Environmental Dimension

BCPG recognizes its critical role in environmental protection by promoting clean energy operations and upholding social responsibility to drive sustainable development. Additionally, climate change is a key issue and factor in creating business opportunities that align with the country's greenhouse gas reduction targets while managing impacts to mitigate risks associated with failing to adapt to climate change, which could lead to a loss of market competitiveness. To address this, BCPG has established strategies, policies, and initiatives to foster energy innovation by integrating technology to enhance efficiency and reduce long-term production costs.

Environmental Management Policies and Practices

To achieve its mission and address potential risks and opportunities, BCPG has established robust policies and practices for sustainable business development and environmental conservation. These are integrated into the corporate governance policy under the areas of safety, security, occupational health, environment, and energy, as well as the group's occupational health and safety, quality, and environmental policies. These policies are guided by the following key principles:

1. **Strict Compliance with Regulations:** BCPG prioritizes full compliance with environmental laws and regulations as a fundamental standard for its operations.
2. **Safety and Environmental Protection:** BCPG is committed to safeguarding environmental security in its operations, including pollution prevention.
3. **Efficient Resource Utilization:** BCPG focuses on optimizing resource use and management in an environmentally friendly manner to maximize value and minimize waste.
4. **Stakeholder Responsibility:** BCPG promotes and develops the procurement and design of modern, eco-friendly, and energy-efficient equipment while ensuring accountability to communities and the environment.

Additionally, the Company continuously improves its environmental management practices.

Greenhouse Gas Management

BCPG is committed to minimizing environmental impacts from its operations and achieving sustainable development goals by reducing greenhouse gas emissions, which are a major contributor to climate change-one of today's most critical global issues. The Company has established processes for measuring, controlling, and managing greenhouse gas emissions from its various activities, with annual verification conducted by external agencies.

Additionally, BCPG monitors greenhouse gas emissions in accordance with the GHG Protocol Corporate Accounting and Reporting Standard established by the World Resources Institute. The Company also assesses the full lifecycle emissions of its products in alignment with the GHG Protocol Corporate Value Chain Standard, covering Scope 1-3 emissions. BCPG reports greenhouse gas emissions from projects under its operational control that have commenced commercial operations in 2024, including solar power plants, wind power projects, and oil storage businesses in Thailand. The Company's assessment scope includes carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) as part of its emissions reporting.

BCPG has developed a strategic plan to achieve carbon neutrality in Thailand by 2030 and net-zero greenhouse gas emissions by 2050, using 2019 as the baseline year. This plan considers feasible emission reduction measures through various initiatives, such as utilizing renewable energy, adopting technologies to enhance efficiency and conserve energy in an environmentally friendly manner, transitioning to electric vehicles instead of fossil fuels, and promoting reforestation.

Corporate Greenhouse Gas Emissions

In 2024, BCPG assessed greenhouse gas emissions from its clean energy power generation business and expanded the assessment to include its oil storage business. This evaluation ensures comprehensive coverage of key operations, from raw material procurement to product disposal. The Company places particular emphasis on indirect greenhouse gas emissions (Scope 3), in accordance with the GHG Protocol Corporate Value Chain Standard established by the World Resources Institute. The selection criteria for relevant activities are as follows:

1. Activities with significant greenhouse gas emission sources (60%)
2. Activities with systematically collected data (20%)
3. Activities that pose risks or are influenced by external factors (10%)
4. Activities of particular interest to BCPG (10%)

If the total score exceeds the threshold set by BCPG, the activity is classified as a necessary reportable indirect greenhouse gas emission source.

The table shows greenhouse gas emissions data in Thailand for the years 2019 (base year), 2023, and 2024.

Types of greenhouse gas emissions (Unit: Tons of Co_2 Equivalent)	Power Business			Tank Terminal Business
	2019 (Base Year)	2023	2024	2024
Direct Emissions (Scope 1)	**235.0**	**247.0**	**278.0**	**26.0**
1. Use of cars for project inspections	111.5	104.4	115.1	4.4
2. Use of cars for executives	105.9	118.6	116.4	-
3. Use of cars for domestic business trips	-	0.7	-	-
4. Use of water pumps/fuel pumping machines	2.5	-	-	7.0
5. Use of Generators	0.5	-	0.2	1.0
6. Use of fire-fighter equipment	-	-	0.2	-
7. Methane emissions from wastewater treatment processes by employees and external personnel	14.0	22.4	26.6	7.5
8. Leakage of refrigerants	-	-	18.9	5.3
Carbon dioxide emissions from biological processes (separate report)	**14.0**	**13.0**	**14.0**	**2.0**

