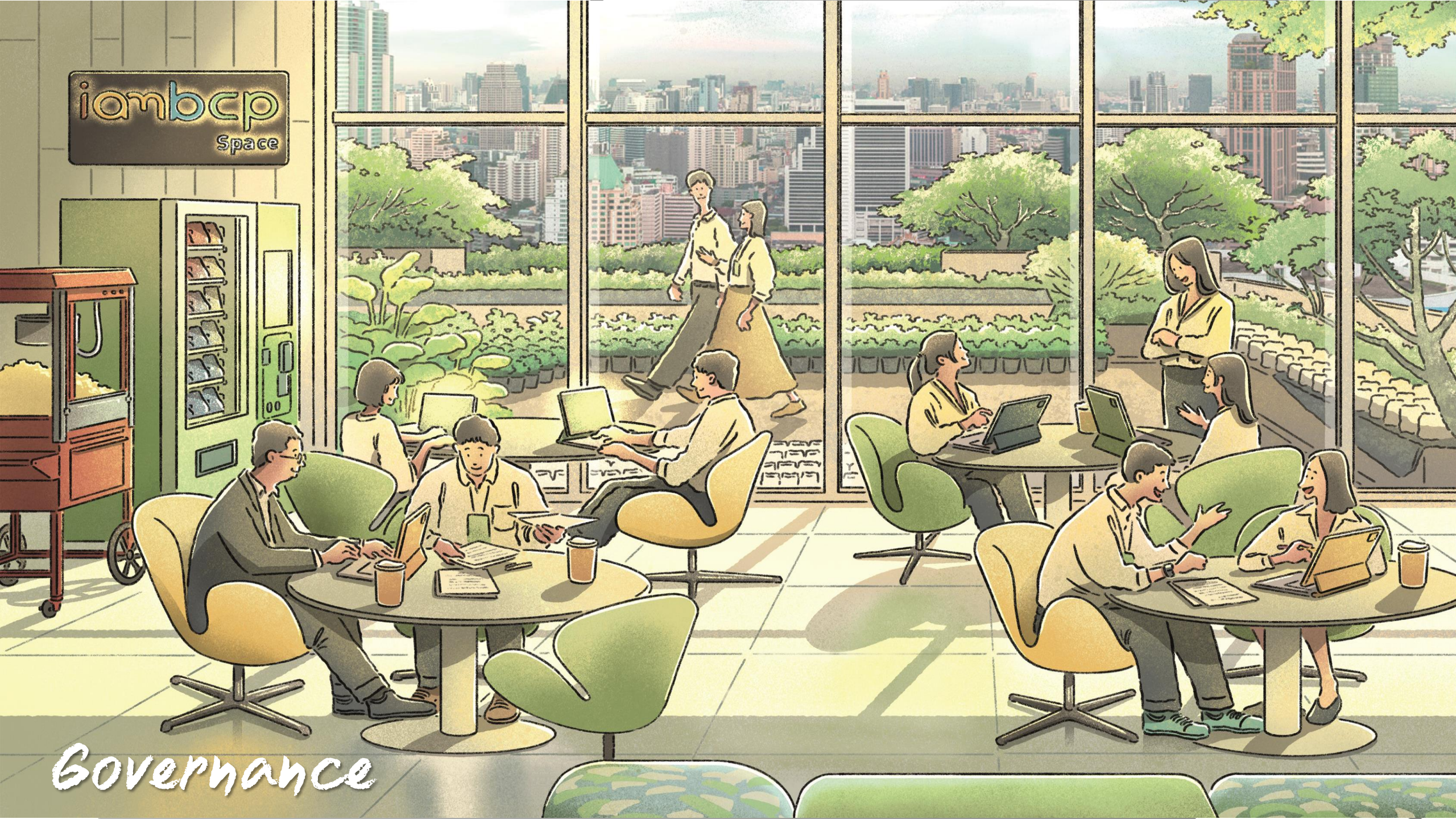
Bangchak Climate Strategy

Task Force on Climate-Related Financial Disclosures (TCFD 2025)

Content

Bangchak apply the TCFD framework in the management of climate-related risks and opportunities. We integrate the TCFD in the process following TCFD recommendations in 2017 and in line with the TCFD's 2021 "Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures" https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Implementing_Guidance.pdf. **This report is covered period calendar year 2024** and includes additional guidance from IFRS S2 Climate-related disclosure newly announced International Sustainability Standards Board (ISSB).

Disclosure Area	Disclosure Requirement
Governance *Disclose the company's governance around climate-related risks and opportunities*	*a) Describe **the board's oversight** of climate-related risks and opportunities* *b) Describe **management's role** in assessing and managing climate-related risks and opportunities*
Strategy *Disclose the actual and potential impacts of climate-related risks and opportunities on the company's businesses, strategy, and financial planning where such information is material*	*a) Describe the **climate related risks and opportunities** the company has identified **over the short, medium, and long term*** *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 *Disclose how the company identifies, assesses, and manages climate-related risks*	*a) Describe the company's **processes for identifying and assessing climate related risks*** *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 & Targets *Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material*	*a) Disclose **the metrics used** by the company to assess climate-related risks and opportunities **in line with its strategy and risk management process*** *b) Disclose **Scope 1, Scope 2, and, if appropriate, Scope 3** greenhouse gas (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***

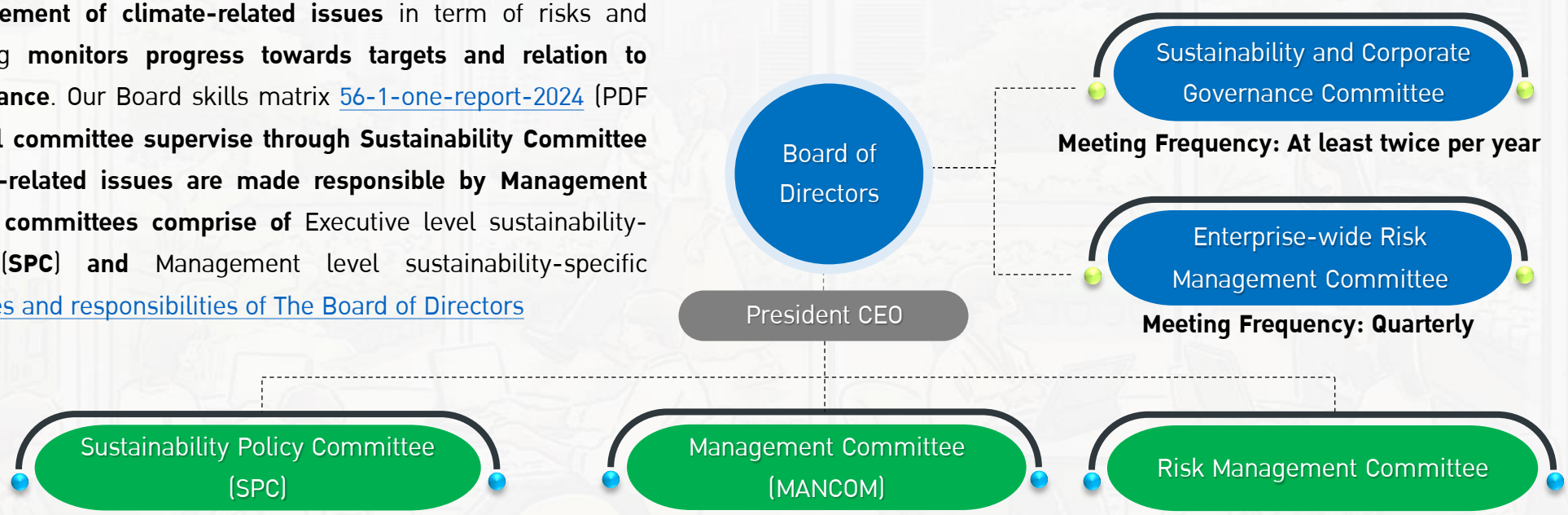


Governance

Governance

Describe the **board's oversight** of climate-related risks and opportunities.

