thailand and China, respectively, have very high engagement with the organization.
  - **72%** and **89%** of employee in Thailand and China, respectively, would say good things about working for their organization when given the opportunity.
  - **62%** and **87%** of employees in Thailand and China, respectively, will recommend a friend who is looking for a job to join the organization.
  - **69%** and **89%** of employees in Thailand and China, respectively, say their organization inspires them in their daily work.

Human Resources Management Technology: Pioneering the Future of Work

The use of digital technology in human resource management does not only help develop employees' technological abilities, but it is also an important part of creating an environment supporting effective work and promoting greater employee engagement. These technologies increase human resource departments' operational efficiency, allowing fast communication and decision making with verified data. In addition, it helps create a more convenient and accurate process, enabling BPP to attract and retain talented employees.

To create sustainable growth and success in the long-term, Banpu Group has developed technology for human resource management since 2023. In the previous year, BPP focused on creating good experience for employees (Employee Experience) and conducting data-driven analytics to increase collaborative work, learning, access to services, data analysis, and the employee's well-being throughout the organization. The goal is to create the HR digital ecosystem as follows:

1) **Collaboration & Community:** BPP promotes employee participation in sharing and accepting each other, creating a community of appreciation, and fostering the creation of good engagement between employees and the organization.

2) **Virtual University:** BPP provides its employees with the opportunity to develop their skills, knowledge, and abilities without limitations on locations or times. It also supports the establishment of a community of practices that allows experts to share knowledge across the countries efficiently.

HR Digital Ecosystem

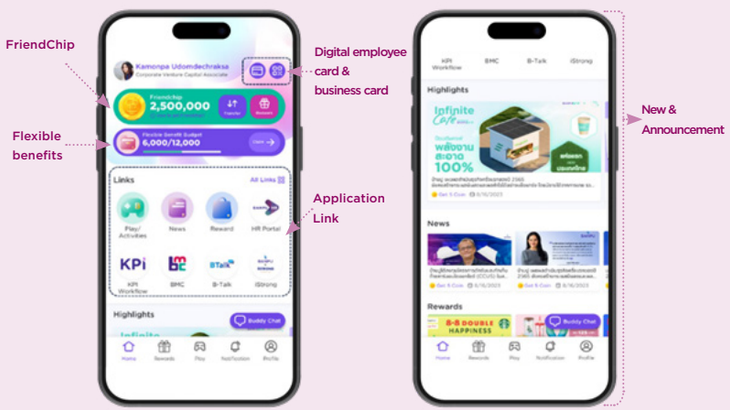
3) **24x7 Boundless Online Services:** The 24x7 Boundless Online Services give employees access to personalized services tailored to their individual needs at anytime and anywhere.

4) **Dashboard and Analytics:** AI is used to increase data analysis capabilities. This allows executives to make decisions and deal with problems possibly arising quickly and efficiently.

5) **Promoting well-being program for employees:** The technology was designed to support employees on financial, physical, and mental health in a comprehensive manner to help them being successful both personally and professionally.

2024 Performance

1. **BuddyUp initiated to strengthen the organizational engagement.** Launched in October 2023, this platform has played a key role in strengthening employee engagement through various features, such as digital business cards, News center, and a program for collecting points from participating the activity called FriendChip, etc.



The FriendChip program collecting points from participating in activities has helped increase employees' interest in joining activities organized by BPP. It has also saved on the cost of purchasing reward possibly expired. The employees can collect points and exchange them for products or services they want. In addition, it has stimulated appreciation through the transfer of points as gifts in return.

In 2024, the FriendChip program gained popularity from various agencies and helped build engagement through activities for various purposes as follows:

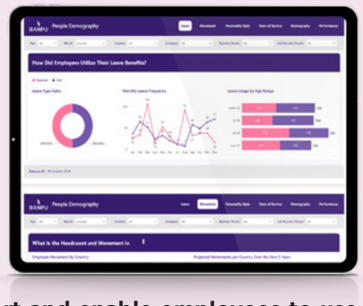
Department/Objectives	The Number of FriendChip	Proportion (%)
Banpu Academy	8,300	6.47
Overseeing legal compliance operations (Compliance)	7,700	6.00
ESG	11,000	8.57
Human Resources	61,150	47.63
Safety	6,700	5.22
Banpu Heart	14,220	11.08
CEO Engaging Activity	10,910	8.50
Corporate Activity	8,400	6.54
Total	**128,380**	**100.00**

Data as of 30 November 2024.

2. **Developing an integrated database for creating dashboards and analyses**

In August, the Human Resources Department launched a project to develop a consolidated database for use in creating dashboards and analytics. Also known as People Insight, the project collects information selected from various platforms into one with the following objectives:

- **To connect data and be able to analyze the operation direction or results in a more diverse way**, such as using data on BPP's operating results to compare with the organizational engagement scores or employee promotion rate. This will help to see the relationship between organizational engagement and/or the employee growth opportunities affecting BPP's performance.
- **To support executives to have timely access to human resource management data** to be used in strategic decision making through creating a strategic HR dashboard. Executives can access this information either from their mobile phones or personal computers according to their needs at the right time. The strategic HR dashboard data will display current and past information to compare past figures along with specifying rights to access such information as seen necessary and appropriate.



- **To support and enable employees to use data to create work plans and make decisions anywhere at any time** without having to go through the information request process. This allows employees who must deliver work on schedule to access human resource data in a timely manner and in an appropriate period.

3. **Development and application of AI technology** BPP has begun to use AI technology for human resource management as follows:

- **Developing and making trial use of AI to help screen biases from employee competency assessments**. The project was started in 2024 at BPP's affiliated companies to test and confirm the capabilities of AI technology. This technology will be applied to other affiliates in the year 2025.
- **Using AI to search for information and create the essential skill set for each job position** by considering information in the labor market in comparison with other organizations and developing the principles to be used as a basis for further designing employee development plans.
- **Developing Chatbot to provide services to employees through Generative AI technology**. Employees can use this service anywhere and at anytime. In 2024, the Chatbot training and service trials were conducted, including collecting opinions from employees about matters employees frequently inquire about, such as welfare and group health insurance for employees, etc.

Employee Engagement

Stakeholders

- Employees

Strategy

- Engaging with employees through drawing participation from leaders of each department.
- Creating communications channels and listening to employees' opinions for improvement.

Key Indicators

- Employee engagement scores
- The Banpu Heart corporate culture scores

Targets

- The employee engagement scores are over 70% for Thailand and over 85% for China.
- The Banpu Heart scores exceed 70% for Thailand and 90% for China.

Performance

- The employee engagement scores were **65% for Thailand** and **95% for China**.
- The scores of Banpu Heart were **86% for Thailand** and **91% for China**.

Human Resources Management Policy of Banpu Group

Significance and Reporting Boundary

BPP believes that threating employees well, making them feel part of the organization and being satisfied with their work, including providing them opportunities for fair career growth as well as welcoming their opinions for further improvement, will make the personnel work happily. This will also be a driving force to help them improve their work continuously, reduce the turnover rate, and retain talents with the organization. In addition, employee engagement is significantly involved with competitive advantages, growth, stability, corporate sustainability, and value creation for all groups of stakeholders.

The boundary of this report covers the offices and power plants, in which BPP has direct control, including the offices in Thailand and China as well as the three combined heat and power (CHP) plants in China, exclusion of the office and power plant in the United Sates of America.

Management Approach

BPP has used Banpu Group's Employee Relations Policy as a practice guideline for building good relationships with its employees. Employee engagement consists of 3 principles, including:

Say Employees say about BPP with positive attitude to both internal and external people.

Stay Employees work happily and want to stay with the organization in the future.

Strive Employees have deep bonds with the organization, striving to develop BPP to be better.

The key drivers engaging employees with the organizations include:

1. **Agility** is comprised of collaboration and coordination, customer focus, decision making, differences and unity, infrastructure, and resources.
2. **Engaging Leadership** includes leadership of senior executives and supervisors.
3. **Talent Focus** is associated with corporate reputation, career growth and advancement, learning and development, performance management, remuneration management systems, welfares, rewards and prides, and human resources management.
4. **The Basics** are relevant to work and work-life balance as well as working safety.
5. **The Work** consists of work characteristics.

Annually, BPP in collaboration with external consulting firms conducted the employee engagement survey. The survey analysis results and recommendations from employees will be later used for developing the engagement action plans at the organizational and departmental levels. The aim is to create employee engagement continually and report the progress to the Environment, Social and Governance (ESG) Committee and management every quarter.

Performance

- In 2024, the scores of Banpu Heart corporate culture survey and the employee engagement survey were 91%, and 92%, respectively, with a 100% respondent rate. The results of each country operating are as follows:

Country	Respondents	Banpu Heart Scores	Employee Engagement Scores	Average Employee Engagement Scores in the Labor market
	(%)	(%)	(%)	(%)
Thailand	100	86	62	69
China	100	91	92	78

- The employee engagement scores in Thailand increased 5% from the previous year since BPP has used the 2023 survey results for making an analysis and finding ways to strengthen employee engagement in a concrete way in the year 2024, with the following management approach.

1. Driving towards organizational success (Enabling Infrastructure)

Effective communication is a core strategy supporting corporate success. Through fostering strong relationships between executives and employees, BPP operations have been operated smoothly, achieving a long-term corporate goal. It is also a channel for employees to express their opinions and suggestions, which can be used for improving the organization to be more effective and agile. This includes helping employees feel truly involved in decision-making and organizational growth.

In 2014, BPP organized activities to strengthen effective communication between executives and employees to have employees participate in organizational development. The activities arranged were as follows:

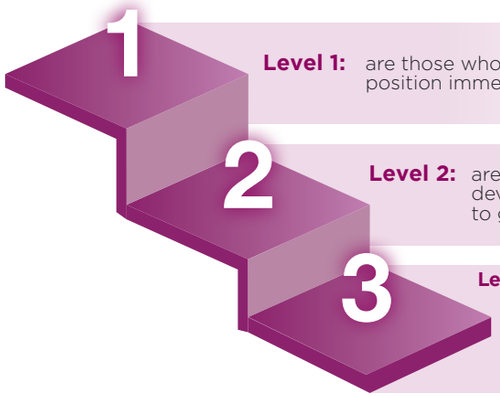
- **BPP Townhall** was an activity giving BPP employees the opportunity to meet and talk with the new Chief Executive Officer (CEO). It helped the employees understand BPP's management direction and strategies in the future as well as creating operation transparency.
- **BPP Chitchat** is an informal internal meeting held every month in a hybrid format (online and offline) so that employees can easily participate. At the meeting, employees can fully ask questions and exchange their opinions with management about working and developing the organization. It also helps create a transparent working atmosphere and strengthen good relationships between employees and executives. This is a key factor in strengthening a unity in the organization.

2. High potential employees management (Talent & Staffing)

One of the strategic planning and the organization's workforce management for fast and agile work is the development of successors for key positions (Succession Planning and High Potential Management), which helps in ensuring management continuity and supporting the rapid business growth. As a result, developing successors is a pivotal factor in creating operation stability both in the short- and long-terms. In addition, BPP has placed great importance on strengthening the organization through onboarding new employees and executives in each country where it has operated business. This will help the succession development plan be aligned with the business expansion strategies both domestically and internationally.

In 2024, BPP implemented strategies to develop successors and high potential employees in many areas as follows:

- **Global Talent Management** is a guideline for developing leaders and high-potential employees of Banpu Group. The engineering department is the first unit to which BPP has applied this approach because it is a segment having a high demand for personnel with specialized expertise and experience suitable for the job. The required skills and knowledge are specified for being used to lay down guidelines for further organizing the development courses for the high potential group (Talent Pipeline).
- **Increasing leaders' capabilities,** in terms of business knowledge, analytical thinking skills, and managerial skills through the development process in many forms, such as cross functional working to enhance understanding about the organization in every aspect, cross-country working, and job rotations to provide opportunities for leaders to have diverse working experiences.
- **Succession planning:** BPP, together with the Succession Plan Committee, has considered selecting, reviewing, and continuously monitoring the development of successors for senior executives. The successors can be divided into three 3 levels:



Level 1: are those who are ready to assume the position immediately.

Level 2: are those who still need to be developed further in 1 - 2 years to get into a key position.

Level 3: are those who need to get additional development for 3 - 5 years in preparation for the important positions in the future.

- **Creating an individual development plan (IDP)**, which is a specific development process for each employee to enhance essential skills according to BPP's growth direction.
- **Promoting Banpu Heart corporate culture** has helped strengthen the connection between employees and the organization as well as helped every employee in all countries to work together effectively.

3. Providing fair rewards and recognition (Rewards & Recognition)

BPP places great importance on employee compensation since it does not only help build confidence among employees in receiving worthwhile and appropriate compensation but also strengthens employees' work motivation as well as makes employees feel connected and fully involved in driving the organization's growth.

In 2024, BPP created confidence among its employees regarding fair compensation as follows:

- **Transparent and fair performance assessment** by using the calibration for every department within the organization. In addition, the criteria for classifying performance or a scoring range have been adjusted to be more rigorous. This makes it possible to accurately separate employees with excellent performance. As a result, BPP's significant monetary rewards can be given to this group of employees.
- **Promotion calibration** was conducted by carefully comparing data and performance assessment results of each employee to help executives make appropriate and reasonable decisions on employee promotions. This is based on the performance, ability, and potential to grow into a higher position.
- **Compensation comparison with the ones in the labor market** by studying on the remuneration of power generation business and other similar businesses to determine employee compensation to be appropriate and competitive. The survey found that the compensation provided by BPP is fair and is at the same level as the ones in the labor market.
- **Increasing welfare benefits** by focusing on improving leave days to give employees the opportunity to fully rest and take care of their health. This will help employees work more efficiently and be happier at work. The improved welfare included a birthday leave (1 day per year in the month of birth), a mental balance day leave (1 day per year), leaves to organize religious ceremonies in the event of the death of employee's family members (no limitation on the number of leave days and times per year), maternity leave (no more than 98 days with 75 days of normal pay), maternity leave (no more than 10 days), etc. The improved welfare is effective from 1 January 2025 onwards.

A Strong Corporate Culture Driven from 3 Core Values: Passionate, Innovative, and Committed Unites the Hearts of All BPP employees as One.

The core part of BPP's human resource management is to continually build a strong corporate culture to build upon the diversified power of Banpu Group's business ecosystem in creating innovation and sustainable business growth. Banpu Heart is a corporate culture to which all executives and employees of Banpu Group, including BPP, have adhered as a principle for their operations. The Banpu Heart consists of 3 core values: Passionate, Innovative and Committed.

BPP has applied Banpu Heart into a materialized practice in every process involved with employees in various countries, in which it has operated business, including new employees' recruitment, orientation, performance evaluation, job promotion, an employee annual survey regarding corporate culture and organizational engagement. Moreover, BPP has organized a variety of activities to encourage employees to understand and apply the 10 Key Behaviors to their daily work, being able to use these behaviors to drive the business goals of BPP and Banpu Group.

In 2024, BPP adjusted a format of organizing activities to support the expansion of its business portfolio, which is more diversified. It focused on creating a sense of ownership and giving employees a freedom to create various activities according to the differences in each country and employee's age range in order to support the design and expression of corporate culture in a form mostly appropriate to the context of each location; For example, learning and creating shared/mutual understanding, promoting the corporate culture through the real lives of diverse employees under the project called The Stories of Banpu People: Voices of Dedication – a documentary film telling the stories of work, life, and various experiences of employees in every operating country. The aim was to make every employee get to know each other better, including being able to connect the 10 Key Behaviors with the personal and business goals of BPP and Banpu Group through the expression of various viewpoints and opinions reflecting the Banpu Heart corporate culture in the same direction. To promote understanding and apply these core shared values to their works flexibly, the creative activities were also implemented for employees to participate in and take actions as well as to link the core shared values with their personal values. The activities conducted included:

- **Close communication between management and employees was conducted to connect business strategies** suitable for all employee's various roles and responsibilities leading to the same goal, while making every department in all operating countries see the same picture under the Energy Symphonics strategy.
- **Strengthening Banpu Change Leaders (BCLs)**, a group of employees who volunteer to drive the corporate culture, by elevating the BCLs network to become a truly global ecosystem. The activities conducted included the Culture Camp, which aimed to develop essential skills for BCLs so as to be the cultural leaders and to design activities to create the corporate culture; Listening to the heart activity was initiated to create understanding about the diversity, equity, and inclusion (DEI) and combine the diversities into strengths as well as to understand the art of happiness and working of the brain from the Brain Secrets of Change to create a team with high potential; The Co-design Employee Engagement Workshop, which pulled BCLs to design and organize this workshop both in Thailand and abroad, such as Japan; the Role Model activity of which a short movie was filmed and produced by the BCL team itself, with an aim to convey the nature of Banpu employees who have the same "Banpu Heart" through different duties and works.
- **Supporting employees to truly own the corporate culture through the Bottom-up Culture Building approach**, by listening to employee opinions and using the employee engagement data to analyze activities suitable for the diversity of employees in each country; For example, the activities based on employees' interests included making chocolate for people about whom they care; making inhalers for the elderly at nursing homes; weaving carpets by using a yarn gun to make ideas come true; making perfume to find your identity and dare to experiment; organizing external activities based on employee feedbacks.
- **Activities to promote the employee's sustainable quality of life have been continuously organized for the 4th consecutive year through the Boost Me Up Series program** with special activities carried out throughout the year. Under this program, 17 activities were designed to take care of all 3 important aspects: mental health, physical health, and financial health. BPP believes that when employees are happy and have a work-life balance, good and creative energy will be passed on to co-workers and fully extended to the society.

UnBox iDeas


Banpu Group is committed to continuously creating a culture of Innovation by promoting collaborative works between the departments, exchanging knowledge, and being open to idea differences. The aim is to build an environment conducive to emerging innovations, including encouraging employees to dare to take initiatives, experiments and develop innovations.

The UnBox iDeas program is an activity designed to cultivate an entrepreneurial mindset and agile working. In 2024, the program has been improved by extending the idea incubation period up to 4 months and adding the Upskill Workshop aimed at enhancing potential on creative thinking and innovation development, such as UX Research, Power Platform, Generative AI, and Storytelling, etc.

In the previous year, a total of 48 people participated in this project, divided into 24 thinkers & doers and 14 experts. The ideas on 6 topics with the potential to be extended into real practices were initiated. Participating employees developed new ideas through experimentation and learning from the doing process, being ready to receive suggestions to improve the ideas even further.

BPP also supports various resources, such as budgets for project experimentation and development to increase the chances of bringing ideas to a tangible success. In addition, BPP puts great emphasis on developing personnel with specific expertise to step into the role of Subject Matter Experts and internal facilitators, which will help them transfer knowledge, enhance skills, and create a culture of shared/mutual learning to strengthen the organization's capability to grow steadily and sustainably.

Team Collaboration for Greater Success


In September 2024, BPP organized the activity to strengthen the organization engagement under the concept of Team Collaboration for Greater Success, with a focus on joint-working as a team, developing work plan under certain constraints. The lecturer will summarize the lessons learned from implementing each activity to make participants aware that everyone's cooperation is the key success factor to make the event successful. Moreover, the activity called Empathy in Action | Managing Differences at Work was organized by the iSTRONG Department to provide mental health counseling in both work and personal matters to employees, including providing knowledge and understanding about people's differences in each age range. As BPP is a diverse organization in terms of ages, genders, and ethnicities, embracing diversity is important in helping employees be happy at work. It also promotes the human rights principles.

In addition, the event satisfactory survey was conducted, receiving 95% scores from participants. This demonstrates a great engagement from BPP employees. Moreover, employees also have a chance to share things they will take into account in their future work.

95% satisfaction score, rated by the participants, demonstrate high engagement from BPP employee.

Thailand Innovation Awards and Banpu Global Innovation Awards 2024

Thailand Innovation Awards and Banpu Global Innovation Awards are the important platform having been running continuously for more than 10 years. They have provided employees with the opportunity to show their potential and creativity to executives and colleagues both domestically and across the world. Presenting new ideas and innovation projects consistent with corporate goals not only does it help strengthen the exchange of knowledge but also opens opportunities to apply digital technology to increase work efficiency even further.

Banpu Group has created the **Innovation Community** to support sustainable development and innovation by establishing the Banpu Innovation Group, which plays a pivotal role in setting the direction and guidelines for innovation development in the organization; For example, specifying the project evaluation criteria and creating a compensation system to encourage employees to participate in inventing and developing new innovations.

The Banpu Innovation Group also helps support the implementation of creative ideas into the actual work processes, being ready to connect these ideas with the corporate strategy to create sustainable changes and values for both the organization and society.

31
innovation projects

- **21 projects** having already been implemented
- **10 ideas** being in the research and experimentation stage

To support sustainable development and innovation by establishing the Banpu Innovation Group

Human Capital Development

Stakeholders

- Employees

Strategy

- Developing employee's competency and leadership corresponding to essential emerging skills and the new role in accordance with business direction by creating the individual development plan (IDP).
- Creating critical positions' succession plan for continuous management and business strategy supports.

Key Indicators

- Proportion of employees have IDPs.
- Proportion of critical positions have IDPs.
- The average number of employees' training hours

Targets

- Proportion of employees having IDPs is equivalent to 100% by the year 2025.
- Proportion of key positions having IDPs is equivalent to 100%.
- The average number of employee training hours is no less than 30 hours/person/year by 2026.

Performance

- Proportion of employees having IDPs was **88% for Thailand**, **and 73% for China**.
- Proportion of critical positions having IDP was **82%**.
- The average training hours of employees equaled to **43.6 hours/person**.

Significance and Reporting Boundary

One of the key success factors for operating a business to achieve its ultimate goals amid a rapid technology disruption is to develop employees' competencies to be equipped with knowledge, and occupational expertise, as well as managerial skills, inclusion of promoting their leaderships. It is also one of human resources management strategies to accommodate business expansion, and to increase competitive advantages. BPP, therefore, has prepared comprehensive competency development plans for its executives and employees to enhance their learning ability and work efficiency, in tandem with creating leadership development plans in accordance with the organization's targets and missions.

The boundary of this report covers the offices and the power plants, in which BPP has direct control, including the office in Thailand, the office and the three combined heat and power (CHP) plants in China, exclusion of the office and power plants in the United States of America.

Management Approach

BPP has created the individual development plans (IDP) and training roadmap, divided into short-term (annual basis) and long-term employee development programs (according to business strategic plans) with following management approaches:

Designing short-term training courses

- Focusing on developing the training courses suitable for individual needs by considering on employee's competency assessment results according to their job positions, both leadership and functional competency.
- Upskilling knowledge urgently required for development to be aligned with business operations, inclusion of reskilling essential emerging skills, learning new technologies, or practicing essential skills, and being able to apply such skills to improve their current and future work more efficiently.
- Learning methodologies in line with the 70:20:10 learning and development model, inclusion of training courses organized by BPP, learning from coaching and learning from direct experience through real practice and actual work.

Designing long-term training courses

Emphasizing the creation of training courses aligned with BPP strategies and corresponding to business need trends, as well as a demand for emerging skills in the global market. This is to prepare employees to be the business change leaders. The course also focuses on connecting the diversity of each country in which BPP operates.

Emphasizing the creation of training courses aligned with BPP strategies

Corresponding to business need trends

Prepareing employees to be the business change leaders

Additionally, BPP has promoted the learning environment in various styles, such as:

- **Helpful and engaging learning experiences**, such as job rotations and direct assignments helping employees to develop skills related to their close job fields and participation in projects having cross-functional characteristics, and working in affiliates abroad, etc.
- **Online learning platform** by providing a variety of courses for employees to choose based upon their own interests and potential development goals.
- **Always raising awareness about the importance of learning and self-improvement** through cultivating a growth mindset in every part of the organization.