Types of greenhouse gas emissions (Unit: Tons of Co_2 Equivalent)	Power Business			Tank Terminal Business
	2019 (Base Year)	2023	2024	2024
Indirect greenhouse gas emissions from the purchase of electricity, steam, and biogas (Scope 2)	**1,375.0**	**1,542.0**	**1,595.0**	**696.0**
1. Electricity purchase for internal use (Head Office)	77.9	125.6	130.2	-
2. Electricity purchase for internal use (Power Plant)	1,296.5	1,415.7	1,463.9	-
3. Electricity purchase for internal use (Oil Depot)	-	-	-	696.0
Other indirect greenhouse gas emissions (Scope 3)	**515.0**	**539.0**	**824.0**	**159.0**
1. Paper usage (Head Office)	3.6	-	-	-
2. Purchase of tap water	1.5	4.5	5.1	3.2
3. Procurement of electricity	-	-	314.7	137.4
4. Procurement of fuel	-	-	32.9	1.4
5. Waste generation volume	48.8	58.4	94.1	16.6
6. Domestic business-related air travel	26.0	32.5	14.0	-
7. International business-related air travel	428.1	434.9	357.6	-
8. Overnight stays for business	5.8	7.9	4.8	-
9. Transportation of solar panels and related electronic equipment (power plant)	1.0	-	-	-
Total greenhouse gas emissions (Scope 1 and Scope 2)	**1,610.0**	**1,789.0**	**1,873.0**	**722.0**
Total greenhouse gas emissions (Scope 1, Scope 2, and Scope 3)	**2,125.0**	**2,328.0**	**2,697.0**	**881**

Notes : 1. The greenhouse gas emission factor for Gasoline and Diesel is referenced from IPCC 2006, Vol.2, Ch3, Table 3.2.1

2. The greenhouse gas emission factor is referenced from EPPO, Energy Statistics, Table 15-9.1: CO2 Emission per kWh (2021) http://www.eppo.go.th/index.pho/th/energy-information/static-energy/static-co27ordersiblshupl-publishishjp8rch1-

3. The greenhouse gas emission factor for Scope 3 is referenced from the National Renewable Energy Laboratory, Life Cycle Greenhouse Gas Emissions travel (by air and related accommodations).

4. The Global Warming Potential (GWP) is referenced from AR5

5. 2024 data, certified by an external agency, as shown in Attachment 3.

Greenhouse gas emission intensity per unit of electricity generation

BCPG defines the greenhouse gas emission intensity by calculating the ratio between the amount of greenhouse gas emissions and the electricity generation from projects in Thailand, which can be presented as follows:

The table shows the greenhouse gas emission intensity per unit of electricity generation for the electricity business in Thailand for the years 2019 (base year), 2023, and 2024.

	Unit	2019 (Base year)	2023	2024
Greenhouse gas emission intensity (Scope 1 and Scope 2) per unit of electricity production	**tCO_2e/ MWh**	**0.0055**	**0.0057**	**0.0060**
Greenhouse gas emission intensity (Scope 1, Scope 2, and Scope 3) per unit of electricity production	**tCO_2e/ MWh**	**0.0072**	**0.0074**	**0.0086**
Greenhouse gas emissions (Scope 1 and Scope 2)	tCO_2e	1,610	1,789	1,873
Greenhouse gas emissions (Scope 1, Scope 2, and Scope 3)	tCO_2e	2,125	2,328	2,697
Electricity produced / Electricity generation output	GWh	295	313	313

Organizational Greenhouse Gas Emission Reduction

Although BCPG's clean energy power generation business has low greenhouse gas emissions, the Company recognizes the importance of energy efficiency in production processes and operations. BCPG has implemented plans to reduce greenhouse gas emissions from its activities across the supply chain to achieve the United Nations Sustainable Development Goal (UN SDG) 13 on climate action. This includes utilizing efficient technologies, improving energy management systems in facilities through automation and energy consumption monitoring, adopting electric vehicles for equipment transportation, and selecting transportation routes that minimize distance and avoid heavy traffic. Additionally, BCPG focuses on enhancing and maintaining clean energy systems to ensure optimal performance and longevity of power generation equipment. The Company also promotes the development of energy storage technologies, such as batteries and Carbon Capture and Storage (CCS), for long-term sustainability. Furthermore, BCPG supports environmental restoration projects, including tree planting, mangrove reforestation, and forest rehabilitation. In 2024, the Company has undertaken the following projects to help reduce greenhouse gas emissions.

1. Pilot project for applying artificial intelligence in solar panel management

From BCPG's solar power plant operations in Thailand, continuous monitoring of power generation equipment is essential. However, due to ever-changing environmental conditions, manual inspections by personnel can be challenging and time-consuming, making it difficult to detect complex anomalies in solar panels. These issues could lead to revenue losses from reduced electricity generation. Recognizing this, BCPG has initiated a pilot project to implement AI and Big Data systems to enhance power plant monitoring efficiency. This technology enables the rapid and precise detection of solar panel abnormalities, such as panel degradation, dust accumulation, or shading effects. As a result, BCPG has been able to reduce electricity production losses, minimize on-site inspection time, and lower labor costs. Additionally, the Company has increased electricity output by 10% through optimized maintenance planning, including panel cleaning and vegetation management. This initiative also promotes the sustainable use of water resources.