Bangchak has board of director and executive management responsible for the oversight and management of climate-related issues in term of risks and opportunities including **monitors progress towards targets and relation to remuneration performance**. Our Board skills matrix 56-1-one-report-2024 (PDF page 204). **Board level committee supervise through Sustainability Committee (SCGC) while Climate-related issues are made responsible by Management position**. **Our climate committees comprise of** Executive level sustainability-specific committee (**SPC**) **and** Management level sustainability-specific committee (**SMC**). Roles and responsibilities of The Board of Directors



Bangchak has CPG Task Force (Corporate Planning, Corporate Compliance, Innovation and Business Development Group Functional Task Force) to review the common practices guidelines of companies within group for the strategic planning, new business initiatives, organizational governance, sustainable development, and Net Zero GHG Emission. Finally, seeking approval from SSS Steering Committee (Strategic Steering Committee) for promoting collaboration processes among the companies within group. **We use internal carbon price to help identify revenue opportunities, risk, and as an incentive to drive maximum energy efficiencies to reduce costs and guide capital investment decisions**.

Governance

Describe the **board's oversight** of climate-related risks and opportunities

Pol. Gen. Suwat Jangyodsuk
Chairperson of the Board of Directors

Board of Directors

Pol. Gen. Suwat Jangyodsuk
Chairperson of Sustainability and Corporate Governance Committee

Sustainability and Corporate Governance Committee (SCGC)

- **Propose** corporate governance and sustainability development practices, including **climate change related issues** to the Board of Directors.
- Supervise the performance of the Board of Directors and the management in accordance with good corporate governance and sustainability development principles.
- **Review** good corporate governance and **sustainability development practices**. By comparing with international standards and making recommendations to the Board of Directors for continuous improvement and response to stakeholders' needs and expectation.
- **Assign** good corporate governance and sustainability development policy, including **climate related guideline**.
- Perform duties as assigned by the Board of Directors.

Mr. Prasong Poontaneat
Chairperson of the Enterprise-wide Risk Management Committee

Enterprise-wide Risk Management Committee (ERMC)

- **Propose** policy, strategy and goals for **risk management including climate-related risk**.
- Develop an organization-wide risk management system for continuous efficiency.
- Promote cooperation in risk management at all levels of the organization.
- Supervise the company to have appropriate and effective risk management.
- The Chairman of the Enterprise-wide Risk Management Committee reports the results of the next meeting to the Board of Directors.
- Perform duties as assigned by the Board of Directors.

Governance

Describe **management's role in assessing and managing** climate-related risks and opportunities

Chairperson: Mr. Chaiwat Kovavisarach
Group Chief Executive Officer and President

Sustainability Policy Committee (SPC)

- **Provide policy and strategy direction** for the company's business in accordance with the mission corporate culture, with responsibility to stakeholders, including economic, social, and environmental aspects **especially climate change and climate-related risks and opportunities** in accordance with the international sustainability direction, in order to ensure the organization's sustainability. **The target of Carbon Neutrality by 2030 and Net Zero GHG emission by 2050 has been defined.**
- Progress the report to the Sustainability and Corporate Governance Committee (SCGC)

Chairperson: Ms. Gloyta Nathalang
Senior Executive Vice President, Sustainability Management and Corporate Communications

Sustainability Management Committee (SMC)

- **Conduct the work plans and manage work** according to the responsibilities towards various groups of stakeholders according to the direction and framework specified by the Corporate Sustainability Policy Committee to bring innovation and GHG management tools to use within the Bangchak Corporation in order **to achieve Carbon Neutrality in 2030 and Net Zero in 2050**
- **Prepare climate strategy and manage opportunities and risks arising from climate change**.
- Encourage work processes and development plans or events to **increase awareness, knowledge, and understanding of sustainability including climate change**. Participating in operations with Bangchak Corporation stakeholders by submitting a report to the working committee or reviewing in order to promote collaboration among affiliated companies in Strategic Corporate Governance Planning (CPG Task Force)
- Progress the report to the Sustainability Policy Committee (SPC)

Governance

Describe **management's role in assessing and managing** climate-related risks and opportunities

Bangchak provide incentives for the management of climate change issues including the attainment of near-term and long-term targets. **Chief Executive Officer (CEO) is the highest management level which response to cap on GHG Emission as KPI** (reflect to GHG emission reduction annually). **We associate this KPI to related-Executive Vice President and Business Unit Managers**, respectively.

To ensure that climate-related ambition and goal are embedded throughout the company, **We set KPI's employees to reduce personal carbon emissions** by activities recording for eco-friendly refueling, waste separation, reducing electricity usage, and using public transportation. **Finally, these performance will reflect to monetary as bonus**. In the year 2024, we can reduce GHG emissions totally 129 tCO_2e.

Moreover, we led to establish the **Carbon Markets Club** to **engage society in carbon markets and encourage all sectors to adapt to a sustainable Net Zero future**. The club has developed tools like CFO (Carbon Footprint Tracking for Organisations) and MyCF (My Carbon Footprint Calculator for Individuals). These platforms provide free and user-friendly resources to calculate carbon footprints accurately, covering aspects such as energy usage, travel, and resource consumption. This empowers users to identify actionable steps for reducing emissions effectively.


Strategy

Strategy

For oil & gas refinery and marketing sector, Bangchak sets organizational boundary by operational control approach. They comprise of **Phra-khanong refining area and Bangchak service stations including HQ and Regional Office**. Our complex refinery has capacity 120 KBD, and our 227 COCO type service stations in year 2024 is our distribution channels through industrial & retail. **Emission inventory of Bangchak scope 1, 2 and 3 integrates both Centralized and Decentralized approaches** by GHG Protocol corporate accounting and reporting standard.

Bangchak received the highest-level sustainability assessment in the Oil & Gas Refinery and Marketing industry from the S&P Global Corporate Sustainability Assessment (CSA) 2024, achieving the **highest scores (Best score) in the Governance and Environment dimensions including climate strategy**. This reflects the company's commitment to sustainable business innovation, balancing environmental and social considerations with strong corporate governance.

We have been recognized among Asia-Pacific Climate Leaders 2024 by Financial Times and Statista, becoming the first and only Thai company in the energy and utilities sector to be assessed and included in the ranking. This recognition reinforces Bangchak's tangible achievements in reducing greenhouse gas emissions towards becoming a low-carbon organization.

Moreover, we received the accolade as a Climate Action Leading Organization (CALO), prestigious recognition for distinguished leadership organizations in greenhouse gas management. **We achieved a gold level assessment in criteria of GHG emission measure**. This result is be determined by the Thailand Carbon Neutral Network (TCNN).