At the same time, BPP has developed **succession planning for critical positions** to continually manage and support business strategies as follows:

- **Establishing a Succession Plan Committee** responsible for setting up a policy and specifying the organization's critical positions.
- **Listing the essential characteristics of job positions** and determining the criteria used for selecting and recruiting potential candidates.
- **Selecting high potential employees** by considering based on performance assessment results and in alignment with BPP core values to be specifically imported into the development plan.
- **Monitoring and evaluating the results according to the development plan.** The Human Resources Department works closely with the Succession Plan Committee to ensure that the HR development plan is consistent with BPP's business goals and strategies, which will be evaluated every quarter. In addition, the external consultants have helped evaluate and improve the development process for potential people.

Performance

- Employees having IDPs accounted for **88%** and **73%** for Thailand and China, respectively.
- The employees' average training hours were **43.6 hours/person/year**.
- The IDPs for critical positions covered **82%.**
- Carrying out IDPs specifically for the power business, such as organizing the project management training, negotiation, contract management, which was accountable for **80%** of the total action plan, including regularly providing coaching for employees in the asset management unit and the engineering department by executives and experts every month.

HR development plan is **consistent with BPP's business goals and strategies,** which will be evaluated every quarter.

- **Arranging the leader's training courses and the employee's competency development programs as follows:**

Programs/Courses	Objectives/Benefits Gained	Target Group
1. Banpu Engaging Leader Program on Great Coach: Helping Others Succeed	Developing managements as the leaders to promote the creation of employee engagement, and as the persons with whom subordinates are close and feel comfortable to always learn, while various managerial skills development programs in the areas of coaching, motivation, and inspiration, etc., were provided to these managements. The aim is to help managements understand and know how to build a unified workforce, as well as promote effective management. This is to encourage their subordinates to use their full potential to achieve their work successfully.	Division Manager level up
2. Banpu Engaging Leader Program on Hi-Coach	Developing and enhancing executives who have been functionally coached to scale up their abilities to conduct cross-functional coaching for employees. The aim is to develop employees' competencies regarding leadership and work excellence.	Division Manager level up
3. Banpu Global Leadership Program for Business Leader	Developing and strengthening skills in formulating and implementing business strategies in a global context to prepare leaders to face various challenges and to drive the organization towards a success both now and in the future.	Division Manager level up
4. Banpu Global Leadership Program for First Line Leader	Developing leadership skills for the first line leader to escort teams, inclusion of unleashing their own potential and increasing inner strength. Other management and team development skills were also enhanced, such as coaching, giving advice to subordinates for improvement, and creating collaboration with stakeholders as well as promoting and sharing real working experiences.	Division Manager
5. Banpu Leadership Program: Future Leader	Enhancing leadership skills for self-improvement, self-understanding, flexible attitudes and concepts, growth mindset, efficient and effective joint-working, as well as preparing for future growth, including being prepared for becoming a future executive.	Section Manager

- **Organizing a training course to develop employees' competency at Bangkok Office, and allowing interested employees to apply to participate in the training equally, such as:**

Courses	Objectives	Duration (Day)	Trainers	Target Group
1. Basic fire-fighting and evacuation during emergencies	To comply with labor laws and provide basic knowledge on fire fighting.	1	External agencies	All levels
2. Safety for new employees	To comply with applicable laws and to provide safety knowledge for newcomers.	1	Certified safety and occupational officers	All levels
3. Human resources management tools for leaders of Banpu Group	The principles of HR management and tools used for functional development.	1	Human Resources Department and Banpu Academy	Division Manager level up
4. Hot Risk	Efficient risks management according to BPP's business directions, including understanding the real practice through business simulations.	2	Risk Management Department in collaboration with external agencies	All levels
5. Energy Titan	Learning about BPP's business operations throughout the supply chain via business simulation games.	3	External agency	Section Manager and Division Manager
6. Finance for Non-Finance	An introduction on financial, accounting concepts and financial statements.	2	External Agency	Section Manager
7. Learning Never Ends	To promote and develop skills to develop a growth mindset and outward attitude towards others, including increasing efficiency of the development process.	1	External Agency	All levels
8. Resilience & Adaptability	Learning how to apply resilience and adaptability in a rapidly changing global environment and gaining knowledge from case studies from international organizations.	1	External Agency	All levels
9. Getting Thing Done	Learning how to prioritize projects, people, and other tasks by effectively clarifying and organizing incoming work.	2	External Agency	All levels
10. Crucial Conversation for Mastering Dialogue	Learning conversation and communication techniques that will deliver effective results, maintaining good relationships, and promoting long-term relationships.	2	External Agency	Section Manager
11. Fundamental Project Management	Learning how to develop and define project scope, time, costs, and risk management, project tracking, change management and communication so that the project can be completely successfully	2	Project Specialist Team	Section Manager
12. Udemy online learning platform	Promoting learning and developing new skills by learning on your own.	365	External Agency	All levels
13. Coursera online learning platform	Promoting self-learning and new skills development by oneself.	365	External Agency	All levels
14. ConicleX online learning platform	Promoting learning and developing new skills by learning on your own.	365	External Agency	All levels

- **The number of Banpu Group employees who passed the leadership training programs**

Levels	The number of employees (Persons)	Proportion of participants (%)	The number of training hours (Hours)	The number of training hours per person (Hours)
Vice President level up	18	100	674	37.7
Division Manager	74	100	3,705	50.1
Section Manager	93	94	4,721	50.8

Banpu Global Leadership Program Awards 2024

BPP has continuously created a training course to enhance and develop new generation leaders, regarded as another key success factor helping drive towards the business growth. The program is aimed at creating effective leadership, starting from self- development to team development. BPP believes that this development program will help its employees to manage tasks, practice leadership, and to develop teamwork. This will, in turn, lead to the more efficient innovation creation, as well as the improvement of working processes, and the increase of BPP's business values.

In addition, the program also promotes experience exchange and collaborative networking among selected participants who are the unit's leaders from BPP's operating countries. Moreover, it helps support joint working in the future and build understanding of various cultures, including other operations within Banpu Group.

Banpu Global Leadership Program consists of 4 levels as follows:

1. **Banpu Global Leadership Program for Future Leaders** has been organized for junior management.
2. **Banpu Global Leadership Program for First Line Leaders** has been arranged for middle management.
3. **Banpu Global Leadership Program for Business Leader** has been organized for vice presidents.
4. **Banpu Global Leadership Program for Strategic Leaders** has been conducted for senior vice presidents.

Banpu Global Leadership Program is organized annually, taking place around 8 - 10 months. It is divided into modules to develop competency of leaders at each level, in parallel with learning from leading consulting firms, and exchanging experiences among participating leaders throughout the training period. Additionally, participants will learn about working styles and various cultures from employee representatives of various operating countries, in which BPP has invested under Banpu Group. This will also encourage collaboration on international work in the future.

FTEs
10.5%

All **105 participants** who are the involved employee representatives attended the program.

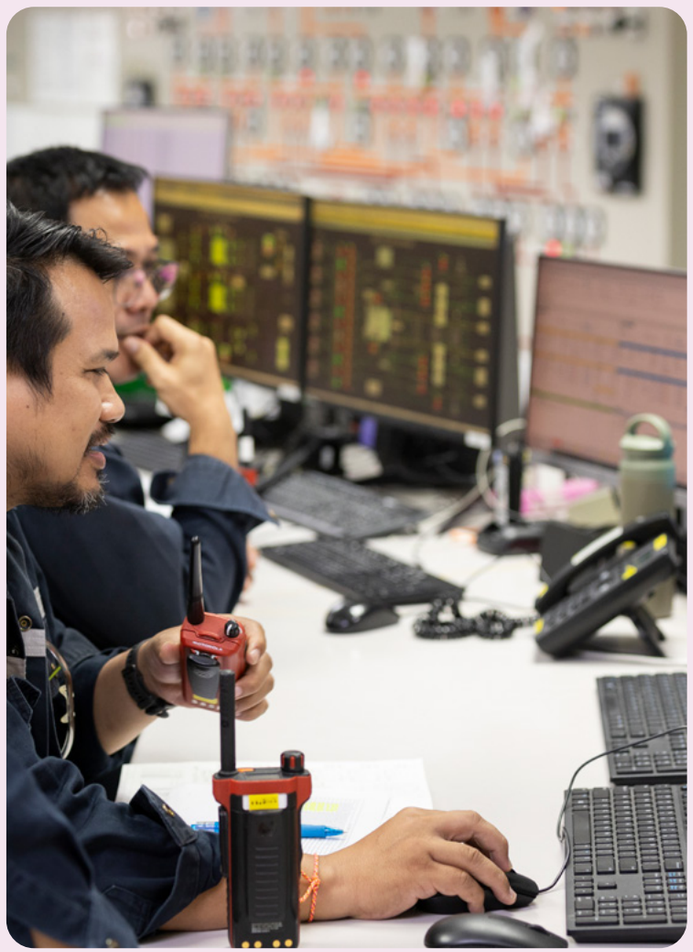
Objectives

1. **Promoting leadership excellence:** To focus on developing leadership skills by demonstrating ethical, flexible, and adaptive manners by instilling these qualities for participants. These leaders are prepared to demonstrate honesty and responsibility, which are considered as the important basis for creating the organizational culture facilitating sustainable business operations.
2. **Strengthening strategic business knowledge:** To practice advanced skills in strategic planning, financial tools, and market analysis to help these leaders be able to make decisions with sufficient data in order to create values for BPP and stakeholders in the long-term.
3. **Promoting agile working and collaboration:** To exchange innovative ideas and best practices between business units, increase their ability to be adaptive to change along with being able to use diverse perspectives in driving continuous development and innovation.

Benefits gained

1. Critical positions have been succeeded by participating employees **100%**.
2. Employees selected in the high potential group attended the project **100%**.
3. The employees selected in the high potential group stayed with the organization **100%**.

A Training Course for Power Plant Employees



In 2024, BPP developed professional skills and expertise for employee specialists by organizing specialized training courses for more than 670 power plant personnel, representing more than 18,000 learning hours. The curriculum was designed to continually enhance technical expertise and performance to prepare these employees to deal with future business changes. This training course's curriculum covered specialized knowledge consisting of various topics, including:

- **Turbine Main Steam Extraction Drain System**
- **Multi-Stage Pump Maintenance and Bearing Grinding Skills**
- **Steam Turbine Governing System Principles**
- **Lithium Bromide Absorption Heat Pump Principles**
- **Dynamic Balance Instrument Operation**
- **Universal Maintenance Technology for Rotating Equipment**
- **Main Steam Parameter Changes and Water Impacts**
- **Turbine Oil System Troubleshooting**

All **816 participants** who are the involved employee representatives attended the program.

Objectives

1. To enhance professional and technical expertise of production and maintenance staff.
2. To promote knowledge exchange among employees to improve work efficiency and process effectiveness.
3. To develop operational skills to help increase operational efficiency in the production process.

Benefits

1. **Improving operational efficiency:** The exchange of professional knowledge among employees has fostered them to jointly solving the problem and co-develop innovation. The collaborative working score was at 91 points higher than the average number for energy companies in China.
2. **Savings on recruitment costs:** The employee development directly affects career advancement, reduces the need to hire outsiders, which is reflected in a significant decrease in the turnover rate, from 10.77% in 2023 to 2.51% in 2024, resulting in an estimated cost reduction of approximately USD 55,000.

This training course is a clear example demonstrating BPP's commitments to developing skills and training its employees. It also promotes operational excellence and efficient cost management.

Knowledge Management Sharing

BPP recognizes the importance of knowledge sharing within the organization. It is believed that knowledge exchange will help promote an open environment for creativity and innovation. Additionally, information sharing between employees will help strengthen coordination and application of new approaches. This leads to the development of better ways to improve work efficiency and the increase of business competitive advantages as well as the promotion of long-term organizational growth and success.

For this reason, employees in Thailand have continuously organized the quarterly knowledge sharing activities by giving employees from all departments the opportunity to exchange their knowledge and experiences. The aim is to present guidelines able to be applied to increase work efficiency and to support sustainable business growth. The knowledge sharing course can be divided into six categories: information on power business, corporate policies and procedures, work instructions, best practices, lessons learned, and technical skills used for working.

In 2024, the knowledge sharing course was organized 6 times, totaling 12 topics with 9 hours total time as following details:

	Topics	Objectives/ Benefits Gained	Organizers	Duration (hours)	Participants (persons)
1.	Updated Power Development Plan (PDP) 2024	Providing information on development of power generation capacity to be applied to the organization's business planning.	Asset Management	2	31
2.	BPP Strategic Road Map	Providing information used for developing work plans in line with the organizational goals.	Strategy & Commercial Analytics	1	25
3.	Utility Green Tariff Criteria	Providing data regarding criteria for green power fees to be used in planning and evaluating the green energy costs and energy management.	Business Development	1	24
4.	Carbon Capture & Storage Technology in Thailand	Learning and understanding to support the organization's environmental goals.	Asset Management	1	25
5.	Decarbonized Technology for Net Zero	Learning and understanding to support the low-carbon businesses according to the organization's environmental goals.	Asset Management	0.5	19
6.	Carbon Capture Storage Investment	Learning and understanding to support the low-carbon businesses according to the organization's environmental goals.	Business Development	0.5	27
7.	Update Hydrogen Business Growth and Trends	Learning and understanding to support the low carbon businesses according to their goals.	Asset Management	0.5	27
8.	Boiler Technology	Learning and understanding new boiler technology and innovation to support sustainable energy production.	Engineering Management	0.5	21
9.	Developing the Environmental Impact Assessment (EIA) & Environmental Health Impact Assessment (EHIA) report.	Following up on key materiality regarding developing the EIA and EHIA to be up to date.	Engineering Management	0.5	19
10.	BPP Human Rights Self-Assessment results	Recognizing and understanding the practices consistent with the international human rights principles to be applied in management.	Corporate Services	0.5	21
11.	Customer Credit Scoring	Understanding the fundamental principles and importance of credit scoring, its role in risk management, and best practices to enhance the efficiency of the credit assessment system.	SD & Risk Management	0.5	27
12.	Documentation Process Management	Learning and understanding the document system management standards and improving work procedures to be efficient and to be up to date.	Corporate Services	0.5	24

Occupational Health and Safety

Stakeholders

- Employees, contractors, communities, customers, government sector and regulatory agencies, joint-venture companies/joint-venture partners, financial institutions, shareholders/investors

Strategy

- Promoting a work safety culture.
- Communicating about safety targets to create joint operations from executives, employees, contractors, and every sector of stakeholders.
- Allocating resources for safety operations appropriately and adequately, such as arranging safety training for employees and contractors, including regularly inspecting workplace environment and safety.
- Mitigating risks related to occupational health and safety and setting up measures to control risks at the appetite level.
- Employing the ISO 45001 Occupational Health and Safety Management System.

Key Indicators

- The number of severe accidents causing fatalities.
- Lost Time Injury Frequency Rate (LTIFR)

Targets

- None of critical accidents and sickness causing fatalities of employees, contractors and others involved with BPP's operations.
- None of fatalities resulted from work.
- Zero LTIFR

Performance

- **None** of fatalities caused by working.
- LTIFR was **zero**.

Occupational Health and Safety Policy

Significance and Reporting Boundary

Work safety is the ultimate goal for operations because unsafe working may cause losses of lives and assets, as well as effect the environment and employee's health. Hence, creating a safety culture to proactively prevent accidents must be continuously carried out and improved, including arranging a safe work environment, implementing clear preventive measures, monitoring safety performances, promoting knowledge and raising awareness, as well as drawing participation from all employees and involved parties.

A safe working environment is counted as human rights, of which employees, contractors, and those entering the operating areas should get sufficiently and equally. In addition, encouraging employees to participate in expressing their ideas to improve their work conditions will finally help increase their involvements, encouragements, and engagements with the organizations.

The boundary of this report covers all business entities, where BPP has direct control, namely the three combined heat and power (CHP) plants in China and Temple gas-fired power plant in the United States of America.

Management Approach

BPP focuses on creating a safety culture within the organization with the "3 ZEROs" target as following:

1. **Zero Incident:**
   Zero incident is driven by preventing and correcting unsafe behaviors and work conditions.
2. **Zero Repeat:**
   None of recurrences can be achieved by investigating the principle cause, and correcting a mistake at its root cause, as well as communicating about unsafe events with employees to prevent repetition of such an incident.
3. **Zero Compromise:**
   Rigorously complying with safety rules, regulations, and practice guidelines.

To meet the afore-mentioned targets, BPP has conducted its OHS operations in alignment with following safety management approaches.

- **Duty and Responsibility on Occupational Health and Safety (OHS)** BPP executives, ranging from the highest to operational levels, are committed and responsible for creating work safety. The procedure starts from construction designs to operations, prevention, and collection of unsafe working conditions and behaviors. This includes setting up the short- and long-term safety goals, as well as being a role model for safety. Additionally, all employees have duties to create a safe working environment for each other, which is defined as a performance indicator for both senior executives and operational-level employees.

- **Compliance with Applicable Laws, Regulations and Safety Operation Standard** BPP is rigidly complying with applicable laws and safety best practices. Compliance with applicable laws and safety regulations is regularly examined, while the internationally recognized safety management standards have been implemented at all BPP's production units.
- **Safety Risk Management** BPP assesses OHS risks in all work aspects. All of its business units have measures to prevent and mitigate risks related to safety appropriately. For operations having high possibility of severe risks, the risk mitigation plan must be created in managing risks to the appetite level.
- **Cultivating Safety Culture** BPP has fostered and paid great values on creating a safety culture among its employees and contractors in all areas where it has operated. It recognizes the safety focused behavior by integrating safety conducts into a corporate culture. At BPP, employees and contractors care for each other, and dare to warn each other if they see unsafe working behaviors.
- **Encouraging Employees to Own Adequate Knowledge and Expertise in OHS** BPP encourages and educates its employees and contractors about OHS so as to make them have adequate OHS related knowledge able to work safely. It also frequently examines and reviews employee's OHS understandings.
- **Innovation and Safety Technology** BPP promotes an adoption of innovations and advanced technologies to further improve its safety operation standards to be better, such as measuring work environment and reporting security risks.

BPP records its safety statistics, covering all workers who are in the scope of control work and control workplace. Those workers are employees, contractors, and persons whom are permitted to enter the operational areas. For operators who are not in the scope of control work or control workplace, BPP will note such accidents, but will not include them in the accident statistic calculation.

Performance

In 2024, the power plants in which BPP has management control, had no fatalities caused by working, while there was no worker stopping working due to serious injuries (Zero LTIFR).

BPP puts great importance on work safety of its employees and contractors. It has implemented the ISO 45001 Occupational Health and Safety Management System, which has been integrated into the ISO 9001 Quality Management System as well as the ISO 14001 Environmental Management System. In addition, the three combined heat and power (CHP) plants in China have been certified by those three management system standards from external agencies. Meanwhile, Temple gas-fired power pant in the United States, has operated in accordance with occupational health and safety management system standards according to U.S. legislations, governed by the Occupational Safety and Health Administration (OSHA).

Zero serious accidents resulting in fatalities or lost time injuries.

BPP focuses on cultivating a proactive and systematic safety culture by providing a safe working environment, organizing training and creating safety awareness for its employees, such as:

Activities to Promote Work Safety

- Evaluating the level of work safety culture.
- Organizing training and testing safety, environment, safety rules, and risks in the areas prior to starting to work, including rigorously reviewing such conduct and rules at a defined time.
- Promoting workplace safety and inspecting operating areas carried out by top management continuously.
- Arranging work safety inspection executed by employees, supervisors, and safety officers during operations.
- Regularly measuring working environment to ensure safety and reporting the results for improvement.
- Setting up the safety improvement committees for offices and power plants.
- To raise safety awareness, communication through various activities was conducted for involved parties, such as organizing a safety day activity, safety promotional emails, games, posters, etc.
- Conducting the emergency simulation exercises continuously and using the exercise results for improvement.
- Organizing safety day activities to communicate safety goals and raise awareness among employees, partners, and contractors.
- Motivating employees to work safely via incentives, such as special rewards for persons who have outstanding safety operations, and celebrations on common achievements, etc.

Employee's Health Promotion

- Arranging the annual health check for employees, including physical fitness measurements according to risks arising from the nature of work.
- Measuring work environment in both offices and production units and enhancing working conditions continuously to meet the standards.
- Providing the health insurance for treatments and seeking cooperation to get the provision of vaccines for employees, such as influenza vaccines, and the COVID-19 vaccines.
- Fostering employees to exercise and maintain good health, such as setting up sports clubs, providing health-related knowledge, including arranging an individual exercise trainer for interested staff etc.
- Organizing sports competitions between employees and contractors.
- Initiating a psychological consultation project called "iSTRONG" for employees, allowing them to consult with the external psychological service provider regarding mental matters to reduce stresses from personal life and work. All data consulted will be kept confidentially.
- Online doctor visit project: The project accommodates employees to meet the online doctor via "Health at Work" application. Through this platform, employees can make an appointment and have a preliminary check with the doctor online. Then, the doctor will prescribe the medicines and deliver them to that staff.
- Nursing room and first aids services: The services are provided by registered nurses who can diagnose basic illnesses, prescribe medicines, dress wounds, and provide health advice.
- The "Flexible Benefit" project was created to support an annual budget of THB 12,000 for employees to use in various benefits, inclusion of health, such as expenses for additional medical treatments, sports club membership fees, and devices to facilitate ergonomic working from home, etc.

Safety Excellence Assessment

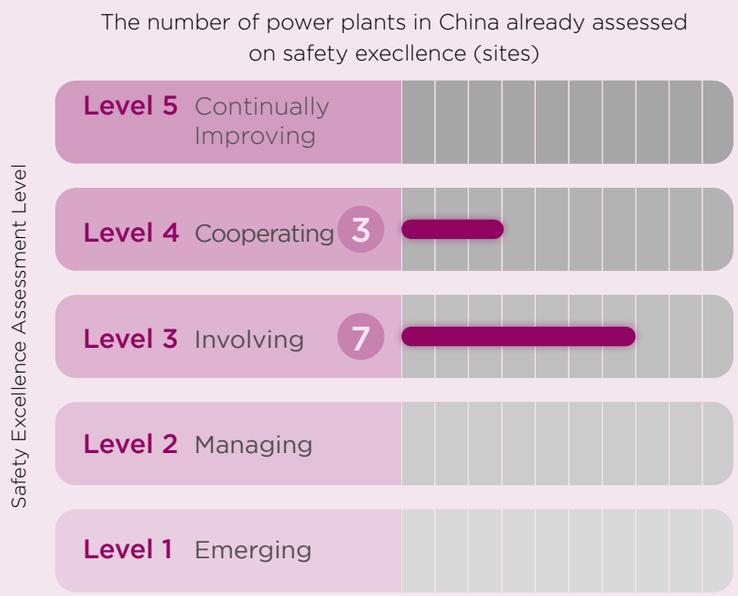
Since 2018, BPP has continuously evaluated the excellence level of its safety culture, by using a survey based upon the Safety Maturity Level of the United Kingdom Health and Safety Executive (UK HSE) model, which divides a safety culture into 5 levels:

The safety excellence assessment is part of BPP's safety culture cultivation by using the safety awareness survey results in combination with an assessment of the environment and operations in the area to create a plan for continuous safety improvement. The safety excellence assessments are alternately held every year when each power plant will be evaluated at least every three year.

In 2024, three solar power plants in China, namely Jinshan, Huineng and Hui'en solar power plants were examined the safety excellence, receiving the 3rd safety excellence level (Involving).

At present, all power plants in China have been assessed, including the three CHP plants and seven solar power plants. Currently, the three CHP plants have obtained the 4th safety excellence level (Cooperating), while seven solar power plants have got the 3rd level (Involving) The assessment result of each area has been used to create operational development plans for safety, totaling 12 projects.

