
bcpg
The Green Life Journey
Accordance with the recommendation of the
Task force on Climate-Related Financial Disclosures (TCFD) 2023

Content

Introduction

Company Overview

BCPG Public Company Limited (BCPG), is one of Asia-Pacific's leading companies in clean energy with solar, hydro, wind and natural gas power located in Thailand, Japan, Taiwan, Laos, Vietnam, the Philippines and the United States.

Our Business

- Solar Power
- Wind Power
- Hydro Power
- Natural Gas
- Smart Energy
- Energy Infrastructure

Our Power Generation Portfolio

2,025.2 MW.
Contracted Capacity

1,249.9 MW	775.3 MW
Operating	Developing

Operating Capacity

Solar Power	Wind Power	Hydro Power	Natural Gas
735.5 MW.	318.7 MW.	114.0 MW.	857.0 MW.

About TCFD

The disclosure of our climate strategy is performed in accordance with Task force on Climate-related Financial Disclosures (TCFD) comprising of four main aspects: Governance, Strategy, Risk Management, and Metrics and Targets.

Governance

The organization's governance around climate-related risks and opportunities

Strategy

The actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning

Risk Management

The processes used by the organization to identify, assess, and manage climate-related risks

Metrics and Targets

The metrics and targets used to assess and manage relevant climate-related risks and opportunities

Source: Framework by Task Force on Climate Related Financial Disclosures (TCFD), https://www.fsb-tcfd.org/

Governance

Management Structure

Board Directors

Corporate Governance and Sustainable Development Committee (CGCDC)

- Propose corporate governance and sustainable development practices including climate-related issues.
- Supervise the performance of the Board of Directors and the management with good corporate governance and sustainable development principles.
- Review good corporate governance and sustainable development practices including climate change guideline using TCFD and making recommendations to the Board of Directors for continuous improvement.
- Perform duties as assigned by the Board of Directors.

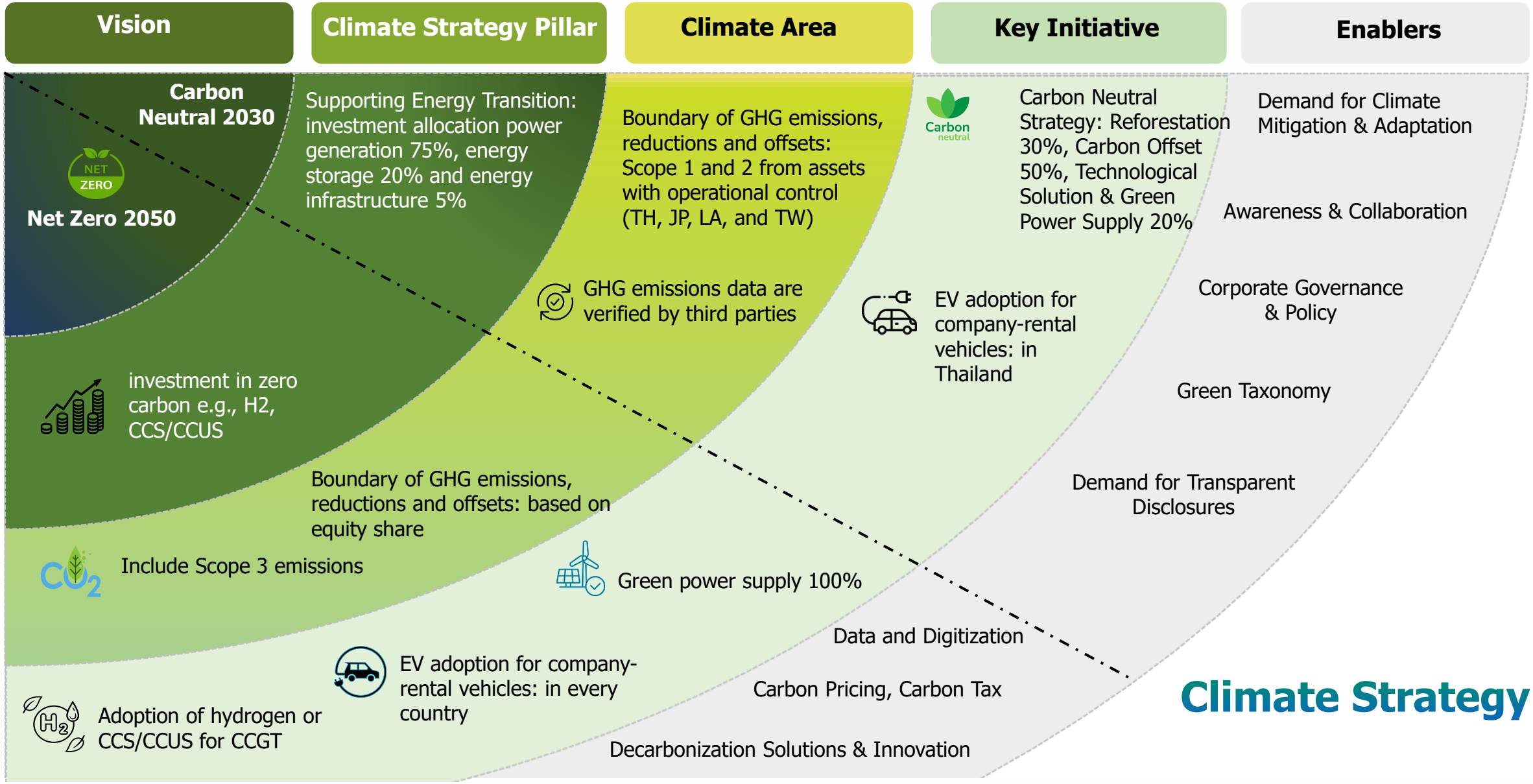
Enterprise-wide Risk Management Committee (ERMC)

- Propose risk management policy, strategy and targets for climate-related risk management.
- Supervise risk management plans to be at an acceptable level.
- Promote cooperation in risk management at all levels of the organization.
- Report to the Board of Directors acknowledge.
- Perform duties as assigned by the Board of Directors

Corporate Sustainability Committee (CSC)

- Review climate-related risks and opportunities management performance.
- Provide recommendations on sustainable development policies, further strategy or action plans, and targets of Carbon Neutrality by 2030 and Net Zero GHG emission by 2050.
- Report to Corporate Governance and Sustainable Development Committee (CGSDC) and Enterprise-wide Risk Management Committee (ERMC).