carbon neutral network
Climate Action Leading Organization

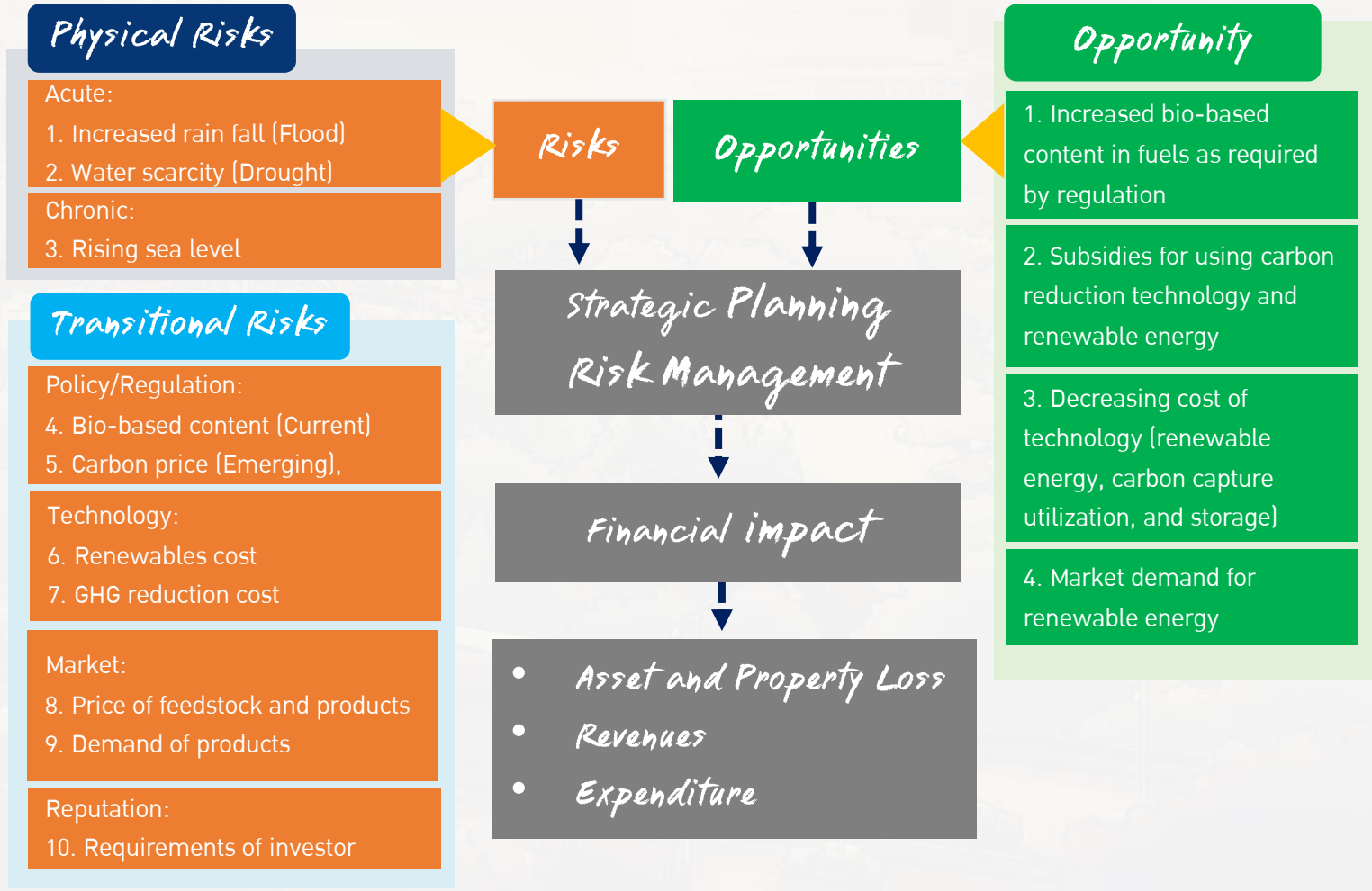
Strategy

Describe the climate related risks and opportunities the company has **identified over the short, medium, and long term**

Bangchak identify key climate change risks and **integrate climate drivers into environmental scanning and identifying factors having potential impact**.
We evaluate climate-related risks in time horizon: short-term (0-2 years), medium-term (2-10 years) and long-term (more than 10 years).

For Physical scenario; **we apply SSP1-2.6** (approximately corresponds to the previous scenario generation Representative Concentration Pathway (RCP) 2.6. Stringent mitigation scenario. A pathway which is representative of a scenario that aims to keep global warming likely 1.5 degrees Celsius and above pre-industrial temperatures by 2100) **and SSP5-8.5** (A pathway delivers a temperature increase of about 4.3 degrees Celsius by 2100, relative to pre-industrial temperatures).

For Transition scenario, Bangchak uses the IEA World Energy Outlook 2023 where the world transitions to low carbon sources of energy; **IEA NZE 2050** (below degrees Celsius) **& IEA STEPs** (Above degrees Celsius) **both qualitative and quantitative** climate-related scenario analysis including the goal of limiting the global temperature increase to no more than 2 degrees Celsius by reducing greenhouse gas emissions. We apply climate-related risks in existing and new operations.



Strategy

Describe the climate related risks and opportunities the company has **identified over the short, medium, and long term**

Physical Risks — Risk Assessment Process

Bangchak Corporation has identified the physical risk hazard using qualitative assessment methodology.

1 Geospatial Information for Baseline Natural Hazards Define

Open Source Datasets → Key Natural Hazards

Apply *ThinkHazard* developed by World Bank Group to provide a general view of the hazards for a given location that should be considered in climate resilience. The hazard levels provided are based on published hazard data, provided by a range of private, academic and public organizations.

For more information on ThinkHazard, please access Think Hazard

An initial baseline hazard evaluation was conducted for Bangchak using Thailand data as representative location of **Phra-khanong refining area**, **227 COCO type service stations of Marketing Business including HQ and Regional Office**.

2 Climate Change Projections

Climate Data CMIP-6 for SSP1-2.6 and SSP5-8.5 → Data for Key Climate Indicates → Qualitative Risk Rating

Extract the hazard risk data from *Climate Change Knowledge Portal*

- Time period: Historical period (1995-2014), 2030, 2040 and 2050
- Scenario: SSP1-2.6 and SSP5-8.5

Data extracted from *Climate Change Knowledge Portal*.

Note:

- *The IPCC's Fifth Assessment Report (AR5) relies heavily on the Coupled Model Intercomparison Project, Phase 6 (CMIP6), a collaborative climate modelling process coordinated by the World Climate Research Programme (WCRP).* ***Coupled Model Intercomparison Project Phase 6 (CMIP6)*** *provide projections of future climate change on near term and long term.*
- The *Climate Change Knowledge Portal* (CCKP) provides global data on historical and future climate, vulnerabilities, and impacts. For more information of Climate Change Projection methodology, please access: Download Data | Climate Change Knowledge Portal (worldbank.org)

Strategy

Describe the climate related risks and opportunities the company has **identified over the short, medium, and long term**

Physical Risks

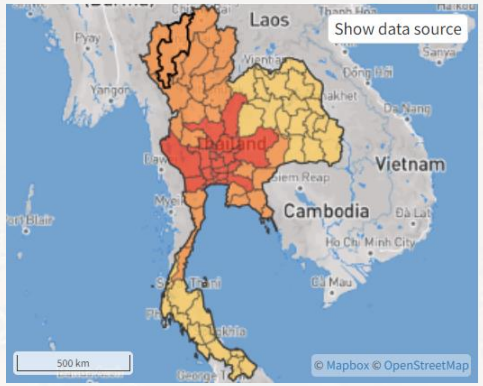
Define Baseline natural hazard by ThinkHazard!

Location: Thailand

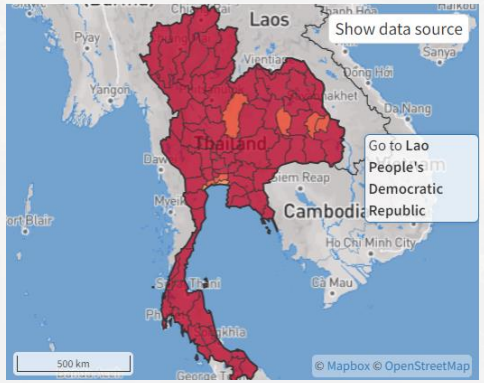
Cover Phra-khanong refining area and 227 COCO type service stations of Marketing Business including HQ and Regional Office.

Hazard level

- High
- Medium
- Low
- Very low



Water scarcity is classified as medium according to the information that is currently available to this tool. This means that there is up to a 20% chance droughts will occur in the coming 10 years. Based on this information, the impact of drought must be considered in all phases of the project, in particular its effect on personnel and stakeholders, and during the design of buildings and infrastructure.



Urban and River flood hazard are classified as high based on modeled flood information currently available to this tool. This means that potentially damaging and life-threatening urban floods are expected to occur at least once in the next 10 years. Project planning decisions, project design, and construction methods must take into account the level of urban and river flood hazard.

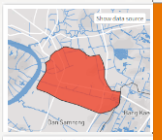
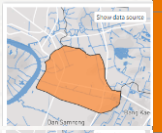
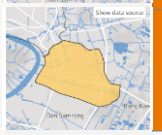
Strategy

Describe the climate related risks and opportunities the company has **identified over the short, medium, and long term**

Physical Risks **Define Baseline natural hazard by ThinkHazard! and Climate change projection by** Climate Change Knowledge Portal For Development Practitioners and Policy Makers

Location: PhraKhanong Cover Refinery & HQ Office

Climate Change Knowledge Portal For Development Practitioners and Policy Makers

ThinkHazard! Hazard level		SSP5-8.5			SSP1-2.6		
		2030	2040	2050	2030	2040	2050
Water scarcity Medium		Slight Increase	Slight Increase	Slight Increase	Slight Increase	Slight Increase	Slight Increase
Urban flood Low		Slight Increase	Moderate Increase	Moderate Increase	Slight Increase	Moderate Increase	Moderate Increase
River flood Very low		Slight Increase	Moderate Increase	Moderate Increase	Slight Increase	Moderate Increase	Moderate Increase

Legend and Hazard Score for SSP1-2.6 and SSP5-8.5 scenarios

	Category	Drought (Change in annual drought probability	Riverine & Urban Floods (change in 1 day and 5 day maximum rainfall)
3	Significant Increase	<-1	>10%
2	Moderate Increase	<-0.5	>5%
1	Slight Increase	<0	>0%
0	No Change	0	0%
-1	Slight Decrease	>0	<0%
-2	Moderate Decrease	>0.5	<-5%
-3	Significant Decrease	>1	<-10%