The Safety Excellence Assessment Results of Power Plants in China



Using Digital Technology to Assure Safety for Activities Having Risks

Activities having risks involved with production and maintenance, such as inspecting the areas with high-voltage operations and the starting/stopping processes to operate boilers and steam turbines in the power plants, etc., are the safety risks. As a result, strict prevention is required since it may cause a high impact on the operators and BPP's operations.

In order to ensure that operations in the areas with risks are carried out correctly and safely, the three combined heat and power (CHP) plants in China, namely Luannan, Zhengding, and Zouping power plants, have used digital technology to develop equipment and operational monitoring systems, including:

Applying digital technology to improve power plant safety is a proactive approach to achievingthe "Zero Danger" goal

1. **Smart Helmet** is a safety hard hat equipped with a camera allowing the operator to monitor and assist workers remotely. Controllers can directly communicate with operators through the smart helmet. They can immediately alert the operators if any unsafe situation occurs, or when the operators do not follow the operating procedures. In 2024, this equipment can detect and correct 144 unsafe operations.

2. **Removable Camera Monitoring System:** This system is a live broadcast camera recording and inspecting operator's works so as to ensure that they operate in accordance with the operating and safety procedures. Supervisors and safety experts can monitor the performance of employees and contractors at all times through this device. In 2024, the surveillance systems with portable cameras were able to inspect 161 operations, detecting and correcting 22 operations with safety risks.

Applying the digital technology to improve the power plants' safety is a proactive operation to achieve the "Zero Danger" goal through surveillance and creating a safe and efficient working environment. As a result, all three CHP plants were able to continue operating safely in 2024. There were no serious work accidents. Moreover, the fatality rate and the lost time injury frequency rate of employees and contractors was zero.

Smart Helmet
can detect and correct
144 unsafe operations

Portable cameras
were able to inspect
161 operations

Community Engagement

Stakeholders

- Communities, government sector, and regulatory agencies

Strategy

- Drawing participation and developing communities through a joint consultative committee between BPP's operations, the community, and the government sector.
- Communicating about BPP's operations and hearing for community's opinions continuously.
- Creating channels to receive complaints and suggestions to improve operations effectively.
- Implementing sustainable development projects with communities.

Key Indicators

- Substantial community grievances
- Business disruptive incidents resulted from community complaints.

Targets

- None of significant complaints from communities
- Bringing all community's grievances to the analysis and correction process in a timely manner.
- None of the business halts resulted from community complaints.

Performance

- **None** of significant community complaints.
- **None** of the business halts resulted from community complaints.

Community Engagement Policy

Stakeholder Engagement Practice Guideline

Significance and Reporting Boundary

Communities surrounding the power plants are important stakeholders in BPP's operations as they experience both positive and negative impacts throughout the project's life cycle. As a result, community endorsement is a significant factor in the project's sustainability.

BPP has given great importance on engaging with communities, including listening to community's opinions since the project's feasibility study commencement. This is to gather opinions and concerns from the communities to use them for creating the engineering designs and reducing any impacts likely arising. Additionally, the monitoring and preventive measures are established during the project's construction and operational stages, while the opinions obtained from community engagement are used to improve BPP's operations, driving towards the sustainable development corresponding to local needs.

The boundary of this report covers the power plants, where BPP has direct control, namely the three combined heat and power (CHP) plants in China and Temple gas-fired power plant in the United States of America. This includes the joint-venture companies, namely BLCP Power Plant, HPC Power Plant, and Banpu NEXT.

Management Approach

BPP determines to conduct a social baseline study in the areas in accordance with the international standards during the project's feasibility study stage. The aim is to understand economic and social contexts of the project's area. It also sets up practice guidelines for engaging with communities and applying them as seen appropriated for each area.

BPP creates community engagement through stakeholder's analysis procedures, dividing involved parties into directly and indirectly affected groups, as well as beneficiaries since a commencement of the feasibility study. The aim is to listen to community's opinions and concerns, using such opinions and worry for designing projects as well as establishing proper measures to mitigate social and environmental impacts for each area. In general, the project's stakeholders are classified based on the impact levels resulted from project operations.

Designated a dedicated unit responsible for fostering community engagement, listening to, and gathering feedback from the community to develop an appropriate action plan.

A distinguishment, however, may be different from local conditions and applicable laws of each country, for example:

1. **Communities located in the project area** are those living in the project's zones and necessarily being relocated. Members of these communities are the most affected people during the project's commencement stage since relocation has an impact on the community's traditional living, and possibly affects their occupations, cultures, and traditions, etc. Therefore, understanding and well planning for relocations as well as supporting such communities for their best benefits with minimal effects is a must. The unwilling relocation is avoidable, which is a challenge for the project achievement.
2. **Communities living proximity to the project** are those residing adjacent to the project's areas or 5 km away (radius may vary upon each area). These communities are directly affected and are closest to the project. As a result, BPP has counted them as the most affected stakeholders during the operational stage. Subsequently, the communities residing in proximity to the project, together with those staying in the project's areas will be provided with maximum opportunities, such as job recruitment, occupational support, etc.
3. **Communities living in the moderate vicinity of the project** are those located over 5 km from the project area but not exceeding 10 km (radius may vary upon each area), or the communities BPP purchased lands for operating, but do not have to relocate. These communities are directly affected by the project, but less than the first two groups. As a result, this community group is considered as the moderately affected stakeholders.
4. **Indirectly affected communities** are those residing far away from the project areas or the ones supporting the relocation, which may be indirectly affected, for instance, increasing the population and transportation densities. BPP considered this group of communities as the least important stakeholders, when compared to the first three groups.

BPP set up a unit with a direct responsibility the creating community engagement, conducting the public hearings and community opinion surveys so as to develop an operational plan appropriated for each locality, including a vulnerable group, such as persons unable to protect their rights or have no freedom to make decisions on effects they may receive, namely children, the elderly, migrants, and indigenous groups, etc.

Performance

In 2024, **BPP had no significant complaints from surrounding communities. There were neither incidents related to production halts or disruptive operations due to community complaints**, nor events involved with violations of economic, social, and environmental laws in the power plants, in which BPP has direct management control, and the joint-venture power plants.

Since the CHP plants in China, namely Luannan, Zhengding, and Zouping are located in the industrial and urban areas to generate electricity, steam, and chilled water for industrial factories and communities, BPP collaborates with customers, business partners, the government sector, and neighboring companies in engaging with the community. In addition, the community is one of the important customers purchasing heat from the three power plants during winter season. As a result, the power plants must operate in accordance with communities' expectations. Meanwhile, their operations have been improved to be able to operate reliably and efficiently supply quality heat with stability and flexibility to meet communities' needs.

Temple gas-fired power plant in the United States of America has collaborated with local agencies, such as the Chamber of Commerce, community clinics, and other sectors to participate in community support activities in various areas, such as providing health assistance and food to the poor through governmental organizations, including facilitating the plant visits from schools and various organizations in the area. In addition, Temple Power Plant also reuses water left from the community use to operate its plants. This is to gain maximum benefit in using water resources and reducing water withdrawal from natural water sources in the area, which is used in the power plant's production process.

No significant complaints from surrounding communities and **no incidents** of production halts or disruptive operations due to community complaints.

Ride for Chance, Ride for Change Project

Banpu NEXT, in collaboration with Lalamove – a business partner providing an on-demand delivery application, has officially inaugurated the Ride for Chance, Ride for Change Project. The project is aimed at empowering people with disabilities by providing them with the parcel delivery job. A total of 20 disabled people are participating in the project, divided into 16 people with hearing impairments, and 4 people with mobility disabilities.

The Ride for Chance, Ride for Change Project focuses on empowering disabled individuals and supporting them in starting a career as parcel delivery riders. The project lasts 12 months, which participants will receive an electric motorcycle with comprehensive insurance for working as a parcel transporter. They will be exempted from member registration fees and will be trained in all necessary skills, including safe driving, customer services, and the use of technology. In addition, a specific system was designed to facilitate the project participants to build confidence and help them overcome obstacles in their work.

The implementation of the project has helped Banpu NEXT in publicizing/promoting the services of its electric motorcycle business group to create business opportunities. As Lalamove can attract disabled people to join as project's members, the number of riders can be expanded to provide more transportation services.

Creating a Positive Impact on Society

USD 554,000

Participants' Benefits

Provided career opportunities for **20 people**

Resulting in an additional income of **USD 99,500**
(or an approximate 140% increase in monthly income)

BPP's Benefits

Promoted electric motorcycle products and services, generating an estimated media value of approximately **USD 136,000** through product visibility and online media exposure.

Leaf Fertilizer Project

BLCP Power Plant has implemented the Leaf Fertilizer project since 2022. The aim is to turn agricultural waste and leftover materials into high quality organic fertilizer, help reduce farmers' expenses in using fertilizers and chemicals, as well generate income from selling composts produced. More importantly, the indirect benefit resulted from this project is the ability to reduce the amount of dust, smoke, and greenhouse gases (GHG) resulting from burning agricultural waste. The formula and production methodology of leaf fertilizer was adjusted to decrease the compost production time from 6months to only 45 days. In 2023, this project was certified on being able to reduce GHG emissions by 143.347 tonnes CO_2e from the Thailand Greenhouse Gas Management Organization (TGO) (Public Organization). Since the project's commencement up to now, BLCP Power Plant has disseminated knowledge to approximately 500 interested people from 26 communities and 10 schools, while 40 farmer households have participated in this project. Moreover, 3 learning bases have been established, namely the Nong Fab Community, Map Kha Community - Ai Ngon Office and Khod Hin 2 Community.

In 2024, BLCP Power Plant together with Nong Fab Community and Map Ta Phut Municipality organized the activity to analyze the lessons learned from the "Leaf Fertilizer Project - King's Science" according to the "Sufficiency Economy" philosophy from the royal initiative of His Majesty King Bhumibol Adulyadej the Great at the Integrated Farming System Community Enterprise, Nong Fab Community, Rayong Province. This project is a successful model demonstrating cooperation among the government, private sectors, and communities in applying the Philosophy of Sufficiency Economy for sustainable development. This lesson learned activity was an opportunity to exchange knowledge and experiences, including presenting achievements and future plan in order to inspire and expand the project's success to other communities.

Exchange knowledge and experiences, as well as present achievements and future action plans to inspire others.

Operating Results in 2024

Using agricultural waste and leftover materials to produce organic fertilizer **246.18 tonnes** (target 240 tonnes)

Reducing GHG emissions by approximately **210 tonnes CO_2e/year**

Reducing community expenses by approximately THB 1.15 million

- Expenses for waste disposed to landfill of **THB 0.27 million**
- Expenses for purchasing plantation soil of **THB 0.88 million**

BLCP Power Plant's Benefits

- A channel for communicating and listening to community's opinions.
- Implementing the occupational promotion projects, creating good relationships with the community.
- Mitigating risks associated with community relations on the issues of dust and smoke resulted from burning of waste and agricultural residues.

Health and Safety Surveillance at HPC Power Plant

HPC Power Plant is located in a rural area of Xayaburi State, Lao PDR, with a population of approximately 27,000 people. During the commencement of the project operation, the communities had concerned about their health, including a need for improving the community health further, while the area was lack of a basic public health system. Subsequently, HPC Power Plant has joined hands with the government sector and the communities to develop a health surveillance system and promote the household and community health in a systematic way since the operation commencement of HPC Power Plant in late 2012. From the beginning of the project until today, a health surveillance database has been created into the Geographic Information System to be able to manage spatially and to link the environmental quality measurement results with the community's health status.

In addition, HPC Power Plant in collaboration with the Public Health Department has promoted the community volunteers and provided training to create understanding of household health as well as to build an understanding of environmental health and basic public health. The two parties have also jointly created household environmental health indicators for volunteers to use in the monthly monitoring, such as behaviors in storing and using water for consumption, food preparation, waste management, cleanliness, household illnesses, etc. Besides, it is also a way to receive suggestions or concerns from the community for improvements. Furthermore, information about the power plant's environmental quality measurement has been communicated to local communities on a regular basis.

2024 Performance

- Collaborating with public health agencies in implementing community health and child development surveillance projects and providing knowledge about hygiene and nutrition, as well as supporting dietary supplements to promote children development.
- Carrying out a health check in the community areas totaling 542 households or a population of 916 people. According to the health check result, there was not any disease possibly related to the power plant's operation found. The study found that the population is at risk of health related to behavioral diseases or Non-Communicable Diseases (NCDs) the most. HPC Power Plant and the government sector will continue to create health awareness and provide knowledge to the people in the area.

Communities' Benefits

- Obtaining knowledge about hygiene and nutrition for improving quality of life
- Reducing health risks. The preliminary health examination results can be used to improve behaviors causing NCDs.

HPC Power Plant's Benefits

- Creating relationships with communities and being a channel for communicating about the power plant's operational results as well as listening to community's opinions.
- Mitigating risks associated with the environment and community relationship.

PERFORMANCE

List of Business

Country	Business Unit	Type	Shareholding (%)	Generation Capacity		Status	Direct Operational Control
				100%	Equity-based		
Thermal Power Business (committed capacity 3,174 MW, based on BPP equity)							
China	Zhengding	Combined heat and power (CHP) plant	100%	139 MWe	139 MWe	Operating	●
	Luannan	Combined heat and power (CHP) plant	100%	246 MWe	246 MWe	Operating	●
	Zouping	Combined heat and power (CHP) plant	70%	233 MWe	163 MWe	Operating	●
	Shanxi Lu Guang	Coal-fired power plant	30%	1,320 MW	396 MW	Operating	
Lao PDR	HPC	Coal-fired power plant	40%	1,878 MW	751 MW	Operating	
Thailand	BLCP	Coal-fired power plant	50%	1,434 MW	717 MW	Operating	
The U.S.	Temple	Gas-fired power plant	50%	1,523 MW	762 MW	Operating	●
Renewable Power Business (committed capacity 255.83 MW, based on BPP equity)							
China	Huineng	Solar power plant	100%[a]	21.51 MW	21.51 MW	Operating	
	Jinshan	Solar power plant	100%[a]	28.95 MW	28.95 MW	Operating	
	Haoyuan	Solar power plant	100%[a]	20.00 MW	20.00 MW	Operating	
	Hui'en	Solar power plant	100%[a]	19.70 MW	19.70 MW	Operating	
	Deyuan	Solar power plant	100%[a]	51.64 MW	51.64 MW	Operating	
	Xingyu	Solar power plant	100%[a]	10.30 MW	10.30 MW	Operating	
	Jixin	Solar power plant	100%[a]	25.22 MW	25.22 MW	Operating	
Japan	Olympia - Hitashi Omiya No.1	Solar power plant	40%[a]	2.00 MW	0.80 MW	Operating	
	Olymia - Hitashi Omiya No.2	Solar power plant	40%[a]	2.00 MW	0.80 MW	Operating	
	Olympia - Ozenosato-Katashina	Solar power plant	40%[a]	2.00 MW	0.80 MW	Operating	
	Olympia - Sakura No.1	Solar power plant	40%[a]	2.00 MW	0.80 MW	Operating	
	Olympia - Sakura No.2	Solar power plant	40%[a]	2.00 MW	0.80 MW	Operating	
	Hino	Solar power plant	100%[a]	3.50 MW	3.50 MW	Operating	
	Awaji	Solar power plant	100%[a]	7.90 MW	7.90 MW	Operating	
	Nari Aizu	Solar power plant	100%[a]	20.46 MW	20.46 MW	Operating	
	Mukawa	Solar power plant	93%[a]	17.00 MW	15.81 MW	Operating	
	Kurokawa	Solar power plant	100%[a]	18.90 MW	18.90 MW	Operating	
	Tenzan	Solar power plant	100%[a]	1.96 MW	1.96 MW	Operating	
	Muroran 1	Solar power plant	100%[a]	1.73 MW	1.73 MW	Operating	
	Muroran 2	Solar power plant	100%[a]	1.63 MW	1.63 MW	Operating	
	Takeo 2	Solar power plant	100%[a]	1.00 MW	1.00 MW	Operating	
	Yamagata	Solar power plant	100%[a]	20.00 MW	20.00 MW	Operating	
	Yabuki	Solar power plant	100%[a]	7.00 MW	7.00 MW	Operating	
	Kesennuma	Solar power plant	100%[a]	20.00 MW	20.00 MW	Operating	
	Nihonmatsu	Solar power plant	100%[a]	12.00 MW	12.00 MW	Operating	
	Shirakawa	Solar power plant	100%[a]	10.00 MW	10.00 MW	Operating	
Vietnam	El Wind Mui Dinh	Wind power plant	100%[a]	37.60 MW	37.60 MW	Operating	
	Vinh Chau - phase 1	Wind power plant project	100%[a]	30.00 MW	30.00 MW	During submission of document for COD approval	
	Vinh Chau - phase 2 and 3	Wind power plant project	100%[a]	50.00 MW	50.00 MW	Under Development	
	Nhon Hai	Solar power plant	100%[a]	35.00 MW	35.00 MW	Operating	
Australia	Beryl	Solar power plant	20%[a]	110.90 MW	22.18 MW	Operating	
	Manildra	Solar power plant	20%[a]	55.90 MW	11.18 MW	Operating	
The U.S.	Ponder[b]	Solar power plant	50%	2.5 MW	1.25 MW	Operating	●
Energy Technology Business (committed capacity 153.99 MW, based on BPP equity)							
Thailand		Solar rooftop/Solar floating	100%[a]	106.07 MW	106.07 MW	Operating	
China		Solar rooftop	100%	22.7 MW	22.7 MW	Operating	●
		Solar rooftop project	100%	43.4 MW	43.4 MW	Under Development	●
Indonesia		Solar rooftop	19.5% - 23.85%[a]	61.34 MW	12.96 MW	Operating	
Japan		Solar rooftop	100%[a]	3.64 MW	3.64 MW	Operating	
Vietnam		Solar rooftop	49.10%[a]	108.24 MW	53.10 MW	Operating	

[a] Ownership reported for Banpu NEXT's (BPP holds a 50% stake).
[b] Commercial Operation Date (COD) in August 2024.

Awards and Membership

Awards and Recognitions

Awards/Recognitions	Host Institution
SET ESG Ratings of **AAA**, 2024	The Stock Exchange of Thailand
Corporate credit rating of **A+** with a **"Stable"** outlook	TRIS Rating
Corporate Governance Report of Thai Listed Companies (CGR) 2024 with **Excellent CG Scoring (5 Star)**	Thai Institution of Directors Association (IOD)
The company obtained a **full 100 scores** for the quality of the Annual General Meeting of Shareholders for the year 2024	Thai Investors Association
Outstanding Private Sector Organizational Leader (Outstanding CEO) – Senior Category, in the Resources Sector for the year 2024	The Economic Reporters Association, in collaboration with the Joint Private Sector Committee of 3 Institutions, which includes the Thai Chamber of Commerce and Thai Chamber of Commerce, the Federation of Thai Industries and the Thai Bankers' Association, and the University of the Thai Chamber of Commerce.
Honorary Trophy **"Good Person, Earth Guardian"**	Committee on Religion, Ethics, Arts, and Culture, Senate
Most Sustainable Energy Company – Thailand 2024	Global Business Outlook Awards

Participation and Membership

Organization	Status	Role
Thai Listed Companies Association	Chairman	Provide advice and comments on regulations related to Thai listed companies to regulatory agencies such as the Stock Exchange of Thailand, the Securities and Exchange Commission, and others.
Thai Private Sector Collective Action Against Corruption (CAC)	Committee Member	Support and promote anti-corruption in Thailand.

Reporting Boundary

Sustainability Issues	Direct Operational Control							No Direct Operational control				
	Office			Zhengding	Luannan	Zouping	Temple	BLCP	HPC	Shanxi Lu Guang	Renewable Energy	Energy Technology
	Thailand	China	The U.S.	China	China	China	The U.S.	Thailand	Lao PDR	China	China, Japan, Vietnam, Australia	Thailand, China, Japan
1. Air emissions	-	-	-	●	●	●	●	+	+	-	-	-
2. Ash	-	-	-	●	●	●	-	+	+	-	-	-
3. Biodiversity	-	-	-	●	●	●	●	+	+	-	+	-
4. Climate strategy and GHG emissions	-	-	-	●	●	●	●	+	+	-	+	-
5. Effluent	-	-	-	●	●	●	●	+	+	-	+	-
6. Electricity generation	-	-	-	●	●	●	●	+	+	-	+	-
7. Energy efficiency	-	-	-	●	●	●	●	+	+	-	+	-
8. Hazardous waste	-	-	-	●	●	●	●	+	+	-	+	-
9. Leakage & spillage	-	-	-	●	●	●	●	+	+	-	-	-
10. Non-hazardous waste	-	-	-	●	●	●	●	+	+	-	+	-
11. Transmission & distribution	-	-	-	-	-	-	-	-	-	-	-	-
12. Water related risk	-	-	-	●	●	●	●	+	+	-	+	-
13. Community engagement	-	-	-	●	●	●	●	+	+	-	-	-
14. Corporate citizenship & philanthropy	●	●	●	●	●	●	●	+	+	-	-	-
15. Human capital development	●	●	◖	●	●	●	◖	+	+	-	-	-
16. Human rights	●	●	●	●	●	●	●	+	+	-	-	-
17. Labor practices	●	●	●	●	●	●	●	+	+	-	-	-
18. Occupational health	●	●	●	●	●	●	●	+	+	-	-	-
19. Resettlement	-	-	-	-	-	-	-	-	-	-	-	-
20. Safety	●	●	●	●	●	●	●	+	+	-	-	-
21. Succession planning	●	●	◖	●	●	●	◖	-	-	-	-	-
22. Talent attraction & retention	●	●	◖	●	●	●	◖	+	+	-	-	-
23. Business continuity management	●	●	◖	●	●	●	◖	-	-	-	-	-
24. Business ethics	●	●	●	●	●	●	●	-	-	-	-	-
25. Contractor management	●	●	●	●	●	●	●	-	-	-	-	-
26. Corporate governance	●	●	●	●	●	●	●	-	-	-	-	-
27. Customer management	-	-	-	●	●	●	●	-	-	-	-	-
28. Cyber security	●	●	●	●	●	●	●	-	-	-	-	-
29. Innovation	●	●	●	●	●	●	●	-	-	-	-	-
30. Market opportunity	●	●	●	●	●	●	●	-	-	-	-	-
31. Policy influence	●	●	●	●	●	●	●	-	-	-	-	-
32. Privacy protection	●	●	●	●	●	●	●	-	-	-	-	-
33. Process improvement & digital transformation	●	●	●	●	●	●	●	-	-	-	-	-
34. Product stewardship	●	●	●	●	●	●	●	-	-	-	-	-
35. Risk management	●	●	●	●	●	●	●	-	-	-	-	-
36. Supplier management	●	●	◖	●	●	●	◖	-	-	-	-	-

● Reporting covers management approach and performance data.

◖ Reporting covers management approach but does not cover performance data.

\+ Reporting does not cover management approach and performance data due to BPP has no direct operational control. However, there are some sustainability performances interested by stakeholders, the partial of sustainability performance are reported separately.

\- Not included in the reporting boundary due to not being applicable to the business or having no direct operational control.

Performance Data 2024: Banpu Power

Economic Performance

Data	Unit	2021	2022	2023	2024
Revenue	THB million	6,784	24,501	28,380	25,827
EBITDA[a]	THB million	3,407	8,280	12,262	7,383
Net profit	THB million	3,127	5,739	5,319	1,746
Gross profit margin	%	(1%)	10%	29%	8%
Interest coverage ratio	-	(0.69)	1.90	2.88	0.93
Net debt to equity ratio	-	0.28	0.24	0.44	0.49

[a]Earning before interest, taxes, depreciation and amortization.