Strategy


Vision
Climate Strategy Pillar
Climate Area
Key Initiative
Enablers
Carbon Neutral 2030
NET ZERO
Net Zero 2050
Supporting Energy Transition: investment allocation power generation 75%, energy storage 20% and energy infrastructure 5%
Boundary of GHG emissions, reductions and offsets: Scope 1 and 2 from assets with operational control (TH, JP, LA, and TW)
Carbon neutral
Carbon Neutral Strategy: Reforestation 30%, Carbon Offset 50%, Technological Solution & Green Power Supply 20%
Demand for Climate Mitigation & Adaptation
Awareness & Collaboration
GHG emissions data are verified by third parties
EV adoption for company-rental vehicles: in Thailand
Corporate Governance & Policy
Green Taxonomy
investment in zero carbon e.g., H2, CCS/CCUS
Boundary of GHG emissions, reductions and offsets: based on equity share
Demand for Transparent Disclosures
Include Scope 3 emissions
Green power supply 100%
Data and Digitization
EV adoption for company-rental vehicles: in every country
Carbon Pricing, Carbon Tax
Adoption of hydrogen or CCS/CCUS for CCGT
Decarbonization Solutions & Innovation
Climate Strategy

Scope of Assessment:

With reference to TCFD recommendations, we conduct scenario analysis of the following assets to anticipate the impact of climate change on our business. This was made possible thanks to the collaboration among different business units e.g., Operation, Finance and Asset Management.

Solar & Wind Power (17 Sites)

Hydro Power (1 Sites)

Natural Gas Power (4 Sites)

Energy Infrastructure (1 Site)

GHG Reduction 20% in 2025

Carbon neutral

Carbon Neutral by 2030

NET ZERO

Net Zero by 2050

Transition Scenario Analysis

Risks Type	Scenarios		Source	Time Horizons
Transition *	Stated Policies Scenario (STEPS) Current trajectory based on the stated climate policy ambitions, represents business as usual towards 2050.	Announced Pledges Scenario (APS) Aligned with the Paris Agreement to limit warming to "well below 2°C", assumes all climate commitments will be met.	- World Energy Outlook 2023 (WEO) - International Energy Agency (IEA WEO2023)	Short term: 2023-2025 Medium term: 2030 Long term: 2050

* Including : Asset in USA, Japan, Philippines, and Taiwan

Carbon Price				
USD (2022) per ton of CO_2	**2025**	**2030**	**2040**	**2050**
Thailand-SDS	5	17	40	80
Thailand-NZE	5	17	60	160
EU-IEA SDS	63	89	140	227
EU-IEA NZE	76	130	205	250

We assume Thailand's carbon taxes based on the study published by Thailand Greenhouse Gas Management Organization (TGO), World Economic Outlook published by IEA, and discussion with the officials of TGO.

In both SDS and NZE scenario, we assume Thailand will implement carbon tax in year 2025 with the initial price of USD 5/t CO_2 and gradually increase to USD 17/t CO, in 2030.

EU carbon prices are based on International Energy Agency (IEA) on both SDS and NZE scenarios

Physical Scenario Analysis

Risks Type	Physical Risks	Technology	Indicator	Climate Scenario	Timeframe	Tool
Acute	Flood	Solar	Rainfall	IPCC SSP1-2.6, SSP5-8.5	Short term: 2023-2025 Medium term: 2030 Long term: 2050	Climate Change Knowledge Portal
	Drought	Hydro, Solar	Rainfall			
	Water Stress	Hydro, Solar	Water use Water supply			Aqueduct (World Resources Institute)
	Cyclone	Wind	Wind speed		Short term: 2023-2025	ThinkHazard! (Global Facility for Disaster Reduction and Recovery)
	Landslide	Hydro	Rainfall		Short term: 2023-2025	
	Earthquake	Hydro	Acceleration (PGA)		Short term: 2023-2025	
Chronic	Rising sea levels	Energy Infrastructure	Rainfall		Short term: 2023-2025 Medium term: 2030 Long term: 2050	Climate Change Knowledge Portal
	Rising mean temperatures	Solar	Mean temperatures			

Remark : Excluding operations in USA, Japan, Philippines, and Taiwan

Physical Risk Baseline

" We used Think Hazard (qualitative assessment methodology) to identify hazard baseline and used CCKP (Climate Change Knowledge Portal by World Bank) to project change under SSP1-2.6 and SSP5-8.5 scenarios in 2025, 2030, and 2050 timeframes "

Solar Power

	Flood	Drought	Cyclone
Ang Thong (1 Site)	H	M	L
Buriram (2 Site)	L	VL	L
Chaiyaphum (2 Site)	M	VL	L
Kanchanaburi (3 Site)	H	L	M
Lopburi (1 Site)	L	M	L
Nakhon Ratchasima (1 Site)	M	M	L
Phra Nakhon Si Ayutthaya (4 Site)	H	M	M
Prachinburi (2 Site)	H	L	L
Saraburi (1 Site)	L	M	L

Wind Power

	Flood	Drought	Cyclone
Nakhon Si Thammarat (1 Site)	H	VL	H

Energy Infrastructure (Oil Terminal)

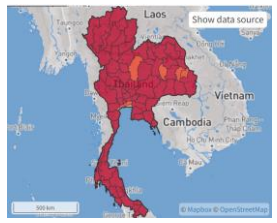
	Flood	Drought	Cyclone
Phetchaburi (1 Site)	M	M	H

Hydro Power

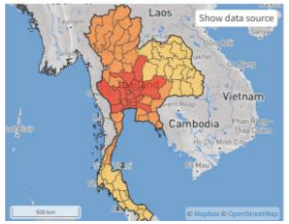
	Flood	Drought	Landslide	Earthquake
Xiang Khouang : Khoune (1 Site)	H	M	H	VL
Xiang Khouang :Thathom (1 Site)	VL	M	H	L

ThinkHazard!