Categorization criteria considers all climate indicator values across scenarios and time horizons. The climate indicator went through a normalization process which involves comparing the minimum and maximum value across all time horizons and scenarios. Process depends on the indicator; some may be normalized by climate zone whereas some are done globally

Risk Driver Find Out

- **Water scarcity** is classified as medium based on modeled information currently available to ThinkHazard tool. Based on this information, the impact of drought must be considered in all phases of the project, in particular its effect on personnel and stakeholders, and during the design of buildings and infrastructure. **The climate projection shows a slight increase trend** both SPP5-8.5 and SSP1-2.6 scenarios. **Moreover, water availability is crucial to Bangchak's operations as it directly influences production**. **Therefore, drought has been selected as our key driver risk**.
- **Urban and River flood** hazard are classified as low and very low based on modeled flood information currently available to ThinkHazard tool. They recommend project planning decisions, project design, and construction methods should take into account the level of urban and river flood hazard. Though Bangchak has strategic response for **this acute situation, it has still a significant impact to own operation all refining units can not be operated, and our upstream and downstream logistics can be delayed. Moreover, The climate projection shows a moderate increase trend** both SSP5-8.5 and SSP1-2.6 scenarios. **Hence, flood has been selected as our key driver risk**.

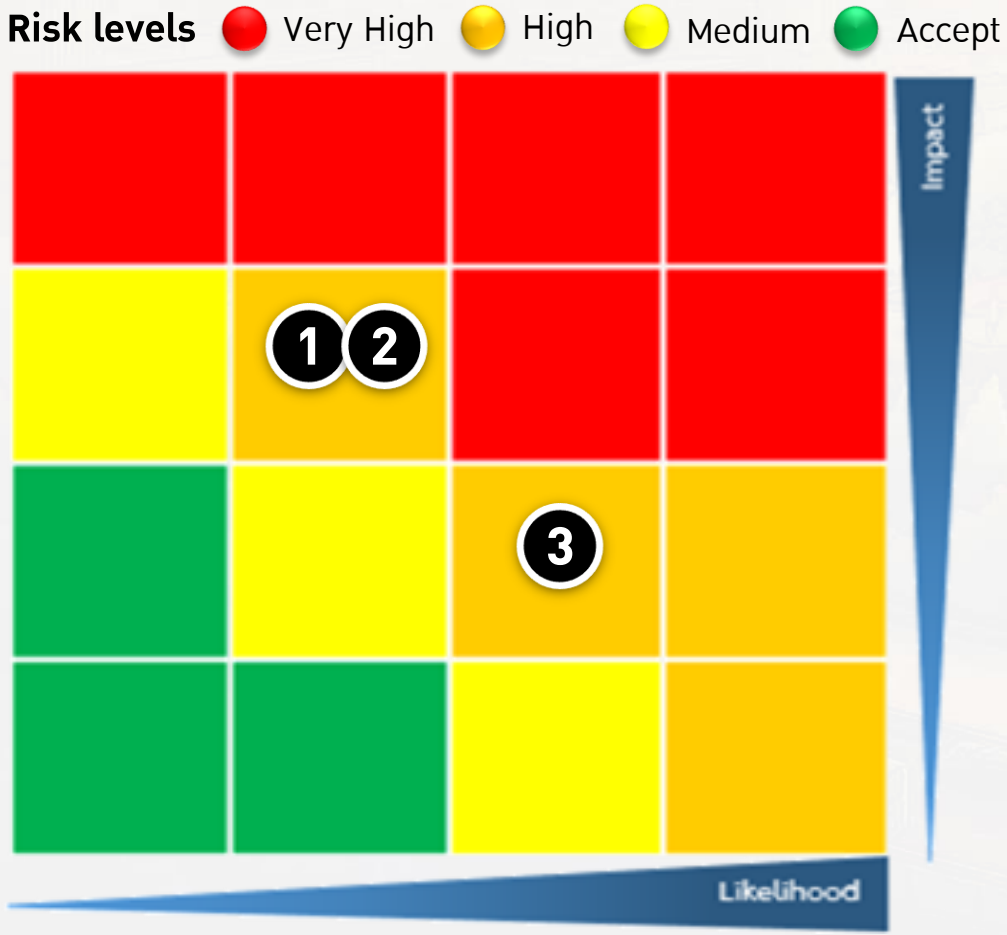
Strategy

Describe the **impact** of climate-related risks and opportunities on the company's businesses, strategy, and financial planning

Physical Risks

Physical Risk Assessment and Prioritization Matrix in Y2024

Our risks are prioritized using our Enterprise Risk Management definitions for impact and likelihood.
This prioritization has helped us understand what parts of our strategy we should pursue first. These risks are described below.



1 Flood 2 Sea level rise

Rising river levels might cause flooding in the operation area, affecting total production. From the assessment and risk management plan. Bangkok Metropolitan flood protection could support equivalent to 2.23 m of water above the sea. Bangchak keep monitors river water levels during the rainy season and prepares a business continuity plan to manage the case of flooding.

3 Drought

- In 2024 Bangchak conducted a water stress assessment through the AQUEDUCT program to find that the location of Bangchak Refinery was a high (40-60%) risk area, which is a significant area for water stress.
- Bangchak promotes the reduction of water consumption in all production processes with all affiliates and business units. Moreover, a project of drilling for groundwater was initiated to secure water storage and supply.

Strategy

Describe the **impact** of climate-related risks and opportunities on the company's businesses, strategy, and financial planning

Physical Risks

Physical Risk assessment in time horizon including Current and Anticipated Financial Implication

Risk levels Very High High Medium Accept

Risk Type	BCP's Risk Driver	Impact in time horizon			Impact
		Short term	Medium term	Long term	
Acute	**Drought**				**Drought situation,** It may **impact refinery operation** has an **expense 0.0012 million THB per day** from groundwater using 10% in drought effect such as saltwater intrusion causes and revenue loss ~ 140 million THB per 1 week for shutdown case.
Acute	**Flood**				From risk projection trends and assessment in time horizon, **Flood situation tier 1** (water level 1.7 m MSL) may be affected to delay product delivery but there is no significant impact. If this situation intensify, It may **impact refinery operation and service station closing** in some areas resulting to **financial daily loss around 20 million THB*** (The calculation base on yearly operating GRM and refining production).
Chronic	**Sea Level Rise**				

*Assumptions: Daily Loss

Refinery = Crude run 116.8 KBD, FX 35.5 THB/USD

Marketing = Sales volume 15,000 L/day/station

Strategy

Describe the **impact** of climate-related risks and opportunities on the company's businesses, strategy, and financial planning

Physical Risks

Physical Risk assessment in time horizon including Current and Anticipated Financial Implication

Based on Bangchak climate risk assessment, we set up context-specific plan to mitigate and adapt to response. For estimated costs of actions,

Strategic Response of Flood & Sea Level Rise

Refinery Business

- Monitor flood situation and the sea water level at peer.
- Empty the rainwater drainage as schedule.
- Prepared basic design of dam for flood refinery area prevention **3 million THB.**
- Installed flood prevention equipment **1 million THB** and Inspect on work plan schedule.
- Business Continuity Management Plan (BCM) and Crisis Management Plan (CMP) yearly exercise.

Marketing Business

- Select non flooding area for service stations expansion.
- Design flood prevention for service stations.
- Empty the rainwater drainage as schedule.
- BCM & Crisis Management Plan (CMP) yearly exercise.

Strategic Response of Drought

- Monitor water supply quality in daily from Metropolitan Waterworks Authority (MWA).
- Reduce water supply consumption in production, such as
  - Improved groundwater wells which is alternative resources **1.5 million THB**
  - Improved Reverse-Osmosis unit (RO) and Electro-Deionization unit (EDI) including RO city unit **32 million THB** which can reduce water supply 0.2 million m^3/year.
  - Improved cycle efficiency of cooling tower **375 million THB**.
- Reuse condensate and stripped water 1.2 million m^3/year.
- Recycle treated wastewater 0.2 million m^3/year into production process.