Tax Payment

Data	Unit	2021	2022	2023	2024
Thailand (BPP Group)[a]					
• Profit before tax	THB thousand	3,231,538	6,194,452	6,840,183	2,042,728
• Tax expense[b]	THB thousand	(57,203)	(44,889)	(402,462)	(331,790)
• Corporate income tax paid	THB thousand	(88,751)	(94,781)	(114,162)	(209,784)
• Income tax rate	%	0 - 25%	0 - 25%	15 - 25%	15 - 25%
China					
• Profit before tax	RMB thousand	(133,736)	(270,395)	(639)	(152,810)
• Tax expense[b]	RMB thousand	(8,228)	19,607	(22,022)	(80,637)
• Corporate income tax paid	RMB thousand	(32,256)	(1,352)	(2,072)	(17,234)
• Income tax rate	%	0 - 25%	12.5 - 25%	12.5 - 25%	25%
The U.S. (BPP US)					
• Profit before tax	USD thousand	-	16,934	62,862	(6,454)
• Tax expense[b]	USD thousand	-	(1,696)	(6,569)	(1,311)
• Corporate income tax paid	USD thousand	-	(862)	(2,986)	(420)
• Income tax rate	%	-	21%	21%	21%
Thailand (BLCP)					
• Profit before tax	THB thousand	(609,612)	224,619	1,241,435	1,315,909
• Tax expense[b]	THB thousand	(5,984)	-	(261,730)	(262,599)
• Corporate income tax paid	THB thousand	(3,351)	-	(173,750)	(98,313)
• Income tax rate	%	20%	20%	20%	20%
Lao PDR (HPC)					
• Profit before tax	THB thousand	9,192,934	9,431,320	8,120,245	8,954,262
• Tax expense[b]	THB thousand	(640,519)	(725,891)	(1,086,737)	(1,430,385)
• Corporate income tax paid	THB thousand	(323,365)	(779,378)	(1,017,280)	(1,289,480)
• Income tax rate	%	7.5 - 50%	7.5 - 50%	15 - 50%	15 - 50%

[a]Consolidated.
[b]Consisting of Corporate Income Tax, and Deferred Tax.

Policy Influence

Data	Unit	2021	2022	2023	2024
Contributions and other spending					
• Lobbying, interest representation	THB	0	0	0	237,915
• Political party or political interest	THB	0	0	0	0
• Trade association or tax-exempt groups	THB	347,750	500,118	382,418	438,486
• Other contributions	THB	0	0	0	0
Top 3 largest contribution					
• The Securities and Exchange Commission (SEC)	THB	-	481,500	363,800	256,800
• The Thai Bond Market Association (ThaiBMA)	THB	-	-	-	160,500
• Thai Listed Companies Association	THB	-	16,050	16,050	16,050

Sustainability Taxonomy[a]

Data	Unit	2021	2022	2023	2024
Turnover	THB million	-	-	-	25,827
• Taxonomy-eligible	THB million	-	-	-	30
• Taxonomy-aligned	THB million	-	-	-	0
• Non-taxonomy-eligible	THB million	-	-	-	25,797
Capital Expenditure	THB million	-	-	-	447
• Taxonomy-eligible	THB million	-	-	-	301
• Taxonomy-aligned	THB million	-	-	-	0
• Non-taxonomy-eligible	THB million	-	-	-	145

Data	Unit	2021	2022	2023	2024
Operational Expenditure	THB million	-	-	-	1,945
• Taxonomy-eligible	THB million	-	-	-	16
• Taxonomy-aligned	THB million	-	-	-	0
• Non-taxonomy-eligible	THB million	-	-	-	1,929
Turnover	%	-	-	-	100%
• Taxonomy-eligible	%	-	-	-	0.1%
• Taxonomy-aligned	%	-	-	-	0%
• Non-taxonomy-eligible	%	-	-	-	99.9%
Capital Expenditure	%	-	-	-	100%
• Taxonomy-eligible	%	-	-	-	67.5%
• Taxonomy-aligned	%	-	-	-	0%
• Non-taxonomy-eligible	%	-	-	-	32.5%
Operational Expenditure	%	-	-	-	100%
• Taxonomy-eligible	%	-	-	-	0.8%
• Taxonomy-aligned	%	-	-	-	0%
• Non-taxonomy-eligible	%	-	-	-	99.2%

[a]Refers to EU taxonomy for sustainable activities.

Economic Distributions

Data	Unit	2021	2022	2023	2024
Ratio of the dividend payout to net profit	-	0.63	0.37	0.46	1.05
Economic value generated					
• Sales	USD thousand	239,388	727,479	891,788	755,291
• Other revenues	USD thousand	138,916	136,978	128,043	43,403
Economic value distributed					
• Shareholder[a]	USD thousand	57,322	65,528	61,466	59,446
• Supplier and contractor[b]	USD thousand	78,319	460,911	417,169	524,007
• Employee[c]	USD thousand	30,517	52,039	64,239	50,405
• Financial institution[d]	USD thousand	(4,127)	39,616	196,007	16,378
• Government[e]	USD thousand	9,561	12,243	22,159	27,846
• Community[f]	USD thousand	505	380	520	580
• Environment[g]	USD thousand	1,906	1,953	1,820	1,730
Economic value retained	USD thousand	204,300	231,788	256,452	118,303

[a]Dividends.
[b]Includes contractor cost, fuel cost, and other operating costs.
[c]Includes remuneration and benefits, provident fund contributions and employee development expenses.
[d]Includes interest expense, financial expenses.
[e]Includes royalty fee, corporate income tax, local maintenance tax, property tax, specific business tax, and other additional taxes and payment to government.
[f]Includes community development expenses, corporate social responsibility activities and land compensation.
[g]Includes environmental treatment expenses and other environmental related activities.

Corporate Citizenship and Philanthropy

Data	Unit	2021	2022	2023	2024
Philanthropic contributions - by category					
• Charitable donation	% of total costs	46%[a]	37%[a]	33%	10%
• Community investment	% of total costs	41%[a]	56%[a]	59%	56%
• Commercial initiatives	% of total costs	13%[a]	7%[a]	8%	34%
Philanthropic contributions - by type					
• Cash contributions	THB thousand	7,665[a]	1,313[a]	1,632	1,012
• Time spent by volunteer employees during working hours	THB thousand	806[a]	6,011[a]	5,002	8,226
• In-kind giving	THB thousand	610[a]	959[a]	2,725	15,348
• Management overhead	THB thousand	127,584[a]	121,870[a]	118,815	152,277

[a]Data coverage includes CHPs and office in China.

Corporate Governance

Data	Unit	2021	2022	2023	2024
Coverage of significant ESG aspects set as corporate ESG targets	%	100%	100%	100%	100%
Coverage of corporate ESG targets deployed to senior executives	%	100%	100%	100%	100%
Board type					
• Executive directors	person	3	3	3	5
• Independent directors	person	4	5	5	2
• Other non-executive directors	person	3	2	2	4
Number of meeting					
• Board of directors	time/year	12	12	12	11
• Corporate governance and nomination committee	time/year	5	4	3	3
• Audit committee	time/year	9	8	10	3
• Compensation committee	time/year	4	4	4	3

Data	Unit	2021	2022	2023	2024
Board meeting attendance					
• Board of directors	%	98.33%	98.33%	100%	98.61%
• Corporate governance and nomination committee	%	100%	100%	88.89%	100%
• Audit committee	%	91.67%	100%	97.50%	97.22%
• Compensation committee	%	100%	100%	100%	100%
• ESG committee[b]	%	-	-	100%	100%
Performance evaluation[a]					
• Board of directors	-	4.75	4.80	4.94	4.79
• Sub-committees	-	4.85	4.83	4.89	4.85
• Individual directors	-	4.69	4.76	4.83	4.85

[a]Average score in the range of 0 to 5.
[b]Established in March 2023.

Business Ethics

Data	Unit	2021	2022	2023	2024
Number of significant corporate governance complaints	case	0	0	0	0
• Corruption & bribery	case	0	0	0	0
• Fraud, embezzlement, theft	case	0	0	0	0
• Dishonesty for own and other benefit	case	0	0	0	0
• Dangers to health and safety or environment	case	0	0	0	0
• Intentional act causing harm or loss to the Company	case	0	0	0	0
• Significant breaches of the Code of Conduct[a]	case	0	0	0	0
• Assistance in wrongdoing[b]	case	0	0	0	0
• Other[c]	case	0	0	0	0
Proportion of significant corporate governance complaints resolved through a dispute mechanism	%	NA[d]	NA[d]	NA[d]	NA[d]

[a]Includes antitrust/anti-competitive practices.
[b]Against the law, rules and regulations, corporate governance policy and code of conduct including concealing or assisting in concealing once they have occurred.
[c]Includes discrimination and unfair treatment.
[d]No significant complaints.

Risk Management

Data	Unit	2021	2022	2023	2024
Proportion of business units with key risk indicators	%	100%	100%	100%	100%
Coverage of ESG issues in the enterprise risk management[a]	%	94%	97%	98%	98%
Proportion of business units with ESG risk management plan[b]	%	NA[c]	NA[c]	NA[c]	NA[c]

[a]Based on COSO.
[b]For business unit(s) with high priority ESG risks.
[c]No business unit identified as high ESG risks.

Business Continuity Management

Data	Unit	2021	2022	2023	2024
Coverage of BCP exercise for critical business functions	%	-	33%	66.7%	88.3%
Coverage of CMT/IMT exercise[a]	%	100%	100%	100%	100%

[a]The real activation of CMT/IMT considered as a BCP exercise at Bangkok and Beijing offices.

Customer Management

Data	Unit	2021	2022	2023	2024
Number of complaints	case	0	0	0	0
• Customer privacy	case	0	0	0	0
Total number of identified leaks, thefts, or losses of customer data	case	-	-	0	0
Proportion of customer complaints resolved in a timely manner	%	NA[a]	NA[a]	NA[a]	NA[a]
Customer satisfaction[b]					
• Satisfied respondents	%	100%	100%	100%	100%
• Coverage of customer surveyed	%	89%	100%	100%	100%

[a]No significant complaints.
[b]Cover all industrial steam customers of 3 CHPs.

Data Privacy & Cyber Security[a]

Data	Unit	2021	2022	2023	2024
Number of cybersecurity breaches	case	0	1	0	1
Number of IT infrastructure incidents	case	1	1	0	1
% of IT and IoT assets securely managed by security operation center (SOC)	%	30%	60%	70%	70%
Cybersecurity & privacy maturity score[b]	%	2.0	3.0	3.5	4.0

[a]Data reported for Banpu Group due to management service agreement.
[b]In the range of 1 to 5.

Availability & Reliability

Data	Unit	2021	2022	2023	2024
Combined Heat and Power (CHP)					
Installed capacity					
• Current capacity	MW	348	348	348	348
• Capacity under construction	MW	0	0	0	0
System efficiency					
• Efficiency rate for electricity generation	g/kWh	202.51	183.68	167.56	151.48
• Efficiency rate for steam production	kg/GJ	37.96	37.23	37.31	37.73
• Availability factor	%	95.05%	94.00%	95.98%	94.15%
• Overall efficiency	%	77.47%	79.78%	84.06%	84.24%
Total outage					
• Total outage frequency	case/year	24	15	17	21
• Total outage hour	hour	5,002	6,054	5,026	6,675
• Average total outage duration	hour/case	208	404	296	318
Planned outage					
• Planned outage frequency	case/year	20	14	17	21
• Planned outage hours	hour	4,575	5,982	5,026	6,675
• Average planned outage duration	hour/case	229	427	296	318
Unplanned outage					
• Unplanned outage frequency	case/year	4	1	0	0
• Unplanned outage hours	hour	427	72	0	0
• Average unplanned outage duration	hour/case	107	72	0	0
• Unplanned forced outage factor	%	0.05%	0.82%	0%	0%
Combined Cycle Gas Turbine (CCGT)					
Installed capacity					
• Current capacity	MW	-	-	1,523[a]	1,523
• Capacity under construction	MW	-	-	0[a]	0

Data	Unit	2021	2022	2023	2024
System efficiency					
• Efficiency rate for electricity generation	btu/kWh	-	-	7,120.60[a]	7,094.00
• Availability factor	%	-	-	82.68%[a]	88.53%
• Overall efficiency	%	-	-	47.92%[a]	48.10%
Total outage					
• Total outage frequency	case/year	-	-	10[a]	21
• Total outage hour	hour	-	-	2,224[a]	6,046
• Average total outage duration	hour/case	-	-	225[a]	288
Planned outage					
• Planned outage frequency	case/year	-	-	5[a]	4
• Planned outage hours	hour	-	-	2,178[a]	5,705
• Average planned outage duration	hour/case	-	-	436[a]	1,426
Unplanned outage					
• Unplanned outage frequency	case/year	-	-	5[a]	17
• Unplanned outage hours	hour	-	-	67[a]	341
• Average unplanned outage duration	hour/case	-	-	13[a]	20
• Unplanned forced outage factor	%	-	-	0.51%[a]	0.77%

[a]Consolidation of data from Temple I and Temple II Power Plants for the first year 2023, which Temple II Power Plant was completely acquired on July 10, 2023.

Supplier Management

Data	Unit	2021	2022	2023	2024
China					
Number of suppliers					
• All suppliers	number	910	910	910	1,019[d]
• Critical suppliers[a]	number	171	171	171	176[d]
Proportion of suppliers assessed for ESG risks					
• All critical tier-1 suppliers	%	11%	11%	11%	10.8%[d]
• New critical tier-1 suppliers	%	-	-	-	-[d]
Proportion of critical tier-1 suppliers classified as high-risk	%	0%	0%	0%	0%[d]
Proportion of spending on local suppliers[b]	%	30%	30%	30%	30.6%[d]
Proportion of contracts that include ESG clauses	%	42%	42%	42%	38.9%[d]

Data	Unit	2021	2022	2023	2024
The U.S.					
Number of suppliers					
• All suppliers	number	-	-	225	225
• Critical suppliers[a]	number	-	-	68	68
Proportion of suppliers assessed for ESG risks[c]					
• All critical tier-1 suppliers	%	-	-	-	-
• New critical tier-1 suppliers	%	-	-	-	-
Proportion of critical tier-1 suppliers classified as high-risk[c]	%	-	-	-	-
Proportion of spending on local suppliers[b]	%	-	-	24%	24%
Proportion of contracts that include ESG clauses[c]	%	-	-	-	-

[a]Defined as high-volume suppliers, critical component suppliers, or non-substitutable suppliers.
[b]Supplier that operates in the same region.
[c]Data collection system is under standardization.
[d]Data coverage includes CHPs and BIC office.

Employee

Data	Unit	2021	2022	2023	2024
Total employee	person	745	952	938	955
Employee - by country					
• Thai	%	3.36%	3.26%	3.62%	3.77%
• China	%	96.64%	93.17%	95.63%	95.08%
• The U.S.	%	-	0.32%	0.75%	1.15%
• Others	%	-	3.25%	0%	0%
Employee - by nationality					
• Thai	%	3.49%	4.52%	4.37%	4.71%
• Chinese	%	96.38%	92.75%	95.10%	94.45%
• American	%	0%	0.32%	0.53%	0.84%
• Others	%	0.13%	2.41%	0%	0%
Employee - by age					
• Under 30	%	16.38%	14.60%	13.75%	12.25%
• 30-39	%	41.74%	34.98%	37.21%	36.23%
• 40-49	%	32.48%	33.93%	33.16%	32.36%
• 50 and over	%	9.40%	16.49%	15.88%	19.16%
Employee - by type					
• Permanent	%	99.60%	99.79%	55.44%	100%
• Temporary/contract	%	0.40%	0.21%	44.56%	0%
Employee - by level					
• Senior management	%	0.67%	1.79%	3.20%	3.87%
• Middle management	%	4.56%	7.67%	6.82%	7.54%
• Junior management	%	6.17%	21.85%	20.26%	20.63%
• Supervisor & staff	%	88.59%	68.70%	69.72%	67.96%
Employee - by STEM-related position[a]					
• STEM-related position	%	-	-	71.64%	40.73%
• Others	%	-	-	28.36%	59.27%

[a]Positions pursue in the Science, Technology, Engineering and Maths sectors, including but not limited to Engineer, Geologist, Economist, and Software developer.

Gender Diversity

Data	Unit	2021	2022	2023	2024
Employee - by gender					
• Male	%	84.97%	78.47%	78.68%	78.85%
• Female	%	15.03%	21.53%	21.32%	21.15%
All management - by gender[a]					
• Male	%	-	-	73.59%	73.20%
• Female	%	-	-	26.41%	26.80%
Top management - by gender[b]					
• Male	%	94.87%	67.78%	68.09%	67.89%
• Female	%	5.13%	32.22%	31.91%	32.11%
Junior management - by gender					
• Male	%	-	-	76.32%	76.14%
• Female	%	-	-	23.68%	23.86%
STEM-related position - by gender[c]					
• Male	%	-	-	86.90%	87.40%
• Female	%	-	-	13.10%	12.60%

[a]Included junior, middle and senior management.
[b]Included middle and senior management.
[c]Positions pursue in the Science, Technology, Engineering and Maths sectors, including but not limited to Engineer, Geologist, Economist, and Software developer.

New Employee

Data	Unit	2021	2022	2023	2024
Total new employee	person	36	61	55	55
New employee - by gender					
• Male	person	31	50	43	37
• Female	person	5	11	12	18
New employee - by type					
• Permanent	person	-	-	55	55
• Temporary	person	-	-	0	0
New employee - by nationality					
• Thai	person	0	5	6	4
• Chinese	person	36	41	47	46
• American[a]	person	-	2	2	5
New employee - by age					
• Under 30	person	-	-	26	31
• 30-39	person	-	-	24	14
• 40-49	person	-	-	3	8
• Over 50	person	-	-	2	2
New employee - by level					
• Senior management	person	-	-	1	1
• Middle management	person	-	-	3	6
• Junior management	person	-	-	5	12
• Staff and supervisor	person	-	-	46	36
New employee - by STEM-related position[b]					
• STEM-related position	person	-	-	40	6
• Others	person	-	-	15	49

[a]Include migrants who live in that particular country.
[b]Positions pursue in the Science, Technology, Engineering and Maths sectors, including but not limited to Engineer, Geologist, Economist, and Software developer.

Remuneration

Data	Unit	2021	2022	2023	2024
Female to male base salary ratio - Group level	-	-	-	0.29	1.08
• Senior and middle management	-	-	-	0.39	1.19
• Junior management	-	-	-	0.28	0.87
• Staff and supervisor	-	-	-	0.21	1.16
Female to male base salary ratio - Thailand	-	-	-	0.40	0.31
• Senior and middle management	-	-	-	0.28	NA[a]
• Junior management	-	-	-	1.96	0.84
• Staff and supervisor	-	-	-	NA[a]	1.01
Female to male base salary ratio - China	-	-	-	0.30	1.18
• Senior and middle management	-	-	-	0.45	1.33
• Junior management	-	-	-	0.28	0.93
• Staff and supervisor	-	-	-	0.21	1.09
Female to male base salary ratio - The U.S.	-	-	-	0.15	0.41
• Senior and middle management	-	-	-	NA[a]	NA[a]
• Junior management	-	-	-	0.28	0.97
• Staff and supervisor	-	-	-	NA[a]	0.79
Female to male total remuneration ratio - Group level	-	-	-	0.27	0.93
• Senior and middle management	-	-	-	0.35	0.98
• Junior management	-	-	-	0.28	0.81
• Staff and supervisor	-	-	-	0.21	1.25
Female to male total remuneration ratio - Thailand	-	-	-	0.39	0.36
• Senior and middle management	-	-	-	0.29	NA[a]
• Junior management	-	-	-	1.60	0.85
• Staff and supervisor	-	-	-	NA[a]	1.07
Female to male total remuneration ratio - China	-	-	-	0.28	1.18
• Senior and middle management	-	-	-	0.40	1.33
• Junior management	-	-	-	0.26	0.93
• Staff and supervisor	-	-	-	0.21	1.09
Female to male total remuneration ratio - The U.S.	-	-	-	0.15	0.41
• Senior and middle management	-	-	-	NA[a]	NA[a]
• Junior management	-	-	-	0.30	0.97
• Staff and supervisor	-	-	-	NA[a]	0.79

[a]No female or male employee.

Turnover

Data	Unit	2021	2022	2023	2024
Total employee turnover rate	%	5.20%	5.99%	11.41%	2.62%
Voluntary employee turnover rate	%	5.20%	1.58%	11.19%	2.62%
Turnover rate - by country					
• Thailand	%	0%	6.44%	0.64%	0.11%
• China	%	5.20%	2.71%	10.77%	2.51%
• The U.S.	%	-	0%	0%	0%
Turnover rate - by age					
• Under 30	%	-	-	2.67%	0.73%
• 30-39	%	-	-	5.54%	0.52%
• 40-49	%	-	-	2.45%	0.21%
• Over 50	%	-	-	0.75%	1.15%
Turnover rate - by gender					
• Male	%	-	-	9.59%	1.57%
• Female	%	-	-	1.81%	1.05%
Turnover rate - by level					
• Senior management	%	-	-	0%	0.11%
• Middle management	%	-	-	0.32%	0%
• Junior management	%	-	-	1.81%	0.63%
• Staff and supervisor	%	-	-	9.28%	1.89%

Parental Leave

Data	Unit	2021	2022	2023	2024
Employee that were entitled to parental leave	person	745	952	938	955
• Male	person	-	-	738	753
• Female	person	-	-	200	202
Employee that took parental leave	person	1	7	15	23
• Male	person	-	-	9	17
• Female	person	-	-	6	6
Employee that returned to work in the reporting period	person	-	-	14	23
• Male	person	-	-	9	17
• Female	person	-	-	5	6
Employee that returned to work after the reporting period	person	-	-	1	0
• Male	person	-	-	0	0
• Female	person	-	-	1	0

Freedom of Association

Data	Unit	2021	2022	2023	2024
Employee who are members of labor unions	%	-	-	86.4%	86.4%
Employee covered by collective bargaining agreement	%	-	-	95.6%	86.4%

Corporate Culture

Data	Unit	2021	2022	2023	2024
Level of alignment between employee behavior and the corporate culture					
• Thailand	%	79%	84%	87%	86%
• China	%	95%	92%	91%	91%

Employee Engagement

Data	Unit	2021	2022	2023	2024
Employee engagement level					
• Thailand	%	69%	74%	57%	62%
• China	%	93%	96%	91%	92%

Human Capital Development

Data	Unit	2021	2022	2023	2024
Proportion of open positions filled by internal candidates[(a)]	%	-	50%	33%	14%
Proportion of high critical positions with successor identified	%	100%	100%	100%	82%
Proportion of employee with individual development plan					
• Thailand	%	85%	85%	31%	88%
• China[(d)]	%	60%	88%	77%	73%
Employee attending leadership development programs (cumulative)	number	61	67	75	93
Employee attending leadership development programs (annual)					
• Business Leader	number	0	1	0	5
• First Line Leader	number	0	1	4	4
• Future Leader[(a)]	number	3	3	1	4
• Engaging Leader[(a)]	number	2	1	3	5

Data	Unit	2021	2022	2023	2024
Success of leadership development programs[b][c]					
• Business Leader	%	82%	85%	64%	77%
• First Line Leader	%	78%	75%	58%	70%
• Future Leader[a]	%	70%	80%	95%	82%
• Engaging Leader[a]	%	94%	94%	84%	91%

[a]Data covers only employee in Thailand.
[b]% completion of development programs.
[c]Increasing target of 2023 training was applied.
[d]% of target group for China.