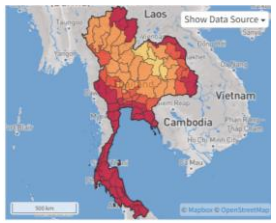
Risk Score Color Key by ThinkHazard: High | Medium | Low | Very low



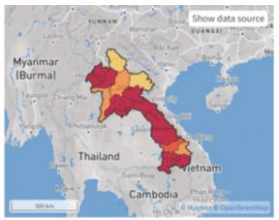
Flood : High



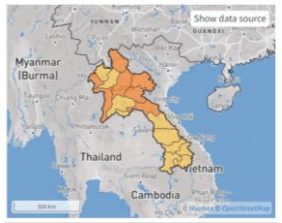
Drought : Medium



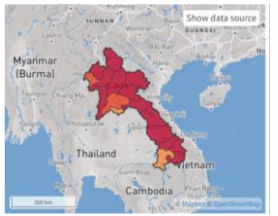
Cyclone : High



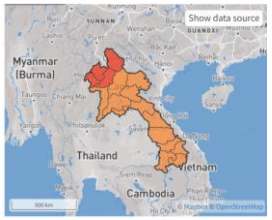
Flood : High



Drought : Low



Landslide : High



Earthquake : Medium

Likelihood Criteria

Risk	Opportunity	Likelihood
4 Very High	4 Very High	Almost Certain during the considered timeframe
3 High	3 High	Possible during the considered timeframe
2 Medium	2 Medium	Unlikely during the considered timeframe
1 Low	1 Low	Rare during the considered timeframe

Transition Risk Assessment

Risks Type	Climate Scenario	Risk	Likelihood			Potential Financial Impact	Business unit	Financial Type
			2023 - 2025	2026 - 2030	2031 - 2050			
R1: Policy and regulation	**STEPS IEA: NZE**	• Increased pricing of GHG or carbon tax • Enhanced emission-reporting obligation				• Increased operational costs [e.g., additional expenses for new compliance / reporting standard] • Write-offs, asset impairment and early retirement of existing assets due to policy changes [e.g., additional CAPEX for CCGT in US for winterization] • Reduced demand for products and services resulting from regulations [e.g., carbon tax in Thailand may lead to lower oil consumption]	• Solar • CCGT • Hydro • Energy infrastructure	- OPEX - CAPEX - EBITDA - Revenue
R2: Technology	**STEPS IEA: NZE**	• Costs to transition to low emission technology				• Write-offs and early retirement of existing assets • Reduced demand for products and services [e.g., lower demand for oil] • Costs to adopt new technology [e.g., additional CAPEX for adopting low-emission technology] • R&D expenditures in new or alternative technologies	• Solar • CCGT • Hydro • Energy infrastructure	- OPEX - CAPEX - EBITDA - Revenue

Low | Medium | High | Very High

Transition Risk Assessment

Risks Type	Climate Scenario	Risk	Likelihood			Potential Financial Impact	Business unit	Financial Type
			2023 - 2025	2026 - 2030	2031 - 2050			
R3: Market	**STEPS IEA: NZE**	• Changing customer behaviors • Increased cost of raw materials (e.g., water, energy)				• Reduced demand for products and services [e.g., lower demand for oil] • Increased costs from changing input prices and output requirements [e.g., higher cost of fresh water in water-stressed areas] • Re-pricing of assets [e.g., lower demand for oil or early oil peak may affect useful life of some energy infrastructure]	• Solar • Hydro • Energy infrastructure	- OPEX - CAPEX - EBITDA - Revenue
R4: Reputation	**STEPS IEA: NZE**	• Shifts in consumer preferences • Increased stakeholder concerns				• Reduced demand for products and services [e.g., Consumers are showing a growing interest in environmentally friendly products with a focus on ESG.] • Increased cost from negative impacts on workforce management and planning [new sectors e.g., CCS/CCUS may attract our employees, thereby leading to higher cost for attraction and retention]	• Energy infrastructure	- OPEX - CAPEX - EBITDA - Revenue

Low **Medium** **High** **Critical**

Physical Risk Assessment

Risks Type	Climate Scenario	Risk	Likelihood			Potential Financial Impact	Business unit	Financial Type
			2023 - 2025	2026 - 2030	2031 - 2050			
R5: Acute	**SSP1 – 2.6** **SSP5 – 8.5**	• Increased severity of extreme weather events such as flood, drought, tropical cyclone, landslide, and earthquake				• Decreased company revenue • Increased operating costs from maintenance and repairs, labor and equipment damage • Increased insurance premiums or reduced insurability in high-risk areas • Write-offs and early retirement of damaged assets or property • Increased operating cost • Increased CAPEX for damaged facilities	• Solar • Hydro • Energy infrastructure	- OPEX - CAPEX - EBITDA - Revenue
R6: Chronic	**SSP1 – 2.6** **SSP5 – 8.5**	• Long-term shifts in climate change (e.g., sustained higher temperature) causing sea level rise or chronic heat waves						

Low **Medium** **High** **Critical**

Opportunity Assessment

Opportunity	Climate Scenario	Opportunity	Likelihood			Potential Financial Impact	Strategic Response	Financial Type
			2023 - 2025	2026 - 2030	2031 - 2050			
O1: Resource Efficiency	**STEPS IEA: NZE**	• Use of more efficient buildings • Use of recycling				• Reduced operating cost [e.g., more efficient equipment leads to lower OPEX] • Increased revenue from energy-efficient products [e.g., district cooling, solar rooftop] • Increased value of fixed assets	• Market penetration to provide Decarbonizing Solutions to clients	- OPEX - CAPEX - EBITDA - Revenue
O2: Energy Source	**STEPS IEA: NZE**	• Use of low-emission sources of energy • Participation in carbon market • Shift towards decentralized energy generation				• Increased revenue from low-emission products [e.g., solar rooftop, district cooling, battery] • Increased capital availability [e.g., increasing green bonds in the market] • Increased investment opportunities from low-emission technology	• Collaboration with strategic partners for investment in battery value chain • Market penetration to provide Decarbonizing Solutions to clients	- CAPEX - EBITDA - Revenue
O3: Products & Services	**STEPS IEA: NZE**	• Development or expansion of low-emission products • Development of climate adaptation solutions				• Increased revenue from demand for low-emission products & climate adaptation solutions [e.g., battery, district cooling, solar rooftop] • Better & competitive position to reflect shifting consumer preferences, resulting in increased revenue	• Collaboration with strategic partners for investment in battery value chain • Market penetration to provide Decarbonizing Solutions to clients	- OPEX - CAPEX - EBITDA - Revenue