Strategy

Describe the climate related risks and opportunities the company has **identified over the short, medium, and long term**

Transitional Risks

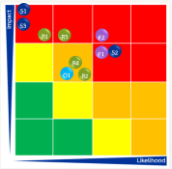
Transitional Risk Assessment Process

Identify Impact Drivers

Determine the factors putting pressure on companies into a low-carbon economy transition

Prioritisation of risks and opportunities

Analysis of risks and opportunities to business based on each driver



Scenario Analysis

Qualitative assessment of identified impact under two transition scenarios by 2030 and 2050

International Energy Agency

Strategic Response

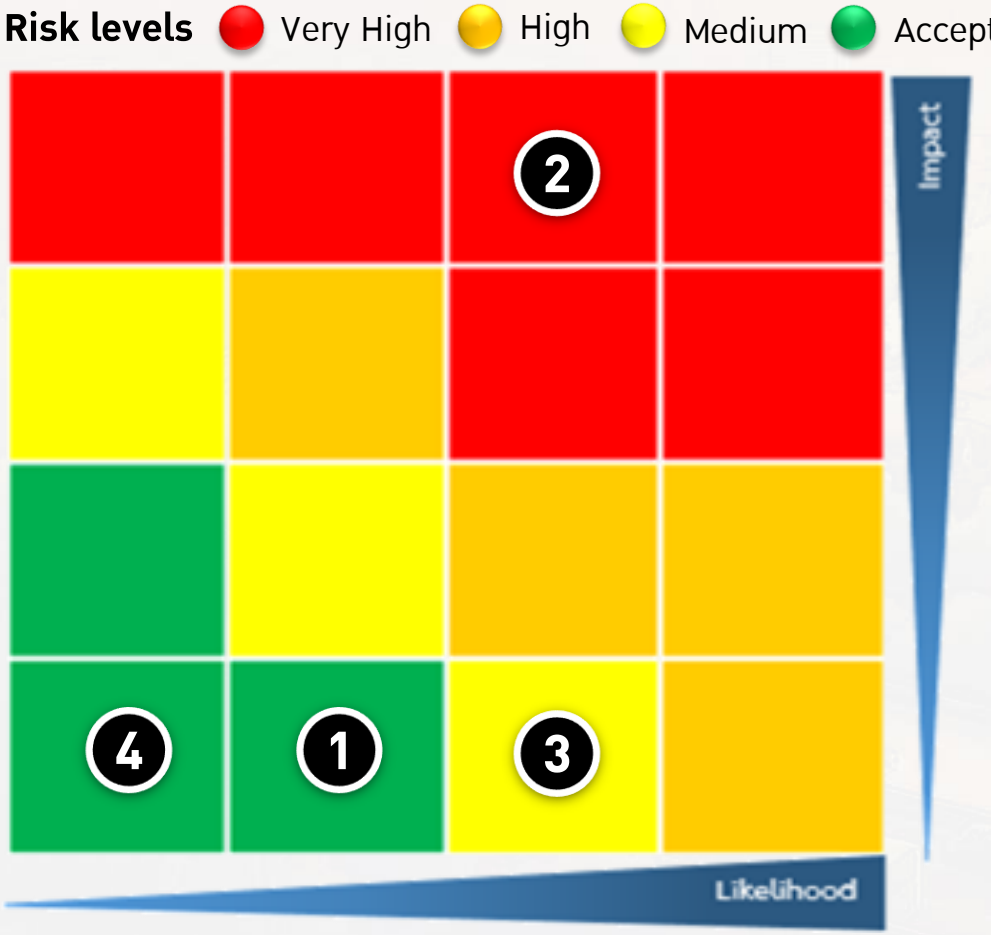
Identify potential response measures to risk and opportunities

Strategy

Describe the **impact** of climate-related risks and opportunities on the company's businesses, strategy, and financial planning

Transitional Risks

Transition Risk Assessment and Prioritization Matrix in Y2024



1 Carbon price

Carbon pricing might be a risk in upstream operations in case country of crude oil suppliers mandates a carbon price. Moreover, they might be risk in midstream our own operation in case capped emission . For downstream operations, the risks of carbon pricing might be increased of products cost when export to European market with the execution of the EU's Carbon Boarder Adjustment Mechanism (CBAM).

2 Crude oil price

Price of fossil fuel might be decreased due to the lower demand which will affect to inventory gain/loss.

3 Price of fuel

Sale volume might decrease according to the lower demand according to the sustainability trend, or lower margin according to lower fuel price.

4 Reputation

There is a slight additional cost to hire extra personnel to handle investor demands.

Strategy

Describe the **impact** of climate-related risks and opportunities on the company's businesses, strategy, and financial planning

Transitional Risks — Transitional Risk assessment in time horizon

Risk levels Very High | High | Medium | Accept

BCP's Risk Driver		Impact in time horizon			Impacts	Strategic Response
		Short term	Medium term	Long term		
Policy and Legal	❶ Carbon Price of GHG emission aligning with Climate related scenario (Carbon Tax, Cap and Trade)	Accept	High	High	Increased OPEX from mandatory carbon prices	Bangchak has **improved the efficiency of operation processes and using low-emission fuels to achieve company target** on carbon emission reduction 30% by 2030 and net zero GHG emission target by 2050 **while increasing the proportion of revenue from low carbon emission businesses. We also established the Carbon Markets Club to promote carbon credit trading accelerating the transition into low carbon society including our suplychain**.

Strategy

Describe the **impact** of climate-related risks and opportunities on the company's businesses, strategy, and financial planning

Transitional Risks — Transitional Risk assessment in time horizon

Risk levels Very High | High | Medium | Accept

BCP's Risk Driver		Impact in time horizon			Impacts	Strategic Response
		Short term	Medium term	Long term		
Market	❷ Crude oil price				Increasing of crude oil price cause gross refining margin decreased	Price of fossil fuel might be decreased due to the lower demand which will affect to inventory gain/loss. There are three main strategies to cope with volatility. **(1)** **Enhance flexibility of crude sourcing** via the establishment of BCPT **(2)** **Refinery optimization** via various optimization programs to enhance reliability and mitigate risks of operation downtime, together with crude and product stock management. **(3)** **Product diversification** to the uplift product value. We has modified the refinery to more diverse products to the market, there are UO (unconverted oil) for feedstock of lube base oil & paraffin wax and the instance solvents for industrial components, including paint, thinner, and resin.
Market	❸ Fuel price				Decreasing of demand cause sale volume and margin decreased	Sale volume might decrease from the lower demand according to the sustainability trend, or lower margin from fuel price decreasing. • We have **developed service station model** to enhance return, not only to maintain high quality fuel but also new value proposition to our value customer as a "Greenovative Destination", a lifestyle destination for intergeneration, to fulfilled customers' needs and meet their changing behavior. The model has included on-site offering of variety food and beverage services from well-known brands, Grab & Go delivery services, unique design service station. • We also partnership with MG/PEA/Sharge to **install more than 365 EV chargers at Bangchak service stations nationwide**. (2030 forecasted retail EBITDA still increase compared to 2023).

Strategy

Describe the **impact** of climate-related risks and opportunities on the company's businesses, strategy, and financial planning

Transitional Risks — Transitional Risk assessment in time horizon

Risk levels Very High | High | Medium | Accept

BCP's Risk Driver		Impact in time horizon			Impacts	Strategic Response
		Short term	Medium term	Long term		
Reputation	❹ Investor demands and data request				Increased compliance and reporting cost including extra personnel to handle investor demands	• **Bangchak have processes for stakeholder engagement to increase stakeholder trust and get their needs/expectations**. • We set up Climate Solutions Division to response obligations including data management and reporting. • We **study hydrogen and negative emissions technologies with partner such as CCS**

Strategy

Describe the **impact** of climate-related risks and opportunities on the company's businesses, strategy, and financial planning

Transitional Risks — Current and Anticipated Financial Implication

Bangchak **compare the impacts for carbon price in different scenario** that reflect current real-world conditions and starting points of the International Energy Agency (IEA): World Energy Outlook 2023. For the target, Bangchak pledge ambitious to achieve 30% reduction, 10% offsetting with removal type of carbon credits and 60% offsetting with reduction type of carbon credits in Y2030 to be neutrality. and be Net Zero GHG emission company in Y2050 by 90% reduction and 10% offsetting with removal type of carbon credits. In the case of Thailand implement a carbon pricing mechanism, Bangchak will has additional revenue from GHG emission in production process with trading allowances (Cap and Trade) scheme.

The Stated Policies Scenario (STEPS)
an outlook based on the latest policy settings

The Net Zero Emissions by 2050 Scenario (NZE)
a pathway in which the energy sector achieves net zero carbon dioxide (CO_2) emissions globally by 2050, in line with limiting the long-term global average temperature to 1.5 degrees Celsius (°C).