Training

Data	Unit	2021	2022	2023	2024
Average cost of training - by nationality	USD/person	-	-	580	238
• Thai	USD/person	985	1,220	9,983	3,258
• Chinese	USD/person	251	210	231	132
Average cost of training - by level					
• Senior management	USD/person	2,352	1,385	2,494	4,333
• Middle management	USD/person	1,280	880	4,868	714
• Junior management	USD/person	1,590	410	946	556
• Staff and supervisor	USD/person	161	145	182	94
Average cost of training - by program					
• Technical/functional	USD/person	-	-	236	134
• Leadership	USD/person	-	-	344	104
Average hours of training - by nationality	hour/person	-	-	49.9	43.6
• Thai	hour/person	31	23	49.5	43.8
• Chinese	hour/person	37	37	49.9	43.6
Average hours of training - by level					
• Senior management	hour/person	17.3	30	45.6	29.9
• Middle management	hour/person	31.5	37	48.6	27.1
• Junior management	hour/person	40.1	38	48.9	50.3
• Staff and supervisor	hour/person	31.1	36	50.2	44.3
Average hours of training - by program					
• Technical/functional	hour/person	-	-	39.6	34.8
• Leadership	hour/person	-	-	10.3	8.8

Community Engagement

Data	Unit	2021	2022	2023	2024
Number of significant community complaint issues	case	0	0	0	0
Proportion of significant complaint issues from communities resolved through a dispute mechanism	%	NA[a]	NA[a]	NA[a]	NA[a]

[a]No significant complaint.

Resettlement

Data	Unit	2021	2022	2023	2024
Significant community resettlement complaints	case	0	0	0	0
Proportion of significant resettlement complaints resolved through a dispute mechanism	%	NA[a]	NA[a]	NA[a]	NA[a]

[a]No significant complaint.

Human Rights

Data	Unit	2021	2022	2023	2024
Coverage of business units assessed for human right risks	%	100%	75%[d]	60%[e]	60%[f]
Proportion of business units with risk management plan[a]	%	NA[b]	NA[b]	NA[b]	NA[b]
Number of significant human rights issues	case	0	0	0	0
Proportion of significant human rights issues resolved through a dispute mechanism	%	NA[c]	NA[c]	NA[c]	NA[c]

[a]For business unit(s) identified as high human rights risks.
[b]No business units identified as high human rights risks.
[c]No significant issues.
[d]Change of data boundary which excludes Temple I because the asset was successfully invested in November 2021 and under standardization process.
[e]Data coverage includes 3 CHPs in China and Temple I&II in the U.S.
[f]Data coverage includes 3 CHPs in China and Temple and Ponder Solar in the U.S.

Compliance

GRI 2-27

Data	Unit	2021	2022	2023	2024
Significant non-compliance					
• Number of significant fines[a]	case	0	0	0	0
• Total amount of significant fines	USD	0	0	0	0
• Number of significant non-monetary sanctions[b]	case	0	0	0	0
Fines paid					
• For instance occurred in current reporting period	case	0	0	0	0
	USD	0	0	0	0
• For instance occurred in previous reporting periods	case	0	0	0	0
	USD	0	0	0	0

[a]Refers to the international best practices of the fine or potential fine that is greater than USD 10,000.
[b]Refers to the instances where breaches of law and regulation lead to criminal prosecution regardless the imposition of fines.

Product

Data	Unit	2021	2022	2023	2024
Total energy sold	MWh	6,033,955	5,862,102	11,543,365	13,204,306
Energy sold					
• Electricity (renewable fuel) sold	MWh	98	109	110	109
• Electricity (non-renewable fuel) sold	MWh	1,178,967	1,089,332	6,540,164	8,292,698
• Steam sold	MWh	3,529,044	3,406,515	3,708,691	3,585,321
• Heat sold	MWh	1,325,845	1,366,146	1,294,400	1,326,178

Greenhouse Gas Emissions*

GRI 305-1, 305-2, 305-4

Data	Unit	2021	2022	2023	2024
GHG emissions					
• Total (Scope 1 & 2)	tonnes CO_2e	3,642,241	3,570,856	5,413,943	5,677,863
• Direct (Scope 1)	tonnes CO_2e	3,634,731	3,567,119	5,406,989	5,671,620
• Direct (Scope 1) - Biogenic CO_2	tonnes CO_2e	-	-	0	3
• Indirect (Scope 2)[a]	tonnes CO_2e	7,510	3,737	6,954	6,240
• Other indirect (Scope 3)	tonnes CO_2e	-	-	-	14,066,691
GHG emissions intensity					
• Total (Scope 1 & 2)	tonnes CO_2e/MWh	0.604	0.609	0.469	0.430
• Electricity generation	tonnes CO_2e/MWh	0.733	0.900	0.293	0.285
• Steam & heat generation	tonnes CO_2e/MWh	0.652	0.629	0.176	0.145
SF_6 emissions	tonnes CO_2e	241	679	402	41

*BPP has consolidated GHG emissions based on operational control approach. The GHG emissions were calculated from emissions of various gases including CO_2, CH_4, N_2O, HFC and SF_6.
[a]Gross location based scope 2 GHG emissions.

Energy

GRI 302-1, 302-3

Data	Unit	2021	2022	2023	2024
Total energy consumption	TJ	7,209	5,477	26,599	32,802
Renewable energy consumption					
• Renewable fuel	TJ	0	0	0	0.05
• Electricity purchased[a]	TJ	0	0	0	0
• Electricity self-generated	TJ	0.35	1.03	8.48	8.06
Non-renewable energy consumption					
• Non-renewable fuel	TJ	28,900	26,648	68,090	80,277
- Coal	TJ	26,832	24,233	26,349	25,213
- Diesel	TJ	36	30	22	19
- Gasoline	TJ	1	1	3	2
- Waste gas	TJ	2,030	2,291	0	0
- Natural gas	TJ	-	-	41,707	55,043
- Activated carbon	TJ	-	93	10	0
- LPG	TJ	-	0.2	0.2	0
- Solar	TJ	-	-	8	8
- Wind	TJ	-	-	-	-
• Electricity purchased	TJ	31	23	56	52
• Steam, heating & cooling	TJ	0	0	0	0
Renewable energy sold					
• Electricity	TJ	0.35	0.39	0.40	0.39
Non-renewable energy sold					
• Electricity	TJ	4,244	3,922	23,545	29,854
• Steam	TJ	12,704	12,262	13,351	12,907
• Heating	TJ	4,773	4,918	4,660	4,774
Energy consumption intensity[b]	GJ/MWh	1.195	0.934	2.30	2.48

[a]Negligible purchased electricity for solar power plant during nighttime.
[b]Includes coal, diesel, gasoline, waste gas, activated carbon, LPG, electricity, steam, heating and cooling within organization only.

Air Emissions

GRI 305-6, 305-7, G4-EU-EN21

Data	Unit	2021	2022	2023	2024
Air emissions load[a]					
• NO_x	tonnes	268	222	373	402
• SO_2[b]	tonnes	154	128	137	117
• Particular matters	tonnes	19	15	143	167
• Mercury[c]	tonnes	0.0091	0.0079	0.0082	0.0054
• Ammonia (NH_3)[d]	tonnes	-	-	-	4.597
Air emissions intensity					
• NO_x	kg/MWh	0.0445	0.0379	0.0323	0.0305
• SO_2[b]	kg/MWh	0.0254	0.0218	0.0119	0.0089
• Particular matters	kg/MWh	0.0031	0.00256	0.0124	0.0127
• Mercury	kg/MWh	1.5e-6	1.4e-6	7.0e-7	9.4e-7
Ozone-depleting substances (ODS)					
• ODS consumption	kg CFC-11e	1	2	9	8
• ODS imported	kg CFC-11e	0	0	0	0
• ODS exported	kg CFC-11e	0	0	0	0

[a]Direct measurement from Continuous Emissions Monitoring (CEM).
[b]Data only emissions from point source.
[c]Direct measurement by 3rd party
[d]Based on China's regulation.

Water*

GRI 303-3, 303-4, 303-5

Data	Unit	2021	2022	2023	2024
Water withdrawal - from all areas	megaliter	6,897	6,306	12,510	12,568
• Surface water (total)	megaliter	10	31	0	0
- Freshwater (≤1,000 mg/L TDS)	megaliter	10	31	0	0
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0
• Groundwater (total)	megaliter	2,710	2,038	1,655	1,853
- Freshwater (≤1,000 mg/L TDS)	megaliter	2,710	2,038	1,655	1,853
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0
• Seawater (total)	megaliter	0	0	0	0
- Freshwater (≤1,000 mg/L TDS)	megaliter	0	0	0	0
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0
• Produced water (total)	megaliter	0	0	0	0
- Freshwater (≤1,000 mg/L TDS)	megaliter	0	0	0	0
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0
• Third-party water (total)	megaliter	4,178	4,236	10,854	10,715
- Freshwater (≤1,000 mg/L TDS)	megaliter	4,178	2,380	1,491	3,858
- Other water (>1,000 mg/L TDS)	megaliter	0	1,856	9,363	6,857
Water withdrawal - from water stress areas	megaliter	6,897	6,306	5,759	5,962
• Surface water (total)	megaliter	10	31	0	0
- Freshwater (≤1,000 mg/L TDS)	megaliter	10	31	0	0
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0
• Groundwater (total)	megaliter	2,710	2,038	1,655	1,853
- Freshwater (≤1,000 mg/L TDS)	megaliter	2,710	2,308	1,655	1,853
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0
• Seawater (total)	megaliter	0	0	0	0
- Freshwater (≤1,000 mg/L TDS)	megaliter	0	0	0	0
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0
• Produced water (total)	megaliter	0	0	0	0
- Freshwater (≤1,000 mg/L TDS)	megaliter	0	0	0	0
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0
• Third-party water (total)	megaliter	4,178	4,236	4,104	4,110
- Freshwater (≤1,000 mg/L TDS)	megaliter	4,178	2,380	1,129	3,661
- Surface water	megaliter	3,181	2,380	758	3,130
- Groundwater	megaliter	0	0	0	0
- Seawater	megaliter	0	0	0	0
- Reclaimed water[b]	megaliter	0	0	371	531
- Produced water	megaliter	997	0	0	0
- Other water (>1,000 mg/L TDS)	megaliter	0	1,856	2,975	449
- Surface water	megaliter	0	1,598	2,975	449
- Groundwater	megaliter	0	0	0	0
- Seawater	megaliter	0	0	0	0
- Reclaimed water[b]	megaliter	0	258	0	0
- Produced water	megaliter	0	0	0	0
Water discharge - by destination	megaliter	1,604	1,513	1,453	1,774
• Surface water	megaliter	464	796	705	809
• Groundwater	megaliter	0	0	0	0
• Seawater	megaliter	0	0	0	0
• Third-party water	megaliter	1,139	717	747	966

Data	Unit	2021	2022	2023	2024
Water discharge - to all areas	megaliter	1,604	1,513	1,453	1,774
• Freshwater (≤1,000 mg/L TDS)	megaliter	-[a]	285	69	793
• Other water (>1,000 mg/L TDS)	megaliter	-[a]	1,229	1,383	981
Water discharge - to water stress areas	megaliter	1,604	1,513	1,453	1,774
• Freshwater (≤1,000 mg/L TDS)	megaliter	-[a]	285	69	793
- Surface water	megaliter	-[a]	144	0	670
- Groundwater	megaliter	-[a]	0	0	0
- Seawater	megaliter	-[a]	0	0	0
- Third-party water (sewer)	megaliter	-[a]	141	69	123
• Other water (>1,000 mg/L TDS)	megaliter	-[a]	1,229	1,383	981
- Surface water	megaliter	-[a]	652	705	138
- Groundwater	megaliter	-[a]	0	0	0
- Seawater	megaliter	-[a]	0	0	0
- Third-party water	megaliter	-[a]	567	678	843
Pollutant load to surface water[e]					
• Chemical oxygen demand (COD)	tonnes	11.18[c]	18.95	15	17
• Total dissolved solids (TDS)	tonnes	0[c]	930.43	954	848
• Total suspended solid (TSS)	tonnes	12.65[c]	21.87	17	18
• Oil & Grease	tonnes	0.31[c]	0.76	1	0
Pollutant load to third-party water[e]					
• Chemical oxygen demand (COD)	tonnes	54.34	37.16	30	34
• Total dissolved solids (TDS)	tonnes	1,556	1,487	1,741	2,452
• Total suspended solid (TSS)	tonnes	33.36	20.17	29	51
• Oil & Grease	tonnes	0.39	0.41	0	0
Water consumption					
• All areas	megaliter	5,293	4,792	11,057	10,793
• Water stress areas	megaliter	5,293	4,792	4,306	4,188
Water consumption intensity	m^3/MWh	0.877	0.818	0.958	0.817
Change in water storage	megaliter	-[d]	-[d]	-[d]	-[d]

*BPP has measured the volume of water withdrawal and discharged by using water meter.
[a]Data collection system under standardization.
[b]From wastewater treatment plant of the third party.
[c]Data of June to December 2021 only, no data collection from January to April 2021.
[d]All CHP plants have no water storage tanks which impact water related issues.
[e]Water quality monitoring conducted following the national laws and regulations such as the monitoring frequency, analytical method, monitoring parameter/substances and also threshold limit.

Waste*

GRI 306-3, 306-4, 306-5

Data	Unit	2021	2022	2023	2024
Waste generated	tonnes	777,757	792,583	744,208	700,557
• Hazardous waste	tonnes	176	116	163	103
• Non-hazardous waste[a]	tonnes	777,581	792,467	744,044	700,454
Waste diverted from disposal[b]	tonnes	776,807	792,001	743,902	700,267
• Hazardous waste	tonnes	175	90	161	100
- Preparation for reuse	tonnes	4	86	16	5
- Recycling	tonnes	59	4	145	95
- Other recovery operations	tonnes	113	0	0	0
• Non-hazardous waste[a]	tonnes	776,631	791,911	743,741	700,167
- Preparation for reuse	tonnes	418,328	0	0	0
- Recycling	tonnes	358,103	791,911	743,741	700,167
- Other recovery operations	tonnes	201	0	0	0
Waste directed to disposal[b]	tonnes	794	729	303	289
• Hazardous waste	tonnes	1	26	3	3
- Incineration with energy recovery	tonnes	1	2	3	2
- Incineration without energy recovery	tonnes	0	0	0	1
- Landfilling	tonnes	0	24	0	0
- Other disposals	tonnes	0	0	0	0
• Non-hazardous waste[a]	tonnes	793	703	300	286
- Incineration with energy recovery	tonnes	72	228	186	171
- Incineration without energy recovery	tonnes	0	0	0	0
- Landfilling	tonnes	721	475	115	115
- Other disposal	tonnes	0	0	0	0
Waste direct disposal intensity					
• Hazardous waste	kg/MWh	0.0002	0.0044	0.0003	0.0002
• Non-hazardous waste[a]	kg/MWh	0.131	0.120	0.026	0.022
Ash generated	tonnes	688,623	701,580	648,830	620,208
Ash diverted from disposal[b]	tonnes	688,466	701,737	648,830	620,208
• Preparation for reuse	tonnes	369,587	0	0	0
• Recycling	tonnes	318,879	701,737	648,830	620,208
• Other recovery operations	tonnes	0	0	0	0

Data	Unit	2021	2022	2023	2024
Ash directed to disposal[b]	tonnes	0	0	0	0
• Incineration with energy recovery	tonnes	0	0	0	0
• Incineration without energy recovery	tonnes	0	0	0	0
• Landfilling	tonnes	0	0	0	0
• Other disposal	tonnes	0	0	0	0
Gypsum generated	tonnes	87,964	90,001	94,103	79,023
Gypsum diverted from disposal[b]	tonnes	87,964	90,001	94,103	79,023
• Preparation for reuse	tonnes	48,741	0	0	0
• Recycling	tonnes	39,223	90,001	94,103	79,023
• Other recovery operations	tonnes	0	0	0	0
Gypsum directed to disposal[b]	tonnes	0	0	0	0
• Incineration with energy recovery	tonnes	0	0	0	0
• Incineration without energy recovery	tonnes	0	0	0	0
• Landfilling	tonnes	0	0	0	0
• Other disposal	tonnes	0	0	0	0
Proportion of hazardous waste reused & recycled	%	35.6%	77.3%	98.21%	97.32%
Proportion of non-hazardous waste reused & recycled[a]	%	99.9%	99.9%	99.96%	99.96%
Proportion of ash reused & recycled	%	100%	100%	100%	100%
Proportion of gypsum reused & recycled	%	100%	100%	100%	100%

*BPP has collected the amount of waste generated and sent for disposal by weighting and recording it prior to either administration or disposals. The amount of waste sent for disposal by outside agencies, which authorized by each local government to transport and dispose waste, has been recorded from the receipts.
[a]Includes ash & gypsum from power plants.
[b]BPP has managed waste disposal only offsite, and there is no onsite management.

Biodiversity

GRI 304-1

Data	Unit	2021	2022	2023	2024
Number of operation	number	4	4	4	4
Area of operation	hectare	182	182	182	182
Business unit(s) in relation to protected area					
• In the area	number	0	0	0	0
• Adjacent to	number	0	0	0	0
• Containing portions	number	0	0	0	0
Business unit(s) in relation to high biodiversity wilderness area outside protected					
• In the area	number	0	0	0	0
• Adjacent to	number	0	0	0	0
• Containing portions	number	0	0	0	0
Number of business units					
• Assessed for potential biodiversity impact	number	4	4	4	4
• Identified as high potential of biodiversity impact	number	0	0	0	0
• Assessed for biodiversity value	number	0	0	0	0
• Required biodiversity management plan[a]	number	0	0	0	0
• Implemented biodiversity management plan[a]	number	0	0	0	0
Proportion of business units					
• Assessed for biodiversity impact	%	100%	100%	100%	100%
• Assessed for biodiversity value	%	NA[b]	NA[b]	NA[b]	NA[b]
• With biodiversity management plan[a]	%	NA[b]	NA[b]	NA[b]	NA[b]

[a]For business unit(s) identified as high potential of biodiversity impact only.
[b]No business unit(s) identified as high potential of biodiversity impact.

Environmental Compliance

GRI 303-4, 306-3

Data	Unit	2021	2022	2023	2024
Number of environmental non-compliance					
• Effluent discharge limits	case	0	0	0	0
• Air emissions standards	case	0	0	0	0
• Others	case	0	0	0	0
Significant spills[a]					
• Number of significant spills	case	0	0	0	0
• Total amount of significant spills	liter	0	0	0	0
Number of significant environmental incident	case	0	0	0	0
Fines from environmental non-compliance[b]					
• Number of significant fines	case	0	0	0	0
• Total amount of significant fines	USD	0	0	0	0
Environmental liability accrued at year end	USD	0	0	0	0

[a]Referred to internal definition with criteria such as any damage to widespread area or potential fines that is greater than USD 10,000.
[b]Fines or potential fines that is greater than USD 10,000.

Occupational Health and Safety

GRI 403-8, 403-9

Data	Unit	2021	2022	2023	2024
Workers covered by OHS management system					
• Number of workers	person	1,456	1,648	1,527	1,632
• Percentage of total workers	%	100%	100%	100%	100%
Workers covered by OHS management system that has been internally audited					
• Number of workers	person	1,353	1,537	1,376	1,475
• Percentage of total workers	%	92.9%	93.3%	90%	90%
Worker covered by OHS management system that has been audited or certified by third party					
• Number of workers	person	1,353	1,537	1,376	1,475
• Percentage of total workers	%	92.9%	93.3%	90%	90%
Number of occupational fatalities	person	0	1	0	0
• Employee	person	0	1	0	0
• Contractor	person	0	0	0	0
Fatality rate	person/ million man-hour	0	0.41	0	0
• Employee	person/ million man-hour	0	0.50	0	0
• Contractor	person/ million man-hour	0	0	0	0
Number of recordable injuries	case	0	4	3	1
• Employee	case	0	4	0	0
- Abrasion (or scrape)	case	0	1	0	0
- Amputation	case	0	0	0	0
- Broken bone (or fracture)	case	0	0	0	0
- Bruise	case	0	0	0	0
- Burn (heat)	case	0	2	0	0
- Burn (chemical)	case	0	0	0	0
- Concussion (to the head)	case	0	0	0	0
- Crushing	case	0	0	0	0
- Cut	case	0	0	0	0
- Death	case	0	1	0	0
- Laceration	case	0	0	0	0
- Loss of consciousness	case	0	0	0	0
- Paralysis	case	0	0	0	0
- Puncture	case	0	0	0	0
- Sprain	case	0	0	0	0
- Strain	case	0	0	0	0
- Other	case	0	0	0	0
• Contractor	case	0	0	3	1
- Abrasion (or scrape)	case	0	0	0	0
- Amputation	case	0	0	0	0
- Broken bone (or fracture)	case	0	0	0	0
- Bruise	case	0	0	0	0
- Burn (heat)	case	0	0	0	0
- Burn (chemical)	case	0	0	0	0
- Concussion (to the head)	case	0	0	0	0
- Crushing	case	0	0	0	0
- Cut	case	0	0	2	1
- Death	case	0	0	0	0
- Laceration	case	0	0	0	0
- Loss of consciousness	case	0	0	0	0
- Paralysis	case	0	0	0	0
- Puncture	case	0	0	0	0
- Sprain	case	0	0	1	0
- Strain	case	0	0	0	0
- Other	case	0	0	0	0
Number of incidents	case	0	4	3	0
• Employee	case	0	4	0	0
- Chemical	case	0	0	0	0
- Flammable	case	0	0	0	0
- Toxic	case	0	0	0	0
- Reactive	case	0	0	0	0
- Corrosive	case	0	0	0	0
- Physical	case	0	4	0	0
- Electricity	case	0	0	0	0
- Noise	case	0	0	0	0
- Radiation	case	0	0	0	0
- Temperature extremes	case	0	2	0	0
- Struck/hit by objects	case	0	1	0	0
- Slip, trip, fall	case	0	1	0	0

Data	Unit	2021	2022	2023	2024
- Biological	case	0	0	0	0
- Insect/animal bite	case	0	0	0	0
- Disease	case	0	0	0	0
- Ergonomic	case	0	0	0	0
- Muscle stress	case	0	0	0	0
- Physiological	case	0	0	0	0
- Mental health	case	0	0	0	0
- Other	case	0	0	0	0
• Contractor	case	0	0	3	0
- Chemical	case	0	0	0	0
- Flammable	case	0	0	0	0
- Toxic	case	0	0	0	0
- Reactive	case	0	0	0	0
- Corrosive	case	0	0	0	0
- Physical	case	0	0	0	0
- Electricity	case	0	0	0	0
- Noise	case	0	0	0	0
- Radiation	case	0	0	0	0
- Temperature extremes	case	0	0	0	0
- Struck/hit by objects	case	0	0	0	0
- Slip, trip, fall	case	0	0	0	0
- Biological	case	0	0	0	0
- Insect/animal bite	case	0	0	0	0
- Disease	case	0	0	0	0
- Ergonomic	case	0	0	0	0
- Muscle stress	case	0	0	0	0
- Physiological	case	0	0	0	0
- Mental health	case	0	0	0	0
- Other	case	0	0	3	0
Total recordable injury frequency rate (TRIFR)	person/ million man-hour	0	1.64	1.17	0.58
• Employee	person/ million man-hour	0	1.99	0	0
• Contractor	person/ million man-hour	0	0	6.09	2.79

Data	Unit	2021	2022	2023	2024
Lost time injury frequency rate (LTIFR)	person/ million man-hour	0	1.23	0	0
• Employee	person/ million man-hour	0	1.49	0	0
• Contractor	person/ million man-hour	0	0	0	0
Injury severity rate (ISR)[a]	person/ million man-hour	0	2,540.20	0	0
• Employee	person/ million man-hour	0	3,087.56	0	0
• Contractor	person/ million man-hour	0	0	0	0
Number of high-consequence work-related injuries (excluding fatalities)	case	0	0	0	0
• Employee	case	0	0	0	0
• Contractor	case	0	0	0	0
High-consequence work-related injuries frequency rate (excluding fatalities)	person/ million man-hour	0	0	0	0
• Employee	person/ million man-hour	0	0	0	0
• Contractor	person/ million man-hour	0	0	0	0
Number of hours worked	hour	2,424,300	2,443,900	2,562,348	1,710,292
• Employee	hour	1,921,094	2,010,647	2,069,622	1,351,970
• Contractor	hour	503,206	433,253	492,726	358,322
Tier-1 process safety event[b]	case	0	1	0	0
Tier-1 process safety event rate	case/ million man-hour	0	0.41	0	0
Number of fatalities as a result of work-related ill health	person	0	0	0	0
• Employee	person	0	0	0	0
• Contractor	person	0	0	0	0
Number of total recordable work-related ill health	case	0	0	0	0
• Employee	case	0	0	0	0
• Contractor	case	0	0	0	0

[a] Refers to American National Standards Institute (ANSI) standard.
[b] Refers to internal definition with criteria such as fatality and catastrophic damage to ecosystem, or property damage >100,000 USD.