Low Medium High Very High

Opportunity Assessment

Opportunity	Climate Scenario	Opportunity	Likelihood			Potential Financial Impact	Strategic Response	Financial Type
			2023 - 2025	2026 - 2030	2031 - 2050			
O4: Markets	**STEPS IEA: NZE**	• Access to new markets • Use of policy incentives				• Increased revenue from accessing to new or emerging markets • Increased diversification of financing [e.g., green bonds, sustainability-linked bonds]	• Closely monitor new/future legislation related to sustainability including Taxonomy • Make sure that business activities aligned with Taxonomy • Continuously disclose information e.g., risk assessment, emission & mitigation plans, climate-resilient business strategies	- OPEX - CAPEX - EBITDA - Revenue
O5. Resilience	**STEPS IEA: NZE**	• Adopting renewable energy and energy efficiency measures • Resource diversification				• Increased revenue from products ensuring resilience [e.g., battery, decentralized power generation] • Increased reliability and ability to operate under various conditions [e.g., no major impact on revenue when fossil fuel prices rise from external factors such as wars] • Increased market valuation or reputation via resilience planning [e.g., stock investors see our company as a safe choice for investment]	• Continuously disclose information e.g., risk assessment, emission & mitigation plans, climate-resilient business strategies • Market penetration to provide Decarbonizing Solutions to clients	- EBITDA - Revenue

Low | Medium | High | Very High

Climate Risk Management

Enterprise Risk Management Framework & Climate-related Risks

BCPG conducts context-specific qualitative and quantitative scenario analysis of climate-related risks including both physical and transition risks in accordance with Enterprise Risk Management Framework - COSO ERM 2017.

1. Target Setting
2. Risk Identification
3. Risk Assessment
4. Risk Response
5. Monitoring & Reporting

Strategic Risk

- Impact to corporate and business strategy; i.e., business trend, technology change, demand-supply, customer retention, competition , partner loss, etc.

Operational Risk

- Impact to internal processes, people and systems; i.e., production process , operating controls, HR, IT, etc.

Financial Risk

- Changes to the economic and financial environment i.e., FX, interest rate, price, debt, tax rate and accounting problems.

Environmental and Reputational Risk

- Impact to image and goodwill of the company; i.e., security, environmental concern, social responsibility, compliance and fraud risk , and complains from clients and stakeholders.

Climate-related Risk liked to Corporate Risk

Financial Impact Criteria

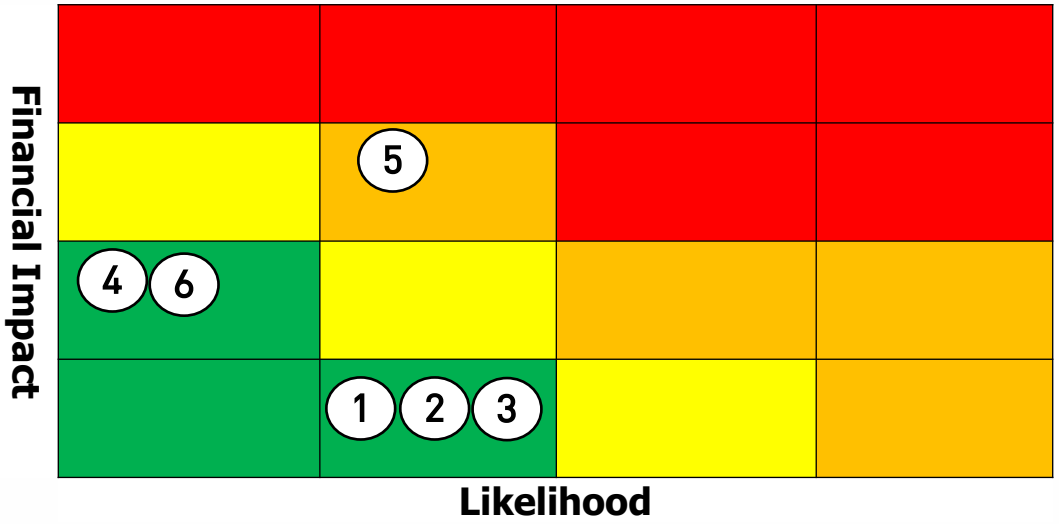
Risk	Financial Impact*
4 Critical	- Lower EBITDA, Revenue or Profit after Tax (PAT) >10%
3 High	- Lower EBITDA, Revenue or Profit after tax (PAT) >5% -10%
2 Medium	- Lower EBITDA, Revenue or Profit after tax (PAT) >1% - 5%
1 Low	- Lower EBITDA, Revenue or Profit after tax (PAT) ≤1%

Opportunity	Financial Impact*
4 Very High	+ Increase EBITDA, Revenue or Profit after Tax (PAT) >10%
3 High	+ Increase EBITDA, Revenue or Profit after Tax (PAT) >5% - 10%
2 Medium	+ Increase EBITDA, Revenue or Profit after Tax (PAT) >1% - 5%
1 Low	+ Increase EBITDA, Revenue or Profit after Tax (PAT) ≤1%