*Negative means additional revenue from trading allowances scheme

Assumptions

- Bangchak's business grow according to current plans.
- Non-climate related costs and revenues will remain unaffected
- For cap-and-trade scheme, the cap reduction will increase 2% per year (in line with EU-ETS) from Y2025 both GHG emission scope 1 and 2.
- IEA numbers are in 2023 USD, converted to THB using end of year 2024 currency exchange rate.

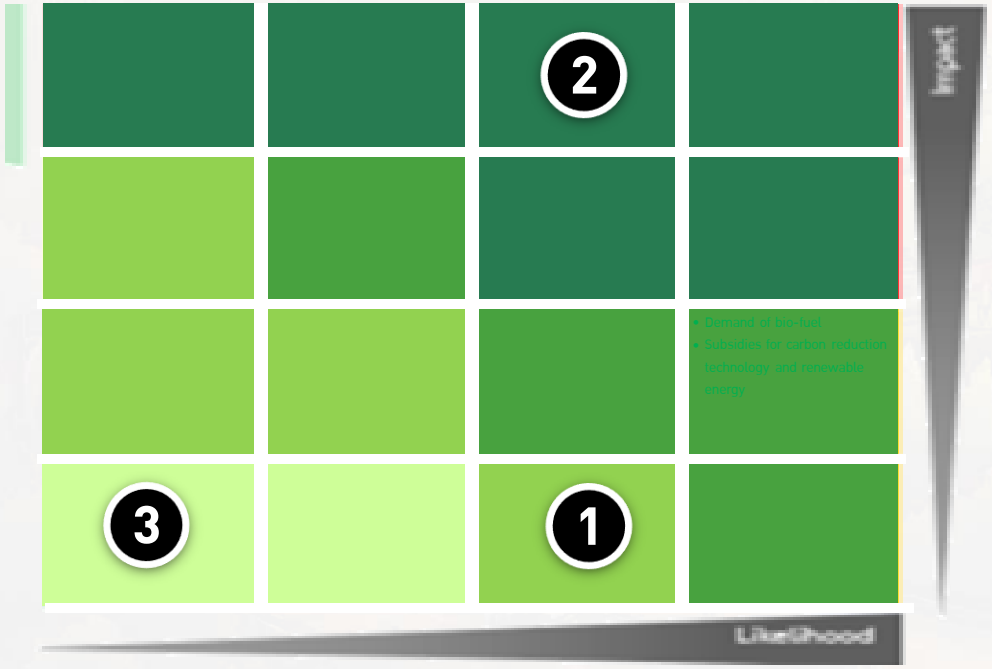
Strategy

Describe the **impact** of climate-related risks and opportunities on the company's businesses, strategy, and financial planning

Opportunity

Transition Opportunity Assessment Prioritization Matrix in Y2024

Opportunity levels Very High High Medium Low



1 Increased requirement of bio-based content in fuels by regulation

The increase in demand would result in higher revenue for BBGI, which has already expanded its business to adapt to the low carbon economy.

2 Increased demand for renewable energy (Electricity and Bio-fuel)

Bangchak has invested to Green Power Business and Bio-based business to drive towards low-carbon economy. Therefore, the increasing demand for renewable energy may increase revenue for us.

3 Maturation of Carbon Capture, Utilization and Storage (CCUS)

This technology will reduce mandatory expense from GHG emission by sink and remove.

Strategy

Describe the **impact** of climate-related risks and opportunities on the company's businesses, strategy, and financial planning

Opportunity

Transition Opportunity Assessment in time horizon

Opportunity levels Very High High Medium Low

Opportunity Driver		Impact in time horizon			Impacts	Strategic Response
		Short term	Medium term	Long term		
1 **Policy and Legal**	Increased requirement of biobased content in fuels by regulation				Increased revenue from Bio-based Business	• Shifting consumer demand to more sustainable product. • Led to opportunity to adopt green business by investment though subsidiary company such as ○ Green Power Business (BCPG) ○ Bio-based business (BBGI) ○ SAF business (BSGF) In 2024 EBITDA from BCPG and BBGI account around 14% of Bangchak EBITDA.
2 **Marketing**	Increased demand for renewable energy (Electricity and Bio-fuel)				Increased revenue from Power and Bio-based Business	
3 **Technology**	Maturation of Carbon Capture, Utilization and Storage (CCUS)				• Reduced CAPEX for CCUS • Reduced carbon cost	Seek collaboration with strategic partners to pilot and assess CCUS applications

Strategy

Describe the **resilience of the company's strategy**, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

The strategic plan from 2023 until the year 2030 will focus on the growth of five key business sectors. Bangchak has identified climate change-related opportunities that have the potential to generate a substantive positive change in our business operations and revenue growth.

Refinery & Oil Trading Business

294 KBD of nameplate capacity with 500,000 Tons of Paraxylene

Phra Khanong Refinery

bsrc

Sriracha Refinery

Marketing Business

Distribution channels through industrial & retail channels >2,203 service stations nationwide

bcpg

Clean Power Business

4 power generation technologies in 7 countries over the world with 2,038 MW in total

bbgi

Bio-based Products

No.1 fully integrated Biofuel producer in Thailand with 1.85 ML/D in production capacity

OKEA

OKEA ASA

Natural Resources

Norway-based oil & gas company with production capacity of 22-25 KBD in 2023

Bangchak plan to invest 150,000 million THB for operation in next 7 years (2024 to 2030), 30% in Refinery and Marketing Business, 30% in Natural Resources, 30% in Green Business and 10% in and New Frontier Business including Bio-based. Newspaper

For the development of new business plans to strengthen sustainability in addition to the existing businesses, seeking opportunities to **diversify investments into other sectors** to meet future demands. This **encompasses** the liquefied natural gas (**LNG**) business, which will serve as a clean energy source, as well as the business of leasing and purchasing electric motorcycles (**Winnonie**). Furthermore, there will be institutions dedicated to innovation **and nurturing businesses** that focus on studying technology **related to climate change, sustainable energy, and synthetic biology**.

Refinery and Marketing: Low Carbon Products

Bangchak has in place to reduce the emission derived from our activities directly through our low carbon products cause to third-parties can reduce their own emissions (avoided emission at 3rd party *or* scope 3 emission). We improve the energy efficiency of certain technologies so that we are consistent with avoiding or contributing to the adaptation side of dangerous climate change. **Bangchak was certified to register the Carbon Label Products by** Thailand Greenhouse Gas Management Organization (**TGO**) **5 products**. Our products have carbon footprint lower than average of Thailand. We keep refining process management continuously improve both operational stability and operational efficiency, lead to reduction in energy intensity and GHG emission. thaicarbonlabelIBangchak

(1) Emission factors for Bangchak's product from carbon label products according to the PCR standard (Product Category Rule: PCR) by the Greenhouse Gas Management Organization (TGO)

(2) Emission factors for normal oil product from IPCC 2006, Vol.2, table 3.2.1, 3.2.2, and the Department of Alternative Energy Development and Efficiency (DEDE)

(3) TGO Approval date 25 July 2023, Certificate expired 24 July 2026

Strategy

Describe the **resilience of the company's strategy**, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

Green Power Business: look beyond direct emissions and increasingly consider low-carbon products and avoid emission at our third parties in value chain to **contribution to a low-carbon economy**. Bangchak invests in the green power business via BCPG Public Company Limited (BCPG), a subsidiary established **to engage in the generation and distribution of green electricity from renewables and new forms of clean energy in Thailand and overseas**. BCPG . **The company has achieved carbon neutrality for two consecutive years** (2022–2023). In 2024, BCPG was certified as a carbon-neutral organization by TGO (Thailand Greenhouse Gas Management Organization). It has set a target to achieve net-zero greenhouse gas emissions by 2050. The company aims to drive its operations through **three key strategies**:

1. **Greener Diversified Portfolio**: Expanding its portfolio by increasing investments in renewable energy, with a goal of achieving 70% renewable energy in its electricity production mix by 2030 and operating low-carbon natural gas power plants with a 30% reduction in emissions. Recently, the company signed agreements to acquire shares in two wind power plant projects in Vietnam, with a combined installed capacity of 99 MW and a total value of over THB 4.5 billion.
2. **Further than MW - Leading Climate Solutions**: Investing in renewable energy businesses that can generate carbon credits.
3. **Higher Value to Shareholders**: Enhancing returns by developing renewable energy projects and subsequently selling these projects to reinvest the proceeds into further expansion. For its 2025 operational plan, the company has allocated an investment budget of THB 32 billion and aims for an EBITDA growth of no less than 30% compared to 2024.