Performance Data 2024: Banpu NEXT

Product

Data	Unit	2021	2022	2023	2024
Electricity sold	MWh	531,193	539,843	824,800	764,035

Greenhouse Gas (GHG) Emissions

Data	Unit	2021	2022	2023	2024
GHG emissions					
• Total (Scope 1 & 2)	tonnes CO_2e	3,538	3,126	4,129	4,186
• Direct (Scope 1)	tonnes CO_2e	47	56	91	316
• Direct (Scope 1) - Biogenic CO_2	tonnes CO_2e	-	-	0	1
• Indirect (Scope 2)[a]	tonnes CO_2e	3,490	3,070	4,038	3,870
Other indirect (Scope 3)[b]	tonnes CO_2e	-	-	-	-
GHG emissions intensity					
• Total (Scope 1 & 2)	tonnes CO_2e/MWh	0.007	0.006	0.005	0.005
• Electricity generation	tonnes CO_2e/MWh	0.007	0.006	0.005	0.005
SF_6 emissions	tonnes CO_2e	0	0	0	0

[a]Gross location-based scope 2 GHG emissions.
[b]Data collection system under standardization.

Energy

Data	Unit	2021	2022	2023	2024
Total energy consumption	TJ	37	31	100	92
Renewable energy consumption					
• Renewable fuel	TJ	0	0	0	0.01
• Electricity purchased[a]	TJ	0	0	0	1.03
• Electricity self-generated	TJ	1,931	1,955	3,044	2,816
- Solar	TJ	1,775	1,673	2,683	2,507
- Wind	TJ	155	282	361	309
Non-renewable energy consumption					
• Non-renewable fuel	TJ	1	0.64	1.18	1.436
- Diesel	TJ	0.11	0.11	0.29	0.382
- Gasoline	TJ	0.57	0.53	0.89	0.986
- LPG	TJ	0	0	0	0.068
• Electricity purchased	TJ	17	19	24	23
• Steam, heating & cooling	TJ	0	0	0	0
Renewable energy sold					
• Electricity	TJ	1,912	1,943	2,969	2,751
Non-renewable energy sold					
• Electricity	TJ	0	0	0	0
• Steam	TJ	0	0	0	0
• Heating	TJ	0	0	0	0
Energy consumption intensity[b]	GJ/MWh	0.07	0.06	0.12	0.12

[a]Negligible purchased electricity for solar power plant during nighttime.
[b]Includes diesel, gasoline, LPG, electricity self-generated and electricity purchased both within and outside organization.

Water

Data	Unit	2021	2022	2023	2024
Water withdrawal - from all areas	megaliter	2	2.48	2,818	2,947
• Surface water (total)	megaliter	0	0	0	19
- Freshwater (≤1,000 mg/L TDS)	megaliter	0	0	0	1
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	18
• Groundwater (total)	megaliter	1	1.07	1	1
- Freshwater (≤1,000 mg/L TDS)	megaliter	1	1.07	1	1
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0
• Seawater (total)	megaliter	0	0	0	0
- Freshwater (≤1,000 mg/L TDS)	megaliter	0	0	0	0
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0
• Produced water (total)	megaliter	0	0	2,815	2,925
- Freshwater (≤1,000 mg/L TDS)	megaliter	0	0	0	0
- Other water (>1,000 mg/L TDS)	megaliter	0	0	2,815	2,925
• Third-party water (total)	megaliter	1	1.41	0	1
- Freshwater (≤1,000 mg/L TDS)	megaliter	1	1.41	2	1
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0
Water withdrawal - from water stress areas	megaliter	2	1.87	2,798	2,903
• Surface water (total)	megaliter	0	0	0	1
- Freshwater (≤1,000 mg/L TDS)	megaliter	0	0	0	1
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0

Data	Unit	2021	2022	2023	2024
• Groundwater (total)	megaliter	1	1.07	1	0
- Freshwater (≤1,000 mg/L TDS)	megaliter	1	1.07	1	0
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0
• Seawater (total)	megaliter	0	0	0	0
- Freshwater (≤1,000 mg/L TDS)	megaliter	0	0	0	0
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0
• Produced water (total)	megaliter	0	0	2,796	2,901
- Freshwater (≤1,000 mg/L TDS)	megaliter	0	0	0	0
- Other water (>1,000 mg/L TDS)	megaliter	0	0	2,796	2,901
• Third-party water (total)	megaliter	1	0.81	1	1
- Freshwater (≤1,000 mg/L TDS)	megaliter	1	0.81	1	1
- Surface water	megaliter	1	0.54	1	1
- Groundwater	megaliter	0	0.27	0	0
- Seawater	megaliter	0	0	0	0
- Reclaimed water	megaliter	0	0	0	0
- Produced water	megaliter	0	0	0	0
- Other water (>1,000 mg/L TDS)	megaliter	0	0	0	0
- Surface water	megaliter	0	0	0	0
- Groundwater	megaliter	0	0	0	0
- Seawater	megaliter	0	0	0	0
- Reclaimed water	megaliter	0	0	0	0
- Produced water	megaliter	0	0	0	0
Water discharge - by destination	megaliter	2	1.78	24	24
• Surface water	megaliter	0	0	0	0
• Groundwater	megaliter	0	0	0	0
• Seawater	megaliter	0	0	0	0
• Third-party water	megaliter	2	1.78	24	24
Water discharge - to all areas	megaliter	2	1.78	24	24
• Freshwater (≤1,000 mg/L TDS)	megaliter	0	0	0	0
• Other water (>1,000 mg/L TDS)	megaliter	2	1.78	24	24
Water consumption	megaliter				
• All areas	megaliter	23	0.70	2,794	2,923
• Water stress areas	megaliter	1	0.30	2,798	2,903
Water consumption intensity	m3/MWh	0.044	0.001	3.388	3.826
Change in water storage					
• All areas	megaliter	-	-	0	0
• Area with significant water impact	megaliter	-	-	0	0

Waste

Data	Unit	2021	2022	2023	2024
Waste generated	tonnes	22	3.40	54	195
• Hazardous waste	tonnes	0	0.53	36	99
• Non-hazardous waste	tonnes	21	2.87	19	95
Waste diverted from disposal(a)	tonnes	10	0.47	19	75
• Hazardous waste	tonnes	0	0.11	17	3
- Preparation for reuse	tonnes	0	0	0	0
- Recycling	tonnes	0	0.11	17	3
- Other recovery operations	tonnes	0	0	0	0
• Non-hazardous waste	tonnes	10	0.36	2	73
- Preparation for reuse	tonnes	0	0	0	0
- Recycling	tonnes	10	0.36	2	73
- Other recovery operations	tonnes	0	0	0	0
Waste directed to disposal[a]	tonnes	12	7.06	34	23
• Hazardous waste	tonnes	0	0.42	18	1
- Incineration with energy recovery	tonnes	0	0	0	0
- Incineration without energy recovery	tonnes	0	0.42	0	1
- Landfilling	tonnes	0	0	18	0
- Other disposals	tonnes	0	0	0	0
• Non-hazardous waste	tonnes	12	6.64	16	22
- Incineration with energy recovery	tonnes	0	0	1	2
- Incineration without energy recovery	tonnes	0	0	0	0
- Landfilling	tonnes	12	6.64	15	20
- Other disposal	tonnes	0	0	0	0
• Waste direct disposal intensity					
• Hazardous waste	kg/MWh	0	0.001	0.022	0.001
Non-hazardous waste	kg/MWh	0.022	0.012	0.019	0.029
Proportion of hazardous waste reused & recycled	%	33.18%	20.75%	47.59%	71.52%
Proportion of non-hazardous waste reused & recycled	%	47.49%	12.56%	13.48%	75.83%

[a]Banpu NEXT has managed waste disposal only offsite, and there is no onsite management.

Biodiversity

Data	Unit	2021		2022		2023		2024	
		Operating	Project	Operating	Project	Operating	Project	Operating	Project
Number of operations	number	24	2	24	2	27	1	26	1
Number of business units									
• Assessed for potential biodiversity impact	number	24	2	24	2	27	1	26	1
• Identified as high potential of biodiversity impact	number	0	1	0	1	1	0	0	0
• Assessed for biodiversity value[a]	number	0	0	0	0	1	0	0	0
• Required biodiversity management plan[a]	number	0	0	0	0	1	0	0	0
• Implemented biodiversity management plan[a]	number	0	-	0	-	1	-	0	-
Business unit(s) in relation to protected area									
• In the area	number	0	0	0	0	0	0	0	0
• Adjacent to	number	0	0	0	0	0	0	0	0
• Containing portions	number	0	1	0	1	1	0	0	0
Business unit(s) in relation to high biodiversity wilderness area (outside protected area)									
• In the area	number	0	0	0	0	0	0	0	0
• Adjacent to	number	0	0	0	0	0	0	0	0
• Containing portions	number	0	0	0	0	0	0	0	0
Area	hectare	0	620	0	620	2,152	348	1,494	1
• Assessed for potential biodiversity impact	hectare	0	620	0	620	0	0	1,494	348
• Identified as high potential of biodiversity impact	hectare	0	0	0	0	0	0	0	0
• Assessed for biodiversity value[a]	hectare	0	0	0	0	0	0	0	0
• With biodiversity management plan[a]	hectare	0	-	0	-	0	-	0	-
• Biodiversity offset area	hectare	0	-	0	-	0	-	0	-
Proportion of business units									
• Assessed for biodiversity impact	%	100%	100%	100%	100%	100%	100%	100%	100%
• Assessed for biodiversity value	%	NA[b]	NA[b]	NA[b]	NA[b]	100%	NA[b]	NA[b]	NA[b]
• With biodiversity management plan[a]	%	NA[b]	-	NA[b]	-	100%	-	NA[b]	-

[a]For business unit(s) identified as high potential of biodiversity impact only.
[b]No business unit(s) identified as high potential of biodiversity impact.

Environmental Compliance

Data	Unit	2021	2022	2023	2024
Number of environmental non-compliance					
• Effluent discharge limits	case	0	0	0	0
• Air emissions standards	case	0	0	0	0
• Others	case	0	0	0	0
Significant spills[a]					
• Number of significant spills	case	0	0	0	0
• Total amount of significant spills	liter	0	0	0	0
Number of significant environmental incident	case	0	0	0	0
Fines from environmental non-compliance[b]					
• Number of significant fines	case	0	0	0	0
• Total amount of significant fines	USD	0	0	0	0
Environmental liability accrued at year end	USD	0	0	0	0

[a]Referred to internal definition with criteria such as any damage to widespread area or potential fines that are greater than USD 10,000.
[b]Fines or potential fines that are greater than USD 10,000.

Occupational Health and Safety

Data	Unit	2021	2022	2023	2024
Workers covered by OHS management system					
• Number of workers	person	151	397	568	657
• Percentage of total workers	%	100%	100%	100%	100%
Workers covered by OHS management system that has been internally audited					
• Number of workers	person	48	158	108	340
• Percentage of total workers	%	32%	39.8%	19%	52%
Worker covered by OHS management system that has been audited or certified by third party					
• Number of workers	person	0	0	0	0
• Percentage of total workers	%	0%	0%	0%	0%
Number of occupational fatalities	person	0	0	0	0
• Employee	person	0	0	0	0
• Contractor	person	0	0	0	0
Fatality rate	person/ million man-hour	0	0	0	0
• Employee	person/ million man-hour	0	0	0	0
• Contractor	person/ million man-hour	0	0	0	0
Number of recordable injuries	case	0	0	0	1
• Employee	case	0	0	0	0
• Contractor	case	0	0	0	1
Total recordable injury frequency rate (TRIFR)	person/ million man-hour	0	0	0	1.69
• Employee	person/ million man-hour	0	0	0	0
• Contractor	person/ million man-hour	0	0	0	5.85
Lost time injury frequency rate (LTIFR)	person/ million man-hour	0	0	0	0
• Employee	person/ million man-hour	0	0	0	0
• Contractor	person/ million man-hour	0	0	0	0

Data	Unit	2021	2022	2023	2024
Injury severity rate (ISR)[a]	day/ million man-hour	0	0	0	0
• Employee	day/ million man-hour	0	0	0	0
• Contractor	day/ million man-hour	0	0	0	0
Number of high-consequence work-related injuries	case	0	0	0	0
• Employee	case	0	0	0	0
• Contractor	case	0	0	0	0
High-consequence work-related injuries frequency rate	person/ million man-hour	0	0	0	0
• Employee	person/ million man-hour	0	0	0	0
• Contractor	person/ million man-hour	0	0	0	0
Number of hours worked	hour	281,028	508,197	578,898	591,034
• Employee	hour	231,904	334,644	368,702	420,058
• Contractor	hour	49,124	173,553	210,197	170,976
Tier-1 process safety event[b]	case	0	0	0	0
Tier-1 process safety event rate	case/ million man-hour	0	0	0	0
Number of fatalities as a result of work-related ill health	person	0	0	0	0
• Employee	person	0	0	0	0
• Contractor	person	0	0	0	0
Number of total recordable work-related ill health	case	0	0	0	0
• Employee	case	0	0	0	0
• Contractor	case	0	0	0	0

[a] Refers to American National Standards Institute (ANSI) standard.
[b] Refers to internal definition with criteria such as fatality and catastrophic damage to ecosystem, or property damage >100,000 USD.

Remark: Banpu NEXT's performance includes solar and wind power plants in China, Japan, Australia, and Vietnam, all of which report 100% of their operations. The performance data is currently undergoing an assurance process by external parties.

Performance Data 2024: BLCP

Installation Capacity

Data	Unit	2021	2022	2023	2024
Electricity	MW	1,434	1,434	1,434	1,434
Capacity under construction	MW	0	0	0	0
Planned future investment	THB	0	0	0	0

Production

Data	Unit	2021	2022	2023	2024
Electricity sold	MWh	10,718,875	10,260,160	10,901,258	11,019,187
	GJ	38,587,951	36,936,576	39,244,529	39,669,073
Electricity generated	MWh	11,235,025	10,746,124	11,410,542	11,549,644

System Efficiency

Data	Unit	2021	2022	2023	2024
Production efficiency					
• Efficiency rate	g/KWh	356.65	356.75	350.24	346.03
• Availability factor	%	91.39%	93.20%	96.40%	90.40%
• Overall efficiency	%	38.60%	38.71%	38.47%	38.71%
Planned outage					
• Planned outage frequency	case/year	0	2	1	2
• Planned outage hours	hour	0	1,366	620	1,010
• Average planned outage duration	hour/case	0	683	620	505
Unplanned outage					
• Unplanned outage frequency	case/year	9	1	0	3
• Unplanned outage hours	hour	1,464.5	228.5	0	134
• Average unplanned outage duration	hour/case	162.7	228.5	0	45
Total outage					
• Total outage frequency	case/year	9	3	1	5
• Total outage hours	hour	1,464.5	1,595	620	1,144
• Average total outage duration	hour/case	162.7	531.5	620	229
Transmission					
• Length of transmission line	km	47	47	47	47
• Transmission loss	%	-	-	-	-
• Length of distribution line	km	-	-	-	-

Energy

Data	Unit	2021	2022	2023	2024
Direct energy consumption	GJ	103,281,316	93,075,856	98,704,920	99,383,071
Fuel consumption within organization from non-renewable sources	GJ	103,281,316	93,075,856	98,704,920	99,383,071
• Coal	GJ	103,233,875	93,039,780	98,655,031	99,338,504
• Diesel (stationary combustion)	GJ	47,441	21,467	28,712	23,316
• Diesel (mobile combustion)	GJ	0	14,609	11,010	11,720
• Gasoline (mobile combustion)	GJ	0	0	9,908	9,304
• LPG	GJ	0	0	256	224
• Acetylene Gas	GJ	0	0	3.49	3.59
Fuel consumption within organization from renewable sources	GJ	0	0	0	0
• Biomass	GJ	0	0	0	0
Indirect energy consumption					
• Electricity purchased	GJ	14,713	8,046	6,039	6,803
Energy intensity	GJ/MWh	5.77	5.22	5.21	5.18

Greenhouse Gas (GHG)

Data	Unit	2021	2022	2023	2024
GHG emissions					
• Total GHG	tonnes CO_2e	9,411,226	8,806,480	11,138,659	9,963,706
• Direct GHG (Scope 1)	tonnes CO_2e	9,408,633	8,805,295	9,340,645	9,477,994
• Indirect GHG (Scope 2)	tonnes CO_2e	2,043	1,117	839	945
• Other indirect (Scope 3)	tonnes CO_2e	550	68	1,797,175	484,767
SF_6 emissions	tonnes CO_2e	0	987	3,525	0
Chemical refrigerants					
• R-22	tonnes CO_2e	62.75	62.75	672.32	182
• R134a	tonnes CO_2e	0.44	0.60	0	0
• R-410A	tonnes CO_2e	6.41	5.91	21.16	103
• R-32	tonnes CO_2e	2.38	2.38	14.22	26.88
• HFC227ea (SBPL)	tonnes CO_2e	0	0	0	0
• Acetylene Gas	tonnes CO_2e	-	0	0.24	0.24
GHG intensity					
• GHG emissions intensity (Scope 1 & 2)	kgCO_2e/kWh	0.839	0.819	0.819	0.820
• Total GHG emissions intensity	kgCO_2e/kWh	0.839	0.820	0.976	0.976

Air

Data	Unit	2021	2022	2023	2024
Nitrogen oxide (NO_x)					
• Average concentration	ppm	125.5	98.3	128.8	96.3
• Emissions load	tonnes	13,541	12,813	12,916	13,211
• Degree of compliance	%	100%	100%	100%	100%
Sulfur dioxide (SO_2)					
• Average concentration	mg/m^3	119.3	90.2	129.6	107.7
• Emissions load	tonnes	15,038	14,819	18,156	18,841
• Degree of compliance	%	100%	100%	100%	100%
Total suspended particles (TSP)					
• Average concentration	mg/m^3	19.3	29.0	24.9	21.8
• Emissions load	tonnes	612	1,132	886	1,272
• Degree of compliance	%	100%	100%	100%	100%

Water

Data	Unit	2021	2022	2023	2024
Water withdrawal - by source	m^3	509,891	377,382	1,846,974,633	1,872,882,083
• Surface water (including water from rivers, lakes and oceans)	m^3	509,891	377,382	0	0
• Ground water	m^3	0	0	0	0
• Seawater	m^3	-	-	1,846,968,871	1,872,876,746
• Municipal water supplies or other water utilities	m^3	0	0	5,762	5,337
Recycled water	m^3	474,135	498,998	556,834	562,048
Water discharge - by destination	m^3	226,690	216,551	1,846,622,276	1,872,558,191
• Surface water	m^3	226,690	216,551	-	-
• Ground water	m^3	-	-	-	-
• Seawater	m^3	-	-	1,846,622,276	1,872,558,191
• On-site storage	m^3	-	-	-	-
Water consumption	m^3	283,201	160,831	352,357	323,891
Water quality					
• Biochemical oxygen demand (BOD)	mg/L	< 2.0 - 2.7	< 2.0 - 3.8	< 2.0	< 2.0
• Chemical oxygen demand (COD)	mg/L	< 25.0 - 25.7	< 25.0	< 25.0	< 40.0
• pH (0 - 14)	-	7.73	7.90	8.03	7.87
• Maximum temperature	degree Celcius	34.88	33.77	35	36

Waste

Data	Unit	2021	2022	2023	2024
Hazardous waste generated	tonnes	111.70	245.44	91.60	103.34
Hazardous waste - onsite disposal	tonnes	0	0	0	0
• Waste diverted from disposal	tonnes	0	0	0	0
- Preparation for reuse	tonnes	0	0	0	0
- Recycling	tonnes	0	0	0	0
- Other recovery operations	tonnes	0	0	0	0
- Unknown disposal method	tonnes	0	0	0	0
• Waste directed to disposal	tonnes	0	0	0	0
- Incineration (with energy recovery)	tonnes	0	0	0	0
- Incineration (without energy recovery)	tonnes	0	0	0	0
- Landfilling	tonnes	0	0	0	0
- Other disposal operations	tonnes	0	0	0	0
- Unknown disposal method	tonnes	0	0	0	0
Hazardous waste - offsite disposal	tonnes	111.70	245.44	91.60	103.34
• Waste diverted from disposal	tonnes	82.38	211.41	90.00	53.17
- Preparation for reuse	tonnes	0	0	0	0
- Recycling	tonnes	44.29	62.30	48.73	53.17
- Other recovery operations	tonnes	38.09	149.11	41.27	0
- Unknown disposal method	tonnes	0	0	0	0
• Waste directed to disposal	tonnes	29.31	34.03	1.60	50.17
- Incineration (with energy recovery)	tonnes	0	0	0	43.87
- Incineration (without energy recovery)	tonnes	0	0	1.42	5.30
- Landfilling	tonnes	29.31	34.03	0.18	1.00
- Other disposal operations	tonnes	0	0	0	0
- Unknown disposal method	tonnes	0	0	0	0
Non-hazardous waste generated	tonnes	529,832.50	1,344.30	1,160.01	1,739.22
Non-hazardous waste - onsite disposal	tonnes	46,438.07	0	0	0
• Waste diverted from disposal	tonnes	5,600.00	0	0	0
- Preparation for reuse	tonnes	0	0	0	0
- Recycling	tonnes	0	0	0	0
- Other recovery operations	tonnes	5,600.00	0	0	0
- Unknown disposal method	tonnes	0	0	0	0
• Waste directed to disposal	tonnes	40,838.07	0	0	0
- Incineration (with energy recovery)	tonnes	0	0	0	0
- Incineration (without energy recovery)	tonnes	0	0	0	0
- Landfilling	tonnes	40,838.07	0	0	0
- Other disposal operations	tonnes	0	0	0	0
- Unknown disposal method	tonnes	0	0	0	0

Data	Unit	2021	2022	2023	2024
Non-hazardous waste - offsite disposal	tonnes	483,394.43	1,344.30	1,160.01	1,739.22
• Waste diverted from disposal	tonnes	483,394.43	366.51	253.49	149.45
- Preparation for reuse	tonnes	2.34	4.77	0	3.93
- Recycling	tonnes	233.56	361.74	253.49	145.52
- Other recovery operations	tonnes	483,158.53	0	0	0
- Unknown disposal method	tonnes	0	0	0	0
• Waste directed to disposal	tonnes	0	977.79	906.52	1,589.77
- Incineration (with energy recovery)	tonnes	0	0	0	0
- Incineration (without energy recovery)	tonnes	0	0	0	0
- Landfilling	tonnes	0	977.79	906.52	1,589.77
- Other disposal operations	tonnes	0	0	0	0
- Unknown disposal method	tonnes	0	0	0	0