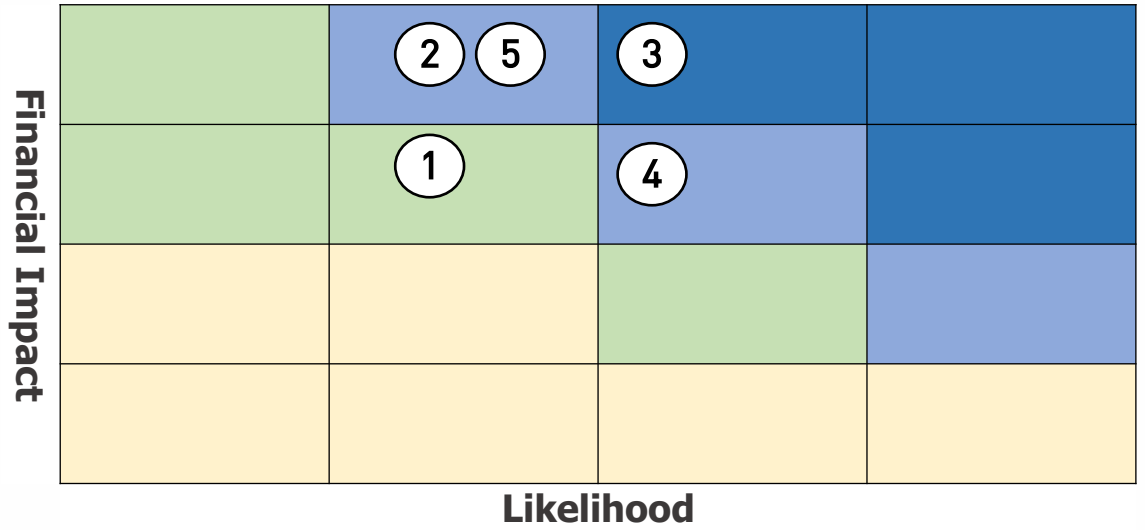
*Reference: Financial Statements 2022

Risk and Opportunity Assessment during Timeframe 2023-2025

Risk Assessment



Opportunity Assessment



Transition Risks
R1: Policy and regulation
R2: Technology
R3: Market
R4: Reputation

Physical Risks
R5: Acute (flood, drought, tropical cyclone, landslide, and earthquake)
R6 : Chronic (sea level and temperature)

Opportunity
O1: Resource Efficiency
O2: Energy Source
O3: Products & Services
O4: Markets
O5: Resilience

Transition Risk Management (Timeframe 2023-2025)

Issue	Climate Scenario	Business unit	Risk	Risk Level *(LxI)	Risk Response	Key risk indicators
R1: Policy and regulation	**STEPS IEA: NZE**	- CCGT - Hydro - Energy infrastructure	• Increased pricing of GHG or carbon tax • Enhanced emission-reporting obligation	Low (2,1)	**Existing:** • Closely monitor climate-related policy and regulation in Thailand & US • Regularly conduct portfolio stress test **New:** • Implement emission reduction programs e.g., EV adoption • Establishing a systematic GHG management and GHG monitoring system	• Carbon price / carbon tax • Cost saving from implementing low carbon activities
R2: Technology	**STEPS IEA: NZE**	- CCGT - Energy storage - Energy infrastructure	• Costs to transition to low emission technology	Low (2,1)	**Existing:** • Monitoring technological trends and cost of new technology • Launch Decarbonizing Solutions	• Cost saving from implementing low carbon activities

Low / Accept Medium High Critical

Transition Risk Management (Timeframe 2023-2025)

Issue	Climate Scenario	Business unit	Risk	Risk Level (LxI)	Risk Response	Key risk indicators
R3: Market	**STEPS IEA: NZE**	- CCGT - Energy infrastructure	• Changing customer behaviors • Increased cost of environmental protection	Low (2,1)	**Existing:** • Monitor power & energy trends • Launch Decarbonizing Solutions • Monitor demand for domestic oil consumption	• Domestic oil consumption • Cost of environmental protection
R4: Reputation	**STEPS IEA: NZE**	- CCGT - Energy infrastructure	• Shifts in consumer preferences • Increased stakeholder concerns	Low (1,2)	**New:** • Ensure transparency through disclosure such as TCFD report • Regularly communicate with stakeholders (investors, initiatives, NGOs, business affiliates)	• Zero complain • ESG Rating • Credit Rating

Low / Accept Medium High Critical

Physical Risk Management (Timeframe 2023-2025)

Issue	Climate Scenario	Business unit	Risk	Risk Level (LxI)	Risk Response	Key risk indicators
R5: Acute	**SSP1 – 2.6 SSP5 – 8.5**	- Solar - Hydro	• Increased severity of extreme weather events such as flood, drought, tropical cyclone, landslide, and earthquake	High (2,3)	**Existing :** • Prepare a natural disaster risk assessment and management plan before starting each investment • Obtain insurance to cover loss of income (All Risk and Business Interruption Program) • Prepare a recovery plan for natural disasters • Weather forecast and closely monitor on a daily, monthly, and yearly basis as appropriate **New:** • Develop a business continuity plan (BCP) and business continuity management (BCM) system which cover major operations • Conduct training and create a crisis management plan to limit the consequences of an emergency • Expand sources of water supply for hydro power business	• Rainfall • Water Stress
R6: Chronic	**SSP1 – 2.6 SSP5 – 8.5**	- Hydro - Energy infrastructure	• Long-term shifts in climate change (e.g., sustained higher temperature) causing sea level rise or chronic heat waves	Low (1,2)		• Max Number of Consecutive Dry Days (Hydro, Laos only) • Mean sea level (Phetchaburi, Thailand only)

Low / Accept Medium High Critical

Opportunity Management (Timeframe 2023-2025)

Issue	Climate Scenario	Business unit	Opportunity	Opportunity Level (LxI)	Opportunity Response	Opportunity indicators
O1: Resource Efficiency	**STEPS IEA: NZE**	- Solar - Energy storage	• Use of more efficient buildings	Medium (2,3)	**Existing :** • Promote investment in solar rooftop, battery and decarbonizing solutions • Increase workforce capabilities for new low-emission technologies • Collaboration with strategic partners to provide climate-related products and services • Develop carbon credit trading platform	• Power price • Carbon tax • Low-emission technology cost • National Energy Policy • Corporate Climate / Sustainability Policy
O2: Energy Source	**STEPS IEA: NZE**	- Solar - Energy storage	• Use of low-emission sources of energy • Participation in carbon market • Shift towards decentralized energy generation	High (2,4)		
O3: Products & Services	**STEPS IEA: NZE**	- Solar - Energy storage	• Development or expansion of low-emission products • Development of climate adaptation solutions	Very High (3,4)		