Newspaper

Strategy

Describe the **resilience of the company's strategy**, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

Bio Based Products Business, Bangchak conducts bio-based products business through the business operation of BBGI Co., Ltd., which engages in the production and sale of biofuels as the largest player in Thailand. The subsidiary and associated companies of BBGI have a **total production capacity of 1,600,000 liters per day, divided into 600,000 liters of ethanol per day and 1,000,000 liters of biodiesel per day. The objective is to lower trade deficits due to fuel imports, contribute to national energy security, support farmers, and preserve the environment including GHG emission reduction**. The Company also promotes the blending of ethanol with gasoline and biodiesel with diesel to yield gasohol 91, gasohol 95, gasohol E20, gasohol E85, and Hi-Diesel. BBGI

In 2024, BBGI acquired 30% of the common shares of BBGI Biodiesel Co., Ltd. (BBGI-BI) from UAC Global Public Company Limited and the existing shareholders of BBGI-BI. The transaction, valued at THB 370,500,000, involved shares representing 30% of the fully paid-up registered capital. Prior to the transaction, the company held a 70% stake in BBGI-BI. Following the completion of this acquisition, BBGI now owns 100% of BBGI-BI's registered capital. This acquisition aims to strengthen BBGI's position as a leading biofuel producer in Thailand with consistent growth. BBGI-BI will support the biofuel demands of the Bangchak Group, especially after Bangchak Corporation Public Company Limited merged with Bangchak Sriracha Public Company Limited. This merger has resulted in increased demand for biofuels, enhancing flexibility and efficiency in supply chain optimization.

Newspaper

Strategy

Describe the **resilience of the company's strategy**, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

Sustainable Aviation Fuel (SAF) also known as sustainable aircraft fuel, is another sustainable option for the world that can help reduce GHG emissions in the aviation industry. Bangchak joint venture agreement to establish BSGF Company Limited with a **THB 8,000-10,000 million investment**. BSGF will be Thailand's first and only producer and supplier of SAF from used cooking oil. BSGF

Liquefied Natural Gas Bangchak Spearheads Clean and Convenient Fuel Business for Transportation, Opening Thailand's First LNG Refueling Station. Clean fuel: LNG is **environmentally friendly with lower emissions** when compared to diesel resulting in less environmental pollution. The LNG refueling station is operated by BTSG Company Limited, a joint venture between Bangchak Corporation (51% stake) and Thai Special Gas Company Limited (TSG) (49% stake). BTSG

Battery Swapping as a Service provider First electric motorbike rental platform with battery swapping stations in Thailand, help Motorcycle Taxi **cut GHG emissions** while reducing the conventional costs of motorcycle installments, fuel, and maintenance. WINNONIE

Bangkok Fuel Pipeline and Logistics Bangchak **invested THB 1,600 million** to expand its business into fuel pipeline transportation to strengthen and stabilize Group businesses through the acquisition of executive rights over the 99-kilometer fuel pipeline system from Fuel Pipeline Transportation Limited (FPT) through the Bangkok Fuel Pipeline and Logistics Company Limited, **reduces carbon emissions** in line with Bangchak's vision that emphasizes sustainable innovative business development in harmony with environment and society BFPL

Strategy

Describe the **resilience of the company's strategy**, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

Bangchak is involved in Sustainable Finance, which plays a significant role in driving balanced economic growth while ensuring environmental and social care in the long term.

In 2024, UOB Thailand has extended loans under its Transition Finance Framework of 5 billion baht to Bangchak Corporation PCL and 1.5 billion baht to BSGF Co., Ltd. in order to finance the construction development and working capital of Thailand's first Sustainable Aviation Fuel (SAF) project. This deal is marked as the first Transition Finance facilities for hard-to-abate sector in Thailand. Through the Bank's Transition Finance Framework, UOB can support a wide range of transition activities for hard to abate segment, including the production of low carbon alternative fuels, enhancements in operational efficiency, Carbon Capture and Storage (CCS) and Carbon Capture Utilisation and Storage (CCUS) and participation in voluntary carbon credit programs. It will benefit greatly to the production of SAF, a sustainable fuel which would contribute to the decarbonization of the aviation sector. Bangchak Corporation, a leading company in Thailand's energy industry, is pioneering the production of Sustainable Aviation Fuel (SAF) from used cooking oil in Thailand through its subsidiary, BSGF Company Limited. Bangchak has invested 8.5 billion baht in developing the SAF production project at its Bangchak refinery in Phra Khanong, Bangkok. The project is expected to commence operations in the second quarter of 2025, with a production capacity of 1 million liters per day. The use of SAF is projected to reduce greenhouse gas emissions by approximately 80,000 tons of CO2 equivalent compared to traditional aviation fuel.

Bangchak is taking a proactive step to promote Carbon Credit transactions in conjunction with KASIKORNBANK. This marks a significant milestone as Thailand's first Carbon Credit Linked FX Forward Contract. This transaction will not only broaden the reach of carbon credit trading but also serves as a catalyst for various sectors in the mission to reduce greenhouse gases, fostering new financial innovations in the Thai financial market.

Strategy

Describe the **resilience of the company's strategy**, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

Bangchak promote and encourage employee, we enhance knowledge and understanding to contribute to mitigating global warming. Bangchak initiate '**Bangchak 100X Climate Action**'. such as:

"Carbon Free Management Team" campaign to declare commitment of management team which comprise of 21 members, the collective greenhouse gas emissions rate is approximately 200 tons CO_2e per year. This emission will be offset by carbon credits and serve as a goal **to compensate personal carbon emissions** in the following years.

Encourage to reduce waste at the source to participate by sorting orphan waste and delivering for appropriate management through the mobile waste collection project by **N15 Technology** and turn into energy in finally. Through this initiative, orphan waste is turned into energy, **reducing the amount of waste sent to landfills, which emit methane, combatting global warming, and reducing coal-powered electricity generation**.

Support employee's commuting **to use public passenger transport systems** by integrating employee cards with the Rabbit card of Bangkok Mass Transit System (BTS).

In year 2024, we achieve carbon neutrality flight campaign by employee's business travel offsetting.

Strategy

Describe the **resilience of the company's strategy**, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

Bangchak support the community-based business service station network which operate by cooperative network to install solar cell systems on rooftops to save costs. Additionally, **supports the registration of carbon credits obtained from the installation of solar cell systems** with the Thailand Greenhouse Gas Management Organization (TGO).

We support Thai Rice NAMA which reduce GHG emission 30% from conventional cultivation by purchasing 40 tons of "climate-friendly rice" and distribute this products to Bangchak's customers at 133 service stations in Bangkok and its vicinity.

And supports Thongyod House's athletes who will be traveling to compete in various countries, totaling approximately 20 events. All their emissions from their travel and daily lives throughout the year 2023 will be offset by carbon credits **to compensate personal carbon emissions** of the athletes.

Bangchak promote and encourage supply chain through sustainable procurement. On 13 December 2024, Bangchak Group organized its annual supplier seminar entitled "Empowering Sustainability through Procurement Center," with more than 300 suppliers participating at Siam Pavalai Royal Grand Theatre, Siam Paragon.

Strategy

Describe the **resilience of the company's strategy**, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

To ensure action on climate change is consistent and strong. Bangchak supportive trade associations to align with net-zero by 2050. We found The Carbon Markets Club, Thailand's first environmentally conscious club focused on reducing greenhouse gases. Established in 2021, the club had 1,304 member organizations as of the end of October 2024. It has facilitated the trading of over 500,000 tons of carbon dioxide equivalent in carbon credits under the TVER program and more than 2.1 million megawatt-hours in RECs, equivalent to approximately 1.5 million tCO_2e.

Additionally, the club offers a carbon credit trading platform, a corporate carbon footprint assessment tool, and a personal carbon footprint assessment application called MyCF. It also raises awareness through regular activities and events. Looking ahead, beyond expanding its membership base and promoting the use of its tools to support Thailand's carbon market.