2. Low Emission Support Scheme: LESS

In 2024, BCPG carried out greenhouse gas reduction activities under the Low Emission Support Scheme (LESS) in collaboration with the Thailand Greenhouse Gas Management Organization (TGO). These waste management initiatives align with BCPG's strategic plan and commitment to achieving carbon neutrality in its business operations and activities. The Company assigned the Occupational Health, Safety and Work Environment Committee, along with the Corporate Strategy Division, to oversee the program. The activities included waste segregation for recycling such as plastic, aluminum, and milk cartons collected from employees in office buildings, power plant projects, and employee residences. Drop-off points were established at M Tower, 15th floor, and power plant project sites to facilitate collection, sorting, and transfer to recycling service providers for environmentally friendly processing. The initiative, conducted from June 1 to October 31, 2024, successfully reduced greenhouse gas emissions by a total of 876 kilograms of CO_2 equivalent. This included 775 kilograms of CO_2 equivalent from general waste recycling and 101 kilograms of CO_2 equivalent from recycling milk or UHT cartons.

3. Carbon Neutral Event: BCPG's 1st Eco-Outing

BCPG is committed to supporting greenhouse gas reduction activities by prioritizing carbon-neutral events and raising environmental awareness among employees. In 2024, the Company participated in the Carbon Neutral Event certification program with the Thailand Greenhouse Gas Management Organization (TGO). This initiative promotes the procurement of carbon credits from greenhouse gas reduction projects in Thailand to offset emissions generated from event activities. Additionally, BCPG organized BCPG's 1st Eco-Outing from December 13-14, 2024, marking the first time the Company received Carbon Neutral Event certification. A total of 13 tonCO_2e carbon credits were used to offset the greenhouse gas emissions associated with the event.

4. Voluntary Greenhouse Gas Reduction Project under Thailand's T-VER Standard and Certification of The International REC (I-REC).

BCPG places great importance on reducing greenhouse gas emissions by participating in the Thailand Voluntary Emission Reduction Program (T-VER) with the Thailand Greenhouse Gas Management Organization (TGO). This initiative encourages and supports all sectors in voluntarily contributing to national greenhouse gas reduction efforts. The verified emission reductions, known as "carbon credits," can then be traded in the domestic voluntary carbon market. Presently, BCPG has been certified for a total of 744,423 tons of CO_2 equivalent per kilowatt-hour (tCO_2e/kWh) in carbon credits.

Additionally, BCPG has obtained Renewable Energy Certificates (RECs), which certify the right to produce electricity from renewable energy. These certificates are accredited by The International REC Standard (I-REC) in the Netherlands. Currently, the Electricity Generating Authority of Thailand (EGAT) is the sole certifying body in Thailand, supporting the generation of renewable electricity through the buying and selling of RECs. The trading unit is REC, calculated based on actual renewable electricity production (1 MWh of electricity equals 1 REC). BCPG has a certified and approved account as both a Registrant and a Participant. In 2024, the certified I-REC volume in Thailand amounted to 204,428.53 MWh, while in Lao PDR, it totaled 143,380.96 MWh.

BCPG is committed to transparently reporting and disclosing greenhouse gas emissions data in accordance with the GHG Protocol standard or the Task Force on Climate-related Financial Disclosures (TCFD) framework. This ensures that stakeholders are informed about the Company's overall efforts to reduce greenhouse gas emissions through its website. https://www.bcpggroup.com/en/sustainability/environmental-aspects#tcfd

Key performance in 2024

Sustainability operations	Goals	Performance
Carbon Neutrality	Achieve carbon neutrality in Thailand by the year 2030.	- Received certification for greenhouse gas emissions and carbon neutrality for operations in Thailand for the year 2023 from the Thailand Greenhouse Gas Management Organization (Public Organization) (TGO), for the second consecutive year (certified in 2024). - Awarded the Climate Action Leading Organization (CALO) Excellence Level, with the highest 3 gold medals (measure, reduce, and contribute).
Net Zero Greenhouse Gas Emissions	Achieve Net Zero greenhouse gas emissions by the year 2050.	

The image shows the certification for greenhouse gas emissions and carbon neutrality of operations in Thailand for the year 2023, issued by the Greenhouse Gas Management Organization (Public Organization) [TGO], which was certified in 2024. It also includes the award of the Honorary Plaque for the Climate Action Leading Organization (CALO).