Low | Medium | High | Very High

Opportunity Management (Timeframe 2023-2025)

Issue	Climate Scenario	Business unit	Opportunity	Opportunity Level (LxI)	Opportunity Response	Opportunity indicators
O4: Markets	**STEPS IEA: NZE**	- Solar - Energy storage	• Access to new markets • Use of policy incentives	High (3,3)	**Existing :** • Increase investment in decentralized power generation e.g., solar, energy storage and decarbonizing solutions • Explore investment opportunities in developing/emerging countries where there are supportive policies or incentives **New :** • Long-term: Investment in value chains of hydrogen production and/or CCS/CCUS	• Power price • Carbon tax • National Energy Policy • Corporate Climate / Sustainability Policy
O5: Resilience	**STEPS IEA: NZE**	- Solar - Energy storage	• Adopting renewable energy and energy efficiency measures • Resource diversification	High (2,4)		

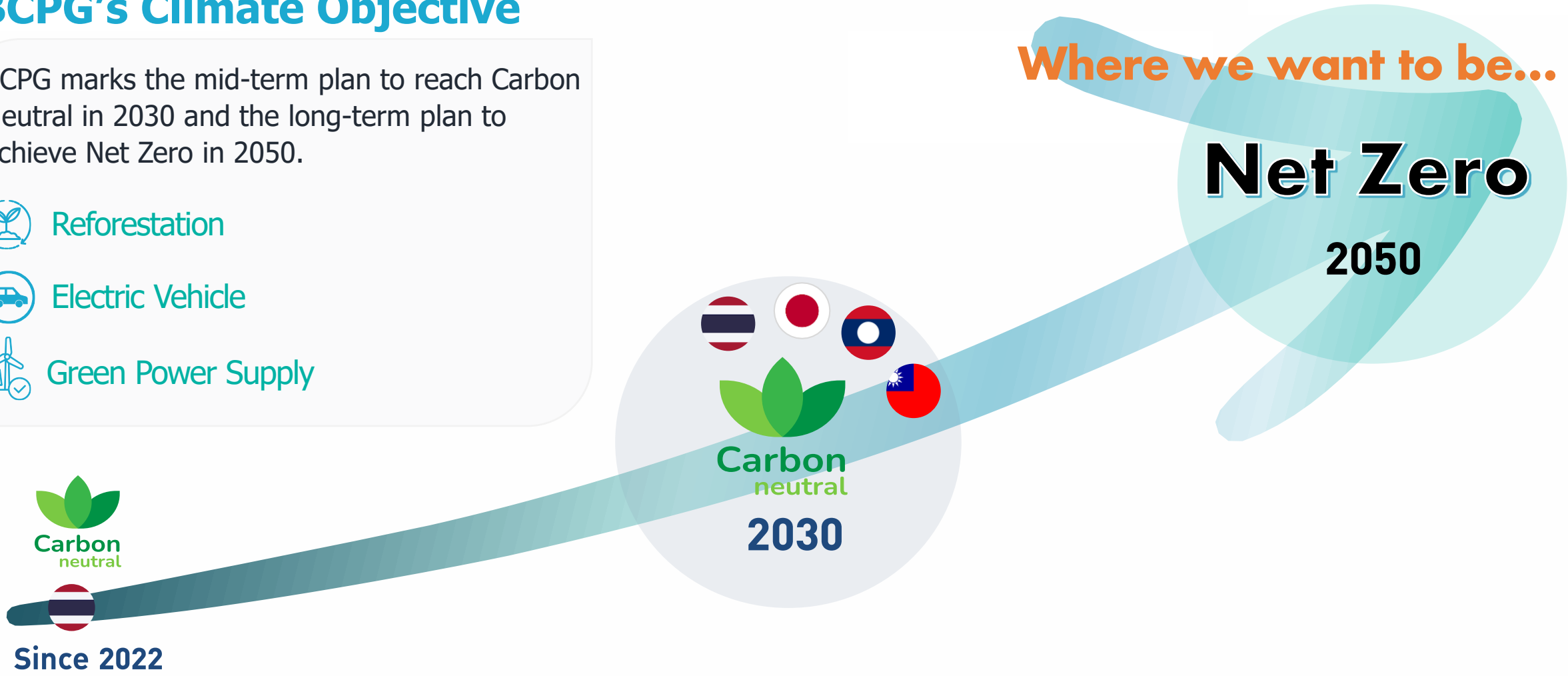
Low Medium High Very High

Metrics and Targets

BCPG's Climate Objective

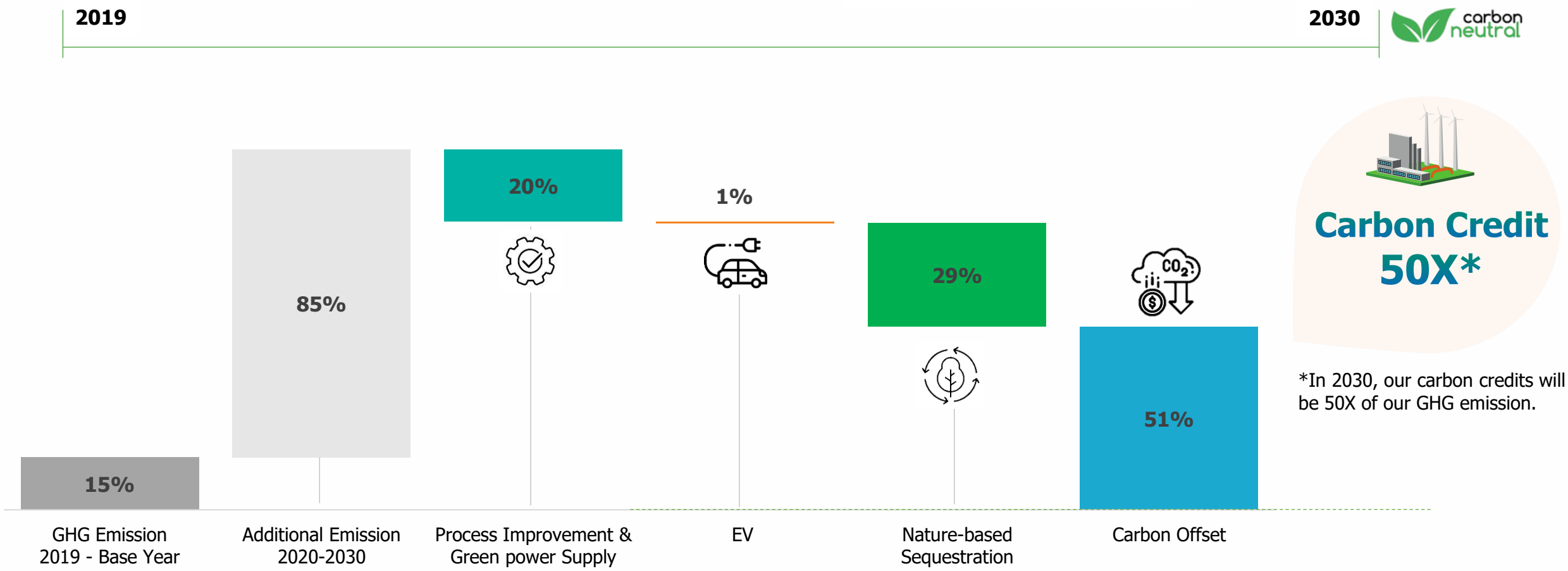
BCPG marks the mid-term plan to reach Carbon Neutral in 2030 and the long-term plan to achieve Net Zero in 2050.

- Reforestation
- Electric Vehicle
- Green Power Supply



Pathway to Carbon Neutral in 2030

BCPG is committed to achieve Carbon Neutral for emission Scope 1 and 2 by 2030. Four primary methods are used: process improvement & green power supply, electric vehicles (EV), nature-based sequestration through reforestation and carbon offset.



Carbon Credit 50X*

*In 2030, our carbon credits will be 50X of our GHG emission.

Appendices

Physical Risk Baseline by ThinkHazard Tool

We used Think Hazard (qualitative assessment methodology) to categorize hazard baseline and used CCKP (Climate Change Knowledge Portal by World Bank) to project change under SSP1-2.6 and SSP5-8.5 scenarios in 2025, 2030, and 2050 timeframes.

No.	Company Name	Location			Technology	Think Hazard evaluator								
		District	Province	Country		River flood	Urban flood	Coastal flood	Earthquake	Landslide	Tsunami	Volcano	Cyclone	Water scarcity