Ash & Gypsum

Data	Unit	2021	2022	2023	2024
Ash and gypsum waste generated	tonnes	528,440	648,239	638,611	620,658
Ash and gypsum waste composted, reused, recycled, or recovered	tonnes	488,754	597,237	637,743	620,658
Ash and gypsum waste composted, reused, recycled, or recovered	%	92.5%	92.1%	99.9%	100%
• Reused	tonnes	488,754	0	0	0
• Donated	tonnes	5	95	55	0
• Other recovery operations (sold)	tonnes	0	597,237	637,689	620,658
Ash and gypsum waste landfilled	tonnes	39,682	50,908	867.45	0

Spill

Data	Unit	2021	2022	2023	2024
Significant oil and chemical spill	case	0	0	0	0

Environmental Compliance

Data	Unit	2021	2022	2023	2024
Fines for non-compliance with environmental laws	THB million	0	0	0	0
Number of non-compliance with environmental laws	case	0	0	0	0

Biodiversity

Data	Unit	2021	2022	2023	2024
Number of IUCN red list species and national conservation list species	specie	0	0	0	0

Occupational Health and Safety

Data	Unit	2021	2022	2023	2024
Manhours worked	hour	1,347,563	1,793,146	1,838,322	1,715,422
• Employee	hour	476,848	413,892	663,028	653,152
• Contractor	hour	870,715	1,379,254	1,175,294	1,182,877
Safety manhours	hour	1,347,563	1,793,146	1,838,322	1,715,422
• Employee	hour	476,848	413,892	663,028	653,152
• Contractor	hour	870,715	1,379,254	1,175,294	1,182,877
Accumulated safety hours	hour	8,876,977	10,670,123	12,508,445	14,344,474
• Employee	hour	3,114,085	3,527,977	4,191,005	4,266,419
• Contractor	hour	5,762,892	7,142,146	8,317,440	10,078,055
Fatality	case	0	0	0	0
• Employee	case	0	0	0	0
• Contractor	case	0	0	0	0
Total number of injuries	case	0	0	0	0
• Employee	case	0	0	0	0
• Contractor	case	0	0	0	0
High-consequence work-related injury	case	0	0	0	0
• Employee	case	0	0	0	0
• Contractor	case	0	0	0	0
Total number of lost time injuries	case	0	0	0	0
• Employee	case	0	0	0	0
• Contractor	case	0	0	0	0
First aid case	case	4	3	3	0
• Employee	case	2	0	1	0
• Contractor	case	2	3	2	0
Number of injured days off work	day	0	0	0	0
• Employee	day	0	0	0	0
• Contractor	day	0	0	0	0
Number of lost work days	day	0	0	0	0
• Employee	day	0	0	0	0
• Contractor	day	0	0	0	0

Data	Unit	2021	2022	2023	2024
Injury frequency rate (IFR)	case/ million man-hour	0	0	0	0
• Employee	case/ million man-hour	0	0	0	0
• Contractor	case/ million man-hour	0	0	0	0
Lost time injury frequency rate (LTIFR)	case/ million man-hour	0	0	0	0
• Employee	case/ million man-hour	0	0	0	0
• Contractor	case/ million man-hour	0	0	0	0
Injury severity rate (ISR)	day/ million man-hour	0	0	0	0
• Employee	day/ million man-hour	0	0	0	0
• Contractor	day/ million man-hour	0	0	0	0
High consequence work related injury rate	day/ million man-hour	0	0	0	0
• Employee	day/ million man-hour	0	0	0	0
• Contractor	day/ million man-hour	0	0	0	0

OHS Training/Communication

Data	Unit	2021	2022	2023	2024
OHS training hour					
• Employee	hour	1,680	971	4,536	5,656
• Contractor	hour	15,765	19,176	13,188	15,231

Expense and Investment for Safety

Data	Unit	2021	2022	2023	2024
Expense for safety operation					
• Operation expense	THB	23,908,000	30,682,500	32,753,000	28,060,000
• Capex	THB	0	7,300,000	7,500,000	7,170,000
Expense for safety improvement project					
• Operation expense	THB	0	0	0	0
• Capex	THB	23,020,000	0	0	0

Employee

Data	Unit	2021	2022	2023	2024
Total employee	person	273	262	260	250
Number of employee by gender					
• Male	person	229	218	218	208
• Female	person	44	44	42	42
Number of employee by type					
• Permanent	person	260	251	246	243
• Temporary/contract	person	13	11	14	7
Number of employee by level					
• Senior management	person	5	5	5	8
• Middle management	person	42	40	38	36
• Junior management	person	46	43	44	53
• Supervisor & staff	person	167	163	159	146

Gender Diversity

Data	Unit	2021	2022	2023	2024
Senior management					
• Male	person	5	5	5	7
• Female	person	0	0	0	1
Middle management					
• Male	person	31	29	28	27
• Female	person	11	11	10	9
Junior management					
• Male	person	35	33	36	45
• Female	person	11	10	8	8
Supervisor & staff					
• Male	person	152	147	142	126
• Female	person	15	16	17	20

Turnover

Data	Unit	2021	2022	2023	2024
Turnover of permanent employee by age group					
• Below 30 years old	person	9	6	3	0
• 30 - 50 years old	person	9	9	5	8
• Over 50 years old	person	4	3	3	2
Turnover rate					
• Male	% of total employee	5.68%	5.96%	3.21%	3.85%
• Female	% of total employee	24.32%	13.51%	11.43%	5.26%

New Employee

Data	Unit	2021	2022	2023	2024
New employees hired by age group					
• Below 30 years old	person	6	3	2	1
• 30 - 50 years old	person	5	2	4	9
• Over 50 years old	person	1	0	0	0
Total new hired rate					
• Male	% of total employee	2.69%	0.93%	1.42%	2.44%
• Female	% of total employee	16.22%	8.11%	8.57%	13.16%

Parental Leave

Data	Unit	2021	2022	2023	2024
Employee take parental leave	person	3	2	1	1
Number of employee return to work after parental leave	person	3	2	1	1

Employee Development

Data	Unit	2021	2022	2023	2024
Total training hour by level					
• Senior management	hour/year	197	246	497	1,176
• Middle management	hour/year	1,292	1,143	5,574	4,134
• Junior management	hour/year	2,010	2,035	3,986	4,140
• Supervisor & staff	hour/year	5,844	6,418	8,394	12,962
Total training hours by type					
• Environment, health, safety	hour/year	1,680	4,651	3,647	5,861
• Others	hour/year	7,662	5,191	14,804	16,551
Average training hours by level					
• Senior management	hour/person/year	39	49	99	147
• Middle management	hour/person/year	34	30	147	115
• Junior management	hour/person/year	46	46	91	78
• Supervisor & staff	hour/person/year	37	40	53	89

Grievances about Human Resources

Data	Unit	2021	2022	2023	2024
Number of grievance about human resource	case	0	0	0	0
Number of grievance addressed	case	0	0	0	0
Number of grievance resolved	case	0	0	0	0

Performance Data 2024: HPC

Installation Capacity

Data	Unit	2021	2022	2023	2024
Electricity	MW	1,878	1,878	1,878	1,878
Capacity under construction	MW	0	0	0	0
Planned future investment	THB	0	0	0	0

Production

Data	Unit	2021	2022	2023	2024
Electricity sold	MWh	11,881,482	12,179,559	12,077,298	12,366,393
	GJ	42,773,334	43,846,413	43,478,274	44,519,017
Electricity generated	MWh	13,600,863	13,916,543	13,823,460	14,095,522

System Efficiency

Data	Unit	2021	2022	2023	2024
Production efficiency					
• Efficiency rate	g/KWh	1,091	1,099	1,073	1,059
• Availability factor	%	86.11%	87.56%	86.55%	87.68%
• Overall efficiency	%	32.65%	32.57%	32.64%	32.38%
Planned outage					
• Planned outage frequency	case/year	3	3	3	3
• Planned outage hours	hour	2,489	2,224	1,940	2,068
• Average planned outage duration	hour/case	829.67	741.33	646.67	689.33
Unplanned outage					
• Unplanned outage frequency	case/year	17	14	13	13
• Unplanned outage hours	hour	1,152	1,010	1,573	1,158
• Average unplanned outage duration	hour/case	67.76	72.14	121.00	89.08
Total outage					
• Total outage frequency	case/year	20	17	16	16
• Total outage hours	hour	3,641	3,234	3,513	3,226
• Average total outage duration	hour/case	182.05	190.24	219.56	201.63
Transmission					
• Length of transmission line	km	167	167	167	167
• Transmission loss	%	0.21%	0.22%	0.21%	0.23%
• Length of distribution line	km	6	6	6	6

Energy

Data	Unit	2021	2022	2023	2024
Direct energy consumption	GJ	150,087,092	153,934,759	152,535,294	156,792,938
Fuel consumption within organization from non-renewable sources	GJ	150,087,092	153,934,759	152,535,294	156,792,938
• Coal	GJ	149,877,480	153,727,901	152,345,158	156,593,336
• Diesel	GJ	209,612	206,858	190,136	199,603
Indirect energy consumption					
• Electricity purchased	GJ	3,000	595	677	303
	MWh	833	165	188	84

Greenhouse Gas (GHG)

Data	Unit	2021	2022	2023	2024
Power Plant GHG emissions					
• Total GHG (Scope 1 & 2)	tonnes CO_2e	16,150,764	16,509,996	15,939,282	16,141,725
• Direct GHG (Scope 1)	tonnes CO_2e	16,150,714	16,509,953	15,939,056	16,141,486
• Other Indirect GHG (Support Functions)	tonnes CO_2e	296.84	168.96	334.93	264.88
• Indirect GHG (Scope 2)	tonnes CO_2e	50	43	55.26	58.89
• Other indirect GHG (Scope 3)	tonnes CO_2e	1,793	1,358	171.00	179.86
• GHG intensity (Scope 1 & 2)	tonnes CO_2e/MWh	1.359	1.400	1.15	1.15
Mine GHG emissions					
• Total GHG (Scope 1 & 2)	tonnes CO_2e	698,235	535,077	369,089	356,048
• Direct GHG (Scope 1)	tonnes CO_2e	458,231	534,737	369,089	356,048
• Indirect GHG (Scope 2)	tonnes CO_2e	240,004	340	0	0
• Other indirect GHG (Scope 3)	tonnes CO_2e	-	-	125,617	122,367
• GHG intensity (Scope 1 & 2)	tonnes CO_2e/ tonnes coal	-	-	0.03	0.03

Air

Data	Unit	2021	2022	2023	2024
NO_x					
• Average concentration	mg/Nm^3	193.88 - 205.64	189.50 - 207.83	151.89 - 219.94	137.43 - 218.31
• Standard	mg/Nm^3	510	510	510	510
• Emission load	tonnes	8,387	7,713	5,884	9,647
• Degree of compliance	%	100%	100%	100%	100%

Data	Unit	2021	2022	2023	2024
SO_x					
• Average concentration	mg/Nm^3	150.80 - 154.87	148.73 - 159.39	150.03 - 187.48	145.95 - 199.50
• Standard	mg/Nm^3	230	230	230	230
• Emission load	tonnes	6,243	6,121	4,412	5,340
• Degree of compliance	%	100%	100%	100%	100%
Particulate matter (PM)					
• Average concentration	mg/Nm^3	4.05 - 9.62	2.52 - 4.97	2.28 - 4.45	2.46 - 4.17
• Standard	mg/Nm^3	50	50	50	50
• Emission load	tonnes	254	151	100	165
• Degree of compliance	%	100%	100%	100%	100%

Biodiversity

Data	Unit	2021	2022	2023	2024
Total operation area (Concession area of mining, power plant, dams and transmission line)	km^2	76.20	76.20	76.20	76.20
Total operation area: dumping area (Concession area of mining concession area expansion)	km^2	-	41.45	41.45	41.45
Total operation area (Concession area of limestone quarry)	km^2	10.50	10.50	10.50	10.50
Operation area related to protected area					
• Located inside protected area	km^2	-	-	-	-
• Adjacent to protected area	km^2	-	-	-	-
• Contain portion in protected area	km^2	-	-	-	-
IUCN red list species in operation area					
• Critically endangered	number	Survey has been conducted in Oct 2022 - Apr 2023		0	No study
• Endangered	number			2	
• Vulnerable	number			3	
• Near threatened	number			4	
• Least concern	number			102	

Water

Data	Unit	2021	2022	2023	2024
Water discharged - by destination					
• Total water discharged	megaliter	50,859	48,538	29,752	48,089
• Surface water	megaliter	50,859	48,538	29,752	48,089
• Groundwater	megaliter	-	-	-	-
• Seawater	megaliter	-	-	-	-
• Third-party water	megaliter	-	-	-	-

Data	Unit	2021	2022	2023	2024
Power Plant effluent quality					
• TSS	mg/L	5 - 23	5.5 - 29	5 - 41	6 - 29
- Standard	mg/L	≤ 50	≤ 50	≤ 50	≤ 50
- Amount	tonnes	196.78	193.95	128.28	149.66
- Degree of compliance	%	100%	100%	100%	100%
• BOD	mg/L	0.3 - 7	0.5 - 2.3	0.1 - 1.7	0.3 - 6.1
- Standard	mg/L	≤ 40	≤ 40	≤ 40	≤ 40
- Amount	tonnes	25.70	14.54	7.80	14.13
- Degree of compliance	%	100%	100%	100%	100%
• COD	mg/L	<40	<40	<40	<40
- Standard	mg/L	≤120	≤120	≤120	≤120
- Amount	tonnes	-	-	-	-
- Degree of compliance	%	100%	100%	100%	100%
• pH	-	8.4 - 8.9	8.7 - 9	8 - 9	8.6 - 9
- Standard	-	6 - 9	6 - 9	6 - 9	6 - 9
- Degree of compliance	%	100%	100%	100%	100%
• Temperature	°C differential	0 - 0.2	0.2	< 3	< 3
- Standard	°C differential	< 3	< 3	< 3	< 3
- Degree of compliance	%	100%	100%	100%	100%
Mine effluent quality					
• TSS	mg/L	8 - 50	5 - 93	5 - 125	0 - 76
- Standard	mg/L	≤ 50	≤ 50	≤ 50	≤ 50
- Amount	tonnes	94.13	249.64	1,482.39	359.96
- Degree of compliance	%	100%	100%	100%	100%
• BOD	mg/L	0.3 - 12.9	0.4 - 9.2	0.1 - 2	0 - 2
- Standard	mg/L	≤ 50	≤ 50	≤ 50	≤ 50
- Amount	tonnes	13.47	10.99	3.26	25.22
- Degree of compliance	%	100%	100%	100%	100%
• COD	mg/L	< 40	40 - 74	25 - 40	0 - < 40.0
- Standard	mg/L	≤150	≤150	≤150	≤150
- Amount	tonnes	205.40	282.76	138.27	713.74
- Degree of compliance	%	100%	100%	100%	100%
• pH	-	6.9 - 8.8	6.2 - 8.3	6.7 - 8.5	0 - 8.3
- Standard	-	6 - 9	6 - 9	6 - 9	6 - 9
- Degree of compliance	%	100%	100%	100%	100%
• Temperature	°C differential	0 - 0.2	0.2	< 3	< 3
- Standard	°C differential	< 3	< 3	< 3	< 3
- Degree of compliance	%	100%	100%	100%	100%

Waste

Data	Unit	2021	2022	2023	2024
Hazardous waste disposed					
• Total hazardous waste	tonnes	64,497	394,116	874	654
• Reuse	tonnes	5	11.23	6.87	35
• Recycle (liquid)	liter	63,910	393,730	814,070	542,063
• Recycle (solid)	tonnes	2.25	19.84	2.38	2
• Recovery (including energy recovery)	tonnes	30.14	38.40	27.06	75
• Incineration	tonnes	-	-	-	-
• Deep well injection	tonnes	-	-	-	-
• Landfill	tonnes	-	-	-	-
• On-site storage	tonnes	550	316	550	350
• Other disposal	tonnes	-	-	-	-
Non-hazardous waste disposed					
• Total non-hazardous waste	tonnes	2,675	20,156	1,259	11,743
• Reuse	tonnes	-	-	-	-
• Recycle (solid)	tonnes	836	18,394	669	368
• Compositing	tonnes	0.07	3.47	4.62	-
• Recovery (including energy recovery)	tonnes	-	-	-	-
• Incineration	tonnes	-	-	-	-
• Deep well injection	tonnes	-	-	-	-
• Landfill	tonnes	1,835	1,758	586	11,375
• On-site storage	tonnes	4	0	0	0
• Other disposal	tonnes	-	-	-	-
Total waste disposed (hazardous & non-hazardous)	tonnes	67,172	414,271	2,133	12,397

Ash & Gypsum

Data	Unit	2021	2022	2023	2024
Production of ash & gypsum					
• Total production of ash	tonnes	3,503,887	3,624,740	3,990,755	3,603,504
• Fly ash	tonnes	3,503,887	3,624,740	3,990,755	3,603,504
• Bottom ash	tonnes	-	-	-	-
• Gypsum	tonnes	762,372	788,668	502,669	817,688
Recycled ash & gypsum					
• Fly ash recycled	tonnes	61,167	7,151	44,302	64,904
• Bottom ash recycled	tonnes	-	-	-	-
• Gypsum recycled	tonnes	1,021	2,897	20,707	47,765

Spill

Data	Unit	2021	2022	2023	2024
Number of significant oil and chemical spills	case	1	1	1	1
Volume of significant oil and chemical spills	liter	200	300	30	1,600

Environmental Compliance

Data	Unit	2021	2022	2023	2024
Total monetary value of significant fines	case	0	0	0	0
	THB	0	0	0	0
Total non-monetary sanctions	case	0	0	0	0
Case brought through dispute resolution mechanism	case	0	0	0	0

Supplier Environmental Assessment

Data	Unit	2021	2022	2023	2024
New suppliers screened using environmental criteria					
• New suppliers registered	number	105	188	187	162
• New suppliers screened by environmental criteria	number	105	188	187	162
Percentage new suppliers that were screened using environmental criteria	%	100%	100%	100%	100%

Return on Environmental Investment

Data	Unit	2021	2022	2023	2024
Environmental expenditure and cost					
• Capital investment expense	THB	417,547	-	-	-
• Operating expense	THB	18,070,946	36,600,600	17,767,586	12,890,503
Environmental improvement project					
• Operating expense	THB	-	2,240,839	1,426,003	1,265,176
• Capex	THB	500,000	3,053,805	288,465	873,524

Environmental Grievance Mechanism

Data	Unit	2021	2022	2023	2024
Complaints from related stakeholders on environment					
• Significant environmental complaint	number	0	0	0	0
• Significant complaint resolved	number	0	0	0	0

Safety Performance

Data	Unit	2021	2022	2023	2024
Employee					
Man hour	hour	1,812,908	1,765,909	2,233,200	1,695,340
Number of fatality					
• Male	person	0	0	0	0
• Female	person	0	0	0	0
Number of high consequence work related Injuries (excluding fatality)					
• Male	person	0	0	0	0
• Female	person	0	0	0	0
Number of lost time injury					
• Male	person	0	1	0	0
• Female	person	0	0	0	0
Number of recordable work-related injuries					
• Male	person	0	3	1	1
• Female	person	0	0	0	0
Number of day lost (excluding fatality and permanent disability)					
Male	day	0	17	0	0
Female	day	0	0	0	0
Fatality rate	person/ million man-hour	0	0	0	0
Lost time injury frequency rate (LTIFR)	person/ million man-hour	0	0.57	0	0
High consequence work related injury rate	person/ million man-hour	0	0	0	0
Total recordable injury rate (TRIR)	person/ million man-hour	0	1.70	0.45	0.59

Data	Unit	2021	2022	2023	2024
Main type of work-related injury					
• Amputation	person	0	0	0	0
• Burn	person	0	0	0	0
• Chemical	person	0	0	0	0
• Contamination	person	0	0	0	0
• Contusion	person	3	1	0	0
• Dry heat friction	person	0	0	0	0
• Fracture	person	0	1	0	0
• Hernia	person	0	0	0	0
• Irritation	person	0	0	0	0
• Laceration	person	0	0	1	0
• Puncture	person	0	0	0	1
• Rash	person	0	1	0	0
• Strain & Sprain	person	0	0	0	0
• Other	person	0	0	0	0
Number of occupational disease					
• Male	person	0	0	0	0
• Female	person	0	0	0	0
Contractor					
Man hour	hour	14,685,149	14,710,407	18,909,064	18,689,091
Number of fatality					
• Male	person	1	0	0	0
• Female	person	0	0	1	0
Number of high consequence work related Injuries (excluding fatality)					
• Male	person	0	0	0	0
• Female	person	0	0	0	0
Number of lost time injury					
• Male	person	0	3	1	3
• Female	person	0	1	0	0
Number of recordable work-related injuries					
• Male	person	9	9	8	7
• Female	person	0	1	4	0

Data	Unit	2021	2022	2023	2024
Number of day lost (excluding fatality and permanent disability)					
• Male	day	0	70	60	90
• Female	day	0	14	0	0
Fatality rate	person/ million man-hour	0.07	0	0.05	0
Lost time injury frequency rate (LTIFR)	person/ million man-hour	0	0.27	0.05	0.16
High consequence work related injury rate	person/ million man-hour	0	0	0	0
Total recordable injury rate (TRIR)	person/ million man-hour	0.61	0.68	0.63	0.37
Main type of work-related injury					
• Amputation	person	0	0	0	0
• Burn	person	0	1	0	0
• Chemical	person	0	0	0	0
• Contamination	person	0	0	0	0
• Contusion	person	5	3	1	0
• Dry heat friction	person	0	0	0	0
• Fracture	person	0	4	0	4
• Hernia	person	0	0	0	0
• Irritation	person	3	2	0	0
• Laceration	person	1	0	8	3
• Puncture	person	0	0	0	0
• Rash	person	0	0	0	0
• Strain & Sprain	person	0	0	0	0
• Other	person	0	0	1	0
Number of occupational disease					
• Male	person	0	0	0	0
• Female	person	0	0	0	0
Public					
Number of fatalities involving company asset incident	number	0	0	0	0
Number of injuries involving company asset incident	number	0	0	0	0
Number of health and safety related legal case (including disease)	number	0	0	0	0
Compensation cost	THB	0	0	0	0

OHS Training/Communication

Data	Unit	2021	2022	2023	2024
Employee					
OHS training program	number	25	33	49	NA
OHS training hour	hour	3,936	5,020	4,060	NA
Contractor					
OHS training program	number	385	257	366	NA
OHS training hour	hour	23,071	17,796	15,062	NA

Expense and Investment for Safety

Data	Unit	2021	2022	2023	2024
Expense for safety operation					
• Operation expense	THB	27,935,055	34,457,355	36,740,000	NA
• Capex	THB	0	869,000	680,000	NA
Expense for safety improvement project					
• Operation expense	THB	0	0	0	NA
• Capex	THB	0	0	0	NA

Impacted Community

Data	Unit	2021	2022	2023	2024
Plant area					
• Impacted household	household	2,588	2,588	2,588	2,588
• Impacted people	person	12,335	12,335	12,335	12,335
• Compensated household	household	975	975	975	975
• Compensated people	person	5,265	5,265	5,265	5,265
Transmission line					
• Impacted household	household	249	249	249	249
• Impacted people	person	1,345	1,345	1,345	1,345
• Compensated household	household	249	249	249	249
• Compensated people	person	1,345	1,345	1,345	1,345