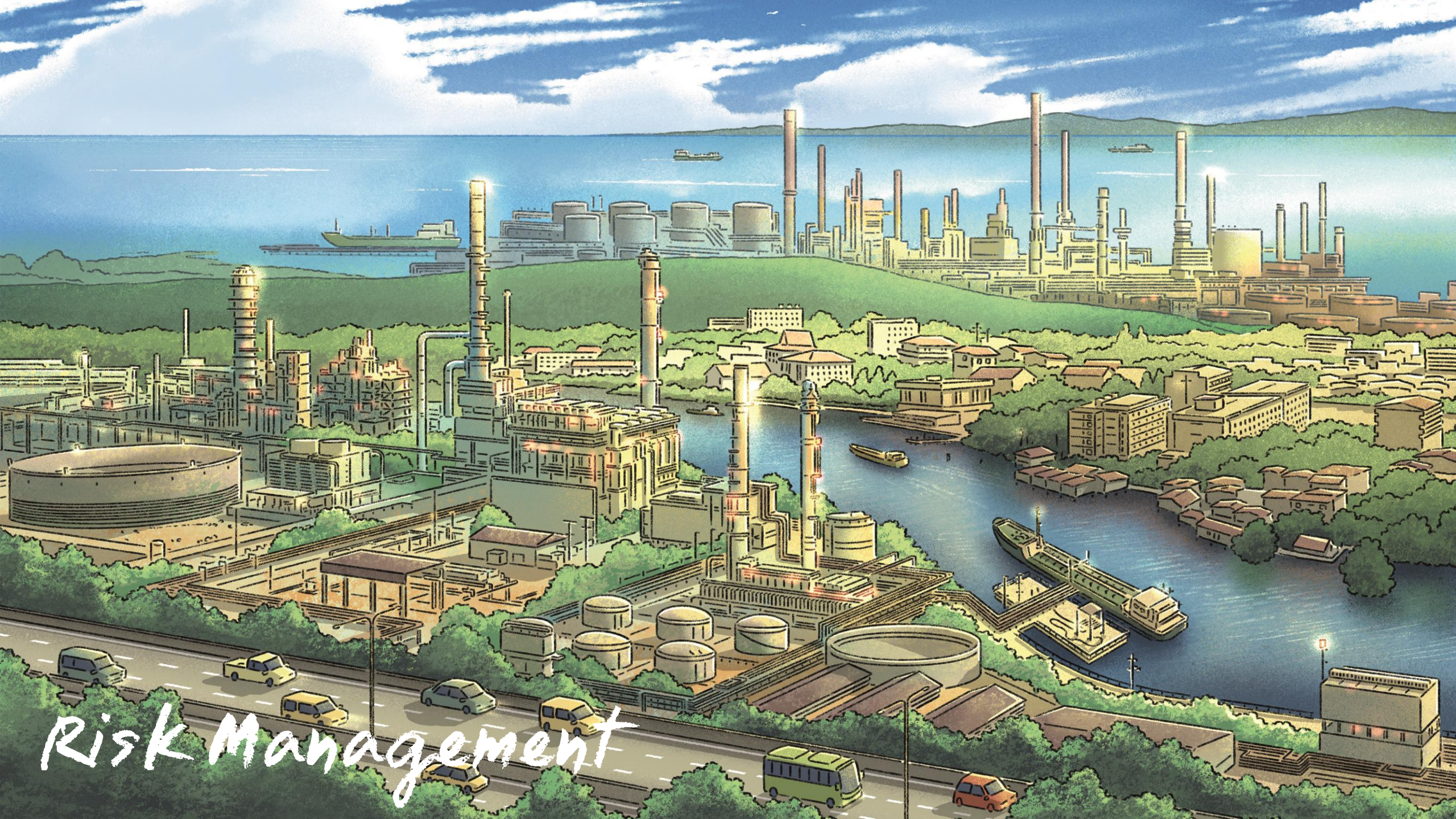
In 2024, Five major carbon market associations from Thailand, Malaysia, Indonesia, Singapore, and ASEAN signed a Memorandum of Collaboration (MoC) at the 29th Conference of the Parties (COP29) held in Baku, Azerbaijan. The collaboration supports the development of the ASEAN Common Carbon Framework (AACF), aimed at establishing standards and guidelines for carbon credit trading within the region to ensure efficiency and transparency in driving a low-carbon society. The signatories represent private-sector associations from ASEAN countries including Thailand Carbon Markets Club.

Strategy

Describe the **resilience of the company's strategy**, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

To make sure that Bangchak climate align with climate change policy positions. Bangchak has joined climate-related trade association.

- World Economic Forum Partnership
- Global Compact Network Thailand
- Thailand Business Council for Sustainable Development
- Thailand Carbon Neutral Network
- Thai Renewable Energy
- Thailand Management Association
- The federation of thai industries
- Thailand Environment Institute
- Thai Listed Companies Association
- Integrity Energy Solutions Group
- Council of trustees and member of Petroleum Institute of Thailand


Risk Management

Risk Management

Describe the company's **processes for identifying and assessing climate related risks**

Our assessment focus on own operations and cover some of upstream/downstream activities. Time horizons climate risk assessment covered short-term (0-2 years), medium-term (2-10 years) and long term (> 10 years).

Bangchak **Risk management policy:**

- **Mandates managers and employees** in various departments **take responsibility for risk management**. They are required to have roles and involvement in developing the organization's risk management and understand their related responsibilities in risk management.
- **Efficient risk management processes** are established **at every stage of operations** following the principles of good corporate governance. There is **integration of risk management with the organization's strategic planning** and information technology management **to** facilitate effective risk management, **reducing the chances of negative impacts and increasing the opportunities** for success.
- Take an action to support successful organization-wide risk management, utilizing limited resources effectively for risk identification, assessment, and appropriate management.
- Promote and encourage the culture of organizational risk management, ensuring that everyone understands the importance of risk management.
- **Participate in standardized risk management systems** including managers and employees at all levels within the organization **and joint venture partners** to achieve common business goals, align with sustainable business development policies, align with environmental and social factors, and adhere to Environmental, Social, and Governance (ESG) principles.

Risk Management

Describe the company's **processes for identifying and assessing climate related risks**

bangchak

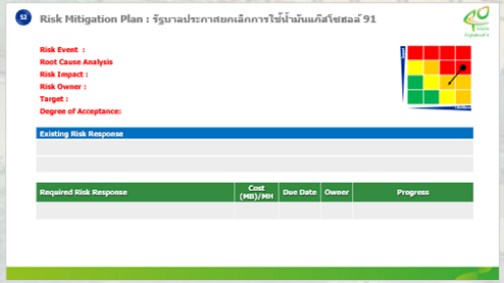
1. Evaluate factors that may impact the goal

2. Assess how various factors impact in which aspect

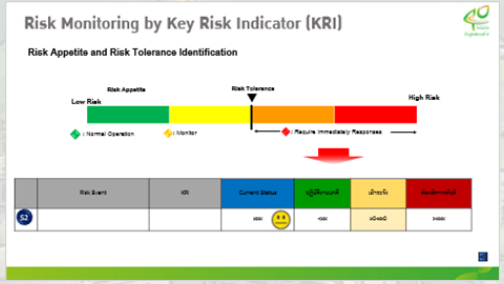
Impact & Likelihood Definition

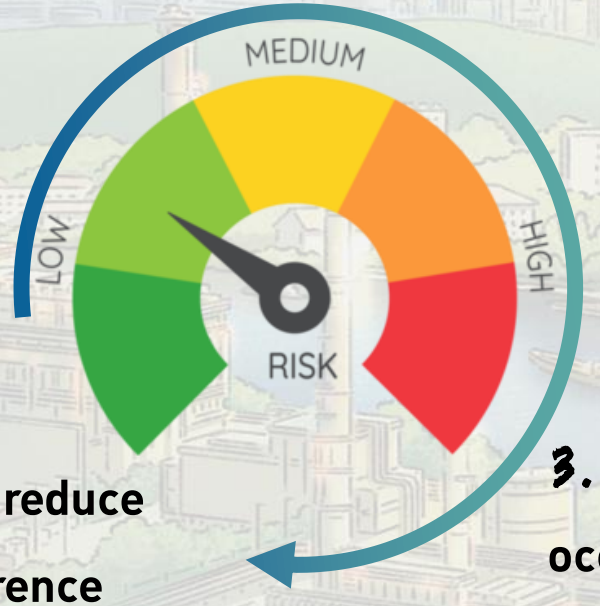
3. Evaluate the impact and likelihood of risk occurrence (potential financial size and scope of physical and transition risk)

4. Develop a risk management plan to reduce the impact or likelihood of risk occurrence



5. Define Key Risk Indicators (KRIs)