1	Bangchak Solar Energy (Prachinburi) Co., Ltd.	Wiset Chai Chan	Ang Thong	Thailand	Solar	H	H	N/A	L	VL	N/A	N/A	L	M
2	Bangchak Solar Energy (Buriram 1) Co., Ltd.	Nong Ki	Buriram	Thailand	Solar	L	L	N/A	L	VL	N/A	N/A	L	VL
3	Bangchak SolarEnergy (Buriram) Co., Ltd.	Prakhon Chai	Buriram	Thailand	Solar	L	L	N/A	L	VL	N/A	N/A	L	VL
4	Bangchak Solar Energy (Chaiya- phum 1) Co., Ltd.	Bamnet Narong	Chaiyaphum	Thailand	Solar	L	M	N/A	L	VL	N/A	N/A	L	VL
5	Bangchak Solar Energy Co., Ltd.	Bamnet Narong	Chaiyaphum	Thailand	Solar	L	M	N/A	L	VL	N/A	N/A	L	VL
6	BCPG PCL.	Tha Muang	Kanchanaburi	Thailand	Solar	H	M	N/A	L	VL	N/A	N/A	M	L
7	BSE Power (Kanjanaburi) Co., Ltd.	Bo Phloi	Kanchanaburi	Thailand	Solar	H	H	N/A	L	L	N/A	N/A	M	L
8	BSE Power (Kanjanaburi 1) Co., Ltd.	Bo Phloi	Kanchanaburi	Thailand	Solar	H	H	N/A	L	L	N/A	N/A	M	L
9	BSE Power (Lopburi) Co., Ltd.	Khok Samrong	Lopburi	Thailand	Solar	L	L	N/A	L	L	N/A	N/A	L	M
10	Bangchak Solar Energy (Nakhon Ratchasima) Co., Ltd.	Dan Khun Thot	Nakhon Ratchasima	Thailand	Solar	L	L	N/A	L	VL	N/A	N/A	L	M
11	BCPG PCL.	Bang Pa-In	Phra Nakhon Si Ayutthaya	Thailand	Solar	N/A	H	N/A	L	VL	N/A	N/A	M	M
12	Bangchak Solar Energy Co., Ltd.	Bang Pa-In	Phra Nakhon Si Ayutthaya	Thailand	Solar	N/A	H	N/A	L	VL	N/A	N/A	M	M
13	Bangchak Solar Energy (Prachinburi) Co., Ltd.	Bang Pa-In	Phra Nakhon Si Ayutthaya	Thailand	Solar	N/A	H	N/A	L	VL	N/A	N/A	M	M
14	BCPG Wind (Ligor) Co., Ltd.	Pak Phanang	Nakhon Si Thammarat	Thailand	Wind	H	H	H	L	VL	L	N/A	H	VL
15	Bangchak Solar Energy (Prachinburi) Co., Ltd.	Bang Pa-In	Phra Nakhon Si Ayutthaya	Thailand	Solar	N/A	H	N/A	L	VL	N/A	N/A	M	M
16	Bangchak Solar Energy (Prachinburi) Co., Ltd.	Kabin Buri	Prachinburi	Thailand	Solar	H	H	N/A	L	VL	N/A	N/A	L	L
17	BSE Power (Prachinburi) Co., Ltd.	Muang	Prachinburi	Thailand	Solar	H	H	N/A	L	VL	N/A	N/A	L	L
18	BCPG PCL.	Phra Phutthabat	Saraburi	Thailand	Solar	M	L	N/A	L	H	N/A	N/A	L	M
19	Asia Link Terminal Co., Ltd.	Ban Laem	Phetchaburi	Thailand	Infrastructure	M	L	H	L	VL	L	N/A	H	L
20	Nam San 3A	Khoune	Xiang Khouang	Lao PDR	Hydro	VL	H	N/A	VL	H	N/A	N/A	H	L
21	Nam San 3B	Thathom	Xiang Khouang	Lao PDR	Hydro	H	VL	N/A	L	H	N/A	N/A	H	L