Employee

Data	Unit	2021	2022	2023	2024
Total employee	person	726	743	729	724
Number of employee by gender					
• Male	person	561	576	558	555
• Female	person	165	167	171	169
Number of employee by nationality					
• Thai	person	260	264	262	260
• Laos PDR	person	465	478	466	463
• China	person	0	0	0	0
• Japan	person	0	0	0	0
• Others	person	1	1	1	1
Number of employee by age					
• Under 30 years old	person	221	169	152	128
• 30 - 39 years old	person	325	382	388	401
• 40 - 49 years old	person	112	118	121	131
• 50 years old +	person	68	74	68	64
Number of employee by type					
• Permanent	person	673	682	673	675
• Temporary/contract	person	53	61	56	49
Number of employee by level					
• Senior management	person	15	16	14	16
• Middle management	person	90	99	101	104
• Junior management	person	183	181	184	180
• Supervisor and staff	person	410	420	417	420
• Other (worker)	person	28	27	13	4
Total new employee	person	53	84	51	167
• Male	person	33	62	25	154
• Female	person	20	22	26	13
Retainment of employee					
• Average length of service years	year	6.54	7.06	7.60	8.28
Estimated total employee eligible to retired in the next 5 years	person	29	33	33	35
• Senior Management (DD and up)	person	6	6	4	7
• Middle Management (section and manager)	person	5	8	8	7
• Junior Management (senior officer)	person	12	11	12	12
• Supervisor and staff	person	5	7	9	9
• Other (worker)	person	1	1	0	0

Data	Unit	2021	2022	2023	2024
Estimated total employee eligible to retired in the next 10 years	person	67	74	67	64
• Senior Management (DD and up)	person	12	11	8	9
• Middle Management (section and manager)	person	16	22	22	20
• Junior Management (senior officer)	person	22	21	18	17
• Supervisor and staff	person	12	15	17	18
• Other (worker)	person	5	5	2	0
Turnover	person	48	43	64	165
• Resignment	person	31	38	32	20
• Retirement	person	7	3	5	4
• Other termination	person	10	2	27	141
Total turnover rate	%	6.61%	5.79%	8.78%	22.79%
Volunteer turnover rate	%	4.27%	5.11%	4.39%	2.76%

Gender Diversity

Data	Unit	2021	2022	2023	2024
Senior management	person	15	16	14	9
• Male	person	11	13	13	8
• Female	person	4	3	1	1
Middle management	person	90	99	101	20
• Male	person	66	72	72	14
• Female	person	24	27	29	6
Junior management	person	183	181	184	17
• Male	person	122	122	121	15
• Female	person	61	59	63	2
Supervisor and staff	person	410	420	417	18
• Male	person	336	344	340	18
• Female	person	74	76	77	0
Professional and advisor	person	28	27	13	4
• Male	person	26	25	12	4
• Female	person	2	2	1	0

Salary/Expense

Data	Unit	2021	2022	2023	2024
Remuneration cost	THB	-	-	644,806,480	696,966,228
Retirement benefit cost	THB	-	-	9,713,894	9,941,447
Employee development cost	THB	-	-	14,394,892	12,884,885

Employee Development

Data	Unit	2021	2022	2023	2024
Skill/competency needed assessment in the workforce					
• Employee who was assessed skill/ training needs	person	669	658	516	723
	%	80.00%	92.54%	75.18%	100%
Total training hours	hour	19,241	16,315	11,031	21,197
• Senior Management	hour	123	381	126	687
• Middle Management	hour	2,824	3,406	1,700	4,843
• Junior Management	hour	5,742	6,572	4,209	12,020
• Supervisor and staff	hour	10,552	5,956	4,996	3,647
Average training hours/person	hour/person	27.92	27.33	18.82	29.32
Total training expense	THB/person	3,530,304	8,490,018	5,519,819	12,884,885
• Senior Management	THB/person	296,957	199,096	84,775	8,638,440
• Middle Management	THB/person	88,666	1,365,229	876,012	868,225
• Junior Management	THB/person	78,150	2,531,362	1,488,279	2,542,227
• Supervisor and staff	THB/person	38,852	4,394,331	3,070,752	835,994
Average training expense/employee	THB/person	4,965	14,221	9,419	5,971

Parental Leave

Data	Unit	2021	2022	2023	2024
Employee take parental leave	person	10	7	3	13
	%	6%	4%	2%	8%
Number of employee return to work after parental leave	person	10	7	3	11
	%	6%	4%	2%	7%

Freedom of Association and Collective Bargaining

Data	Unit	2021	2022	2023	2024
Number of employees covered by collective bargaining agreements	person	0	0	0	0
	%	0	0	0	0

Absenteeism Rate (due to illness)

Data	Unit	2021	2022	2023	2024
Absenteeism rate due to common illness	%	0.44	1.03	0.70	0.74
Absenteeism rate due to occupational illness	%	-	-	-	-

Complaint from Company Operation

Data	Unit	2021	2022	2023	2024
Total formal/significant complaint case by communities	case	0	0	0	0
Solved complaint	case	0	0	0	0

GRI Content Index

Statement of use	Banpu Power has reported the information cited in this GRI content index for the January 1 – December 31, 2024 with reference to the GRI Standards.
GRI 1 used	GRI 1: Foundation 2021
Applicable GRI Sector Standard(s)	Utilities

GRI STANDARD/ OTHER SOURCE		DISCLOSURE	PAGE	DETAIL/OMISSION	EXTERNAL ASSURANCE
General disclosures					
GRI 2: General Disclosures 2021	2-1	Organizational details	10, Back cover	A gray cell indicates that reasons for omission are not permitted for the disclosure or that a GRI Sector Standard reference number is not available.	
	2-2	Entities included in the organization's sustainability reporting	145, 147		
	2-3	Reporting period, frequency and contact point	27, Back cover		
	2-4	Restatements of information	27		
	2-5	External assurance	182		
	2-6	Activities, value chain and other business relationships	11		
	2-7	Employees	152		
	2-8	Workers who are not employees	152		
	2-9	Governance structure and composition	29-33		
	2-10	Nomination and selection of the highest governance body	29-33		
	2-11	Chair of the highest governance body	29-33		
	2-12	Role of the highest governance body in overseeing the management of impacts	20-24		
	2-13	Delegation of responsibility for managing impacts	20-24		
	2-14	Role of the highest governance body in sustainability reporting	16-24, 29-33		
	2-15	Conflicts of interest	29-33		
	2-16	Communication of critical concerns	20-24		
	2-17	Collective knowledge of the highest governance body	29-33		
	2-18	Evaluation of the performance of the highest governance body	20-24		
	2-19	Remuneration policies	23-24, 33		
	2-20	Process to determine remuneration	23-24, 33		
	2-21	Annual total compensation ratio	153		
	2-22	Statement on sustainable development strategy	6-7		
	2-23	Policy commitments	34-38	Human Rights Policy	
	2-24	Embedding policy commitments	20-24, 29-33		
	2-25	Processes to remediate negative impacts	35-36		
	2-26	Mechanisms for seeking advice and raising concerns	35-36		
	2-27	Compliance with laws and regulations	39-43, 156		
	2-28	Membership associations	146		
	2-29	Approach to stakeholder engagement	12-15		
	2-30	Collective bargaining agreements	110, 154		

GRI STANDARD/ OTHER SOURCE		DISCLOSURE	PAGE	DETAIL/OMISSION	EXTERNAL ASSURANCE
GRI G4 Electric Utilities Sector Disclosures 2010	EU1	Installed capacity, broken down by primary energy source and by regulatory regime	151		
	EU2	Net energy output, broken down by primary energy source and by regulatory regime	151		
Material topics					
GRI 3: Material Topics 2021	3-1	Process to determine material topics	16-18	A gray cell indicates that reasons for omission are not permitted for the disclosure or that a GRI Sector Standard reference number is not available.	
	3-2	List of material topics	19		
Economic performance					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 201: Economic Performance 2016	201-1	Direct economic value generated and distributed	149		-
	201-2	Financial implications and other risks and opportunities due to climate change	80-81		-
	201-3	Defined benefit plan obligations and other retirement plans	-		-
	201-4	Financial assistance received from government	-		-
Market presence					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 202: Market Presence 2016	202-1	Ratios of standard entry level wage by gender compared to local minimum wage	-		-
	202-2	Proportion of senior management hired from the local community	-		-
Indirect economic impacts					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 203: Indirect Economic Impacts 2016	203-1	Infrastructure investments and services supported	149		-
	203-2	Significant indirect economic impacts	149		-
Procurement practices					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 204: Procurement Practices 2016	204-1	Proportion of spending on local suppliers	151-152		-

GRI STANDARD/ OTHER SOURCE		DISCLOSURE	PAGE	DETAIL/OMISSION	EXTERNAL ASSURANCE
Anti-corruption					
GRI 3: Material Topics 2021	3-3	Management of material topics	34-38		-
GRI 205: Anti-corruption 2016	205-1	Operations assessed for risks related to corruption	34-38		-
	205-2	Communication and training about anti-corruption policies and procedures	34-38		-
	205-3	Confirmed incidents of corruption and actions taken	37, 150		-
Anti-competitive behavior					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 206: Anti-competitive Behavior 2016	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	-		-
Tax					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 207: Tax 2019	207-1	Approach to tax	-	Tax Management Standard Practice Manual	-
	207-2	Tax governance, control, and risk management	-		-
	207-3	Stakeholder engagement and management of concerns related to tax	-		-
	207-4	Country-by-country reporting	148		-
Materials					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 301: Materials 2016	301-1	Materials used by weight or volume	-		-
	301-2	Recycled input materials used	-		-
	301-3	Reclaimed products and their packaging materials	-		-
Energy					
GRI 3: Material Topics 2021	3-3	Management of material topics	86-89		-
GRI 302: Energy 2016	302-1	Energy consumption within the organization	156		◉
	302-2	Energy consumption outside of the organization	-		-
	302-3	Energy intensity	156		◉
	302-4	Reduction of energy consumption	88-89		-
	302-5	Reductions in energy requirements of products and services	88-89		-

GRI STANDARD/ OTHER SOURCE		DISCLOSURE	PAGE	DETAIL/OMISSION	EXTERNAL ASSURANCE
Water and effluents					
GRI 3: Material Topics 2021	3-3	Management of material topics	94-99		-
GRI 303: Water and Effluents 2018	303-1	Interactions with water as a shared resource	94-99		◉
	303-2	Management of water discharge-related impacts	94-99		◉
	303-3	Water withdrawal	157-158		◉
	303-4	Water discharge	157-158		◉
	303-5	Water consumption	157-158		◉
Biodiversity					
GRI 3: Material Topics 2021	3-3	Management of material topics	105-107		-
GRI 304: Biodiversity 2016	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	159		-
	304-2	Significant impacts of activities, products and services on biodiversity	159		-
	304-3	Habitats protected or restored	159		-
	304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	106		-
Emissions					
GRI 3: Material Topics 2021	3-3	Management of material topics	75-85, 90-93		-
GRI 305: Emissions 2016	305-1	Direct (Scope 1) GHG emissions	156		◉
	305-2	Energy indirect (Scope 2) GHG emissions	156		◉
	305-3	Other indirect (Scope 3) GHG emissions	82, 156		◉
	305-4	GHG emissions intensity	156		◉
	305-5	Reduction of GHG emissions	83-84		-
	305-6	Emissions of ozone-depleting substances (ODS)	157		-
	305-7	Nitrogen oxides (NO_x), sulfur oxides (SO_x), and other significant air emissions	157	The SO_2, NO_x and PM emitted from non-point source are excluded due to neligible amount in power plant's operation.	◉
Waste					
GRI 3: Material Topics 2021	3-3	Management of material topics	100-104		-
GRI 306: Waste 2020	306-1	Waste generation and significant waste-related impacts	100-104		◉
	306-2	Management of significant waste-related impacts	100-104		◉
	306-3	Waste generated	158-159		◉
	306-4	Waste diverted from disposal	158-159		◉
	306-5	Waste directed to disposal	158-159		◉
GRI 306: Effluents and Waste 2016	306-3	Significant spills	159		◉

GRI STANDARD/ OTHER SOURCE		DISCLOSURE	PAGE	DETAIL/OMISSION	EXTERNAL ASSURANCE
Supplier environmental assessment					
GRI 3: Material Topics 2021	3-3	Management of material topics	61-65		-
GRI 308: Supplier Environmental Assessment 2016	308-1	New suppliers that were screened using environmental criteria	151-152		-
	308-2	Negative environmental impacts in the supply chain and actions taken	-		-
Employment					
GRI 3: Material Topics 2021	3-3	Management of material topics	109-113		-
GRI 401: Employment 2016	401-1	New employee hires and employee turnover	153-154		-
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	117		-
	401-3	Parental leave	154		-
Labor/management relations					
GRI 3: Material Topics 2021	3-3	Management of material topics	121-126		-
GRI 402: Labor/ Management Relations 2016	402-1	Minimum notice periods regarding operational changes	-		-
Occupational health and safety					
GRI 3: Material Topics 2021	3-3	Management of material topics	134-138		-
GRI 403: Occupational Health and Safety 2018	403-1	Occupational health and safety management system	134-138		●
	403-2	Hazard identification, risk assessment, and incident investigation	134-138		●
	403-3	Occupational health services	134-138		●
	403-4	Worker participation, consultation, and communication on occupational health and safety	134-138		●
	403-5	Worker training on occupational health and safety	134-138		●
	403-6	Promotion of worker health	134-138		●
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	134-138		●
	403-8	Workers covered by an occupational health and safety management system	160-161		●
	403-9	Work-related injuries	160-161		●
	403-10	Work-related ill health	160-161		●

GRI STANDARD/ OTHER SOURCE		DISCLOSURE	PAGE	DETAIL/OMISSION	EXTERNAL ASSURANCE
Training and education					
GRI 3: Material Topics 2021	3-3	Management of material topics	127-133		-
GRI 404: Training and Education 2016	404-1	Average hours of training per year per employee	155		-
	404-2	Programs for upgrading employee skills and transition assistance programs	129-132		-
	404-3	Percentage of employees receiving regular performance and career development reviews	155		-
Diversity and equal opportunity					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 405: Diversity and Equal Opportunity 2016	405-1	Diversity of governance bodies and employees	32, 152		-
	405-2	Ratio of basic salary and remuneration of women to men	153		-
Non-discrimination					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 406: Non-discrimination 2016	406-1	Incidents of discrimination and corrective actions taken	150		-
Freedom of association and collective bargaining					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 407: Freedom of Association and Collective Bargaining 2016	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	154		-
Child labor					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 408: Child Labor 2016	408-1	Operations and suppliers at significant risk for incidents of child labor	-		-
Forced or compulsory labor					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 409: Forced or Compulsory Labor 2016	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	-		-
Security practices					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 410: Security Practices 2016	410-1	Security personnel trained in human rights policies or procedures	-		-

GRI STANDARD/ OTHER SOURCE		DISCLOSURE	PAGE	DETAIL/OMISSION	EXTERNAL ASSURANCE
Rights of indigenous peoples					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 411: Rights of Indigenous Peoples 2016	411-1	Incidents of violations involving rights of indigenous peoples	-		-
Local communities					
GRI 3: Material Topics 2021	3-3	Management of material topics	139-143		-
GRI 413: Local Communities 2016	413-1	Operations with local community engagement, impact assessments, and development programs	141-143		-
	413-2	Operations with significant actual and potential negative impacts on local communities	155		-
GRI G4 Electric Utilities Sector Disclosures 2010	EU22	Number of people physically or economically displaced and compensation, broken down by type of project	-		
Supplier social assessment					
GRI 3: Material Topics 2021	3-3	Management of material topics	61-65		-
GRI 414: Supplier Social Assessment 2016	414-1	New suppliers that were screened using social criteria	151-152		-
	414-2	Negative social impacts in the supply chain and actions taken	-		-
Public policy					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 415: Public Policy 2016	415-1	Political contributions	148		-
Customer health and safety					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 416: Customer Health and Safety 2016	416-1	Assessment of the health and safety impacts of product and service categories	-		-
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	-		-

GRI STANDARD/ OTHER SOURCE		DISCLOSURE	PAGE	DETAIL/OMISSION	EXTERNAL ASSURANCE
Marketing and labeling					
GRI 3: Material Topics 2021	3-3	Management of material topics	-		-
GRI 417: Marketing and Labeling 2016	417-1	Requirements for product and service information and labeling	-		-
	417-2	Incidents of non-compliance concerning product and service information and labeling	-		-
	417-3	Incidents of non-compliance concerning marketing communications	-		-
Customer privacy					
GRI 3: Material Topics 2021	3-3	Management of material topics	66-68		-
GRI 418: Customer Privacy 2016	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	150		-
System Efficiency					
GRI 3: Material Topics 2021	3-3	Management of material topics	55-60		-
GRI G4 Electric Utilities Sector Disclosures 2010	EU11	Average generation efficiency of thermal plants by energy source and by regulatory regime	151		-
Access					
GRI 3: Material Topics 2021	3-3	Management of material topics	70-74		-
GRI G4 Electric Utilities Sector Disclosures 2010	EU28	Power outage frequency	151		-
	EU29	Average power outage duration	151		
	EU30	Average plant availability factor by energy source and by regulatory regime	151		-

LRQA Independent Assurance Statement

Relating to Banpu Power Public Company Limited's Sustainability Report for the calendar year 2024.

This Assurance Statement has been prepared for Banpu Power Public Company Limited in accordance with our contract but is intended for the readers of this Report.

Terms of engagement

LRQA was commissioned by Banpu Public Company Limited (Banpu) to provide independent assurance on Banpu Power Public Company Limited (BPP)'s Sustainability Report 2024 ("the report") against the assurance criteria below to a limited level of assurance and materiality of the professional judgement of the verifier using LRQA's verification procedure. LRQA's verification procedure is based on current best practice, is in accordance with ISAE 3000 and uses the following principles of - inclusivity, materiality, responsiveness and reliability of performance data.

Our assurance engagement covered BPP's thermal power business under its operational control consisting of three combined heat and power (CHP) plants in China, two natural gas fired power plants in USA, office in China and the headquarter in Thailand and specifically the following requirements:

- Confirming that the performance indicators conform with GRI's specific standard disclosures defined in:
  - Sustainability Reporting Standard
  - GRI Electric Utilities sector disclosures.
- Evaluating the reliability of data and information for only the selected performance indicators listed below:[a, b]
  - GRI 2-27 Compliance with law and regulations
  - GRI 302-1 Energy consumption within the organization (2016) [1]
  - GRI 302-3 Energy intensity (2016) [1]
  - GRI 303-1 Interactions with water as a shared resource (2018) [2]
  - GRI 303-2 Management of water discharge-related impacts (2018) [2]
  - GRI 303-3 Water withdrawal (2018) [2]
  - GRI 303-4 Water discharge (2018) [2]
  - GRI 303-5 Water consumption (2018) [2]
  - GRI 305-1 Direct (Scope 1) GHG emissions (2016) [1]
  - GRI 305-2 Energy indirect (Scope 2) GHG emissions (2016) [1]
  - GRI 305-3 Other indirect (Scope 3) GHG emission (2016) [3]
  - GRI 305-4 GHG emissions intensity (2016) [1]
  - GRI 305-7 Nitrogen Oxides (NOx), Sulfur Oxides (SOx) and other significant air emissions (2016) [2]
  - GRI 306-1 Waste generation and significant waste-related impacts (2020) [2]
  - GRI 306-2 Management of significant waste related impacts (2020) [2]
  - GRI 306-3 Waste generated (2020) [2]
  - GRI 306-4 Waste diverted from disposal (2020) [2]
  - GRI 306-5 Waste directed to disposal (2020) [2]
  - GRI 403-1 to 403-7 management disclosure Occupational Health and Safety (2018)
  - GRI 403-8 Workers covered by an occupational health and safety management system (2018)
  - GRI 403-9 Work-related injuries (2018) [4]
  - GRI 403-10 Work-related ill health (2018) [4]
  - Lost time injury frequency rate (LTIFR) [4]
  - Tier-1 Process safety event rate[4]
  - Environmental incident[2]
  - GRI 306-3 Significant spill (2016) [2]

[a] https://www.globalreporting.org/standards
[b] *GHG quantification is subject to inherent uncertainty*

Note:

1) *Reporting boundary of these performance data includes BPP's thermal power business of three coal fired combined heat and power (CHP) plants' operations and activities in China (Luannan Coal-fired CHP Plant, Zhengding Coal-fired CHP Plant and Zouping Coal-Fired CHP Plant), BIC office in China and two natural gas-fired power plants in USA (Temple I and Temple II power plant).*
2) *Reporting boundary of these performance data includes BPP's thermal power business of three coal fired combined heat and power (CHP) plants' operations and activities in China (Luannan Coal-fired CHP Plant, Zhengding Coal-fired CHP Plant and Zouping Coal-Fired CHP Plant), and two natural gas-fired power plants in USA (Temple I and Templer II power plant) only.*
3) *Reporting scope of Scope 3 GHG emissions includes three categories which are capital goods, fuel & energy related activities (not includes in scope 1 or scope 2) and investment.*
4) *Reporting boundary of these performance data includes BPP's thermal power business of three coal fired combined heat and power (CHP) plants' operations and activities in China (Luannan Coal-fired CHP Plant, Zhengding Coal-fired CHP Plant and Zouping Coal-Fired CHP Plant), two natural gas-fired power plants in USA (Temple I and Temple II power plant), BIC office in China and the Headquarter office in Thailand.*

LRQA's responsibility is only to BPP. LRQA disclaims any liability or responsibility to others as explained in the end footnote. BPP's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the report and for maintaining effective internal controls over the systems from which the report is derived. Ultimately, the report has been approved by, and remains the responsibility of BPP.

LRQA's Opinion

Based on LRQA's approach nothing has come to our attention that would cause us to believe that BPP has not, in all material respects:

- Met the requirements above.
- Disclosed reliable performance data and information for the selected performance indicators above.

Note: *The extent of evidence-gathering for a limited assurance engagement is less than for a reasonable assurance engagement. Limited assurance engagements focus on aggregated data rather than physically checking source data at sites. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.*

LRQA's Approach

LRQA's assurance engagements are carried out in accordance with our verification procedure. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:

- Auditing BPP's data management systems to confirm that there were no significant errors, omissions, or misstatements in the report. We did this by reviewing the effectiveness of data handling procedures, and systems. We also spoke with those key people responsible for compiling the data and drafting the report.
- Verifying data and information via an on-site visit for a selection of BPP's CHP Coal-fired power plant in China, i.e. Zhengding Combined Heat & Power plant, and the Natural Gas fired power plants in USA (Temple I and Temple II) and verifying aggregated data, via a desktop review, for all selected performance indicators at a corporate level.
  Note*: LRQA did not verify the data back to its original sources, nor did it assess the accuracy and completeness of the data reported by individual locations.*

Observations

Further observations and findings, made during the assurance engagement, are:

- Reliability:
  Data management systems are established and centralised for the collection and calculation of data associated with the selected performance indicators listed above. However, we believe that:
  - The current quantification approach of Scope 3 GHG emissions of Capital Goods which is spent based method (Calculated from Spent values, exchange rate and economic value emission factor) has a high degree of uncertainties due to several factors i.e. exchange rates which vary from time to time, the economic value emission factors which have not been updated for several years, etc.. Using another quantification approach e.g. quantity of purchased capital goods items and supplier specific or average EF would help reduce these uncertainties and enhance reliability of reported data.
  - More rigorous internal verification will improve the reliability of reported data and information and prevent future errors.

LRQA's standards, competence and independence

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

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

Paveena Hengsritawat
LRQA Lead Verifier

26 March 2025

On behalf of LRQA (Thailand) Limited
No.252/123, Muang Thai – Phatra Complex Tower B, 26th Floor, Unit 252/123 (C),
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Bangkok, 10310 Thailand

LRQA reference: BGK00001143

TALK TO US

Banpu Power welcomes your suggestions and additional information provided for our sustainability policies and operations.

PLEASE CONTACT

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