Risk Score Color Key by ThinkHazard			
High	Medium	Low	Very low

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Category	TCFD Recommendation	Page
Governance	a) Describe the board's oversight of climate related risks and opportunities	7
	b) Describe management's role in assessing and managing climate related risks and opportunities.	
Strategy	a) Describe the climate-related risks and opportunities the company has identified over the short, medium, and long term.	9-19
	b) Describe the impact of climate-related risks and opportunities on the company's businesses, strategy, and financial planning.	
	c) Describe the resilience of the company's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	
Risk Management	a) Describe the company's processes for identifying and assessing climate-related risks.	21-28
	b) Describe the company's processes for managing climate-related risks.	
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the company's overall risk management.	
Metrics and Targets	a) Disclose the metrics used by the company to assess climate-related risks and opportunities in line with its strategy and risk management process.	30-31
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions and the related risks.	
	c) Describe the targets used by the company to manage climate-related risks and opportunities and performance against targets.	

TCFD Glossary and Abbreviations

Glossary	Description
Board of Director (or Board)	Refers to a body of elected or appointed members who jointly oversee the activities of a company or organization. Some countries use a two-tiered system where "board" refers to the "supervisory board" while "key executives" refers to the "management board."
Climate – Related Opportunity	Refers to the potential positive impacts related to climate. change on an organization. Efforts to mitigate and adapt to climate change can produce, opportunities for organizations, such as through resource efficiency and cost savings, the adoption and utilization of low-emission energy sources, the development of new products and services, and building resilience along the supply chain , The Climate-related opportunities will vary depending on the region, market, and industry in which an organization operates.
Climate – Related Risk	Refers to the potential negative impacts of climate change on an organization. Physical risks emanating from climate change can be event-driven (acute) such as increased severity of extreme weather events (e.g., cyclones, droughts, floods, and fires). They can also relate to longer-term shifts (chronic) in precipitation and temperature and increased variability in weather patterns (e.g., sea level rise).
Governance	Refers to "the system by which an organization is directed and controlled in the interests of shareholders and other stakeholders." "Governance involves a set of relationships between an organization's management, its board, its shareholders, and other stakeholders ,Governance provides the structure and processes through which the objectives of the organization are set, progress against performance is monitored, and results are evaluated.
Green House Gas (GHG) Emission Scope levels	Scope 1 refers to all direct GHG emissions. Scope 2 refers to indirect GHG emissions from consumption of purchased electricity, heat, or steam. Scope 3 refers to other indirect emissions not covered in Scope 2 that occur in the value chain of the reporting company, including both upstream and downstream emissions. Scope 3 emissions could include: the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g., transmission and distribution losses), outsourced activities, and waste disposal.

Source : Recommendations of the Task Force on Climate-related Financial Disclosures (2017) , website//www.fsb-tcfd.org/publications/

Physical Scenario and Definition

Risk Type	Physical Risk	Indicator	Definition	Source
Acute	Flood	Rainfall	The overflowing of the normal confines of a stream or other body of water, or the accumulation of water over areas not normally submerged. Floods include river (fluvial) floods, flash floods, urban floods, pluvial floods, sewer floods, coastal floods and glacial lake outburst floods.	Climate Change Knowledge Portal
	Drought	Rainfall	a period of abnormally dry weather long enough to cause a serious hydrological imbalance. Drought is a relative term; therefore, any discussion in terms of precipitation deficit must refer to the precipitation-related activity that is under discussion.	Climate Change Knowledge Portal
	Water Stress	Water use Water supply	Water stress measures the ratio of total water demand to available renewable surface and groundwater supplies. Water demand include domestic, industrial, irrigation, and livestock uses. Available renewable water supplies include the impact of upstream consumptive water users and large dams on downstream water availability. Higher values indicate more competition among users.	Aqueduct (World Resources Institute)
	Cyclone	Wind speed	Cyclones, a non-frontal storm system that is characterized by a low-pressure center, spiral rain bands and strong winds. Usually, it originates over tropical or subtropical waters and rotates clockwise in the southern hemisphere and counter-clockwise in the northern hemisphere.	Think Hazard
	Landslide	Rainfall	A landslide is the movement of natural soil and rocks controlled by gravity. Landslides can involve dry mass or wet mass. Dry mass movements can be triggered by violent geophysical hazards such as earthquakes and volcanic eruptions, but they can also be a consequence of water scarcity and soil erosion. Differently, wet mass movements (mudslides) are more often caused by heavy precipitation or ice melting. Landslides are associated with other hazards such as floods, tropical cyclones, and severe local storms.	Think Hazard
	Earthquake	Acceleration (PGA)	Earthquakes usually happens along a fault plate, the border between tectonic plates. Earthquakes often trigger landslides, tidal waves and tsunamis. Powerful aftershocks frequently occur, causing further damage and increasing psychological stress.	Think Hazard
Chronic	Rising sea levels	Rainfall	Rising sea levels is increases in the height of the sea with respect to a specific point on land.	Climate Change Knowledge Portal
	Rising mean temperatures	Mean temperatures	Global temperature is an average of air temperature recordings from weather stations on land and sea as well as some satellite measurements. Extreme temperature events (i.e., maximum, minimum) may have short-term durations of a few days with temperature increases of over 5°C above the norma temperatures.	Climate Change Knowledge Portal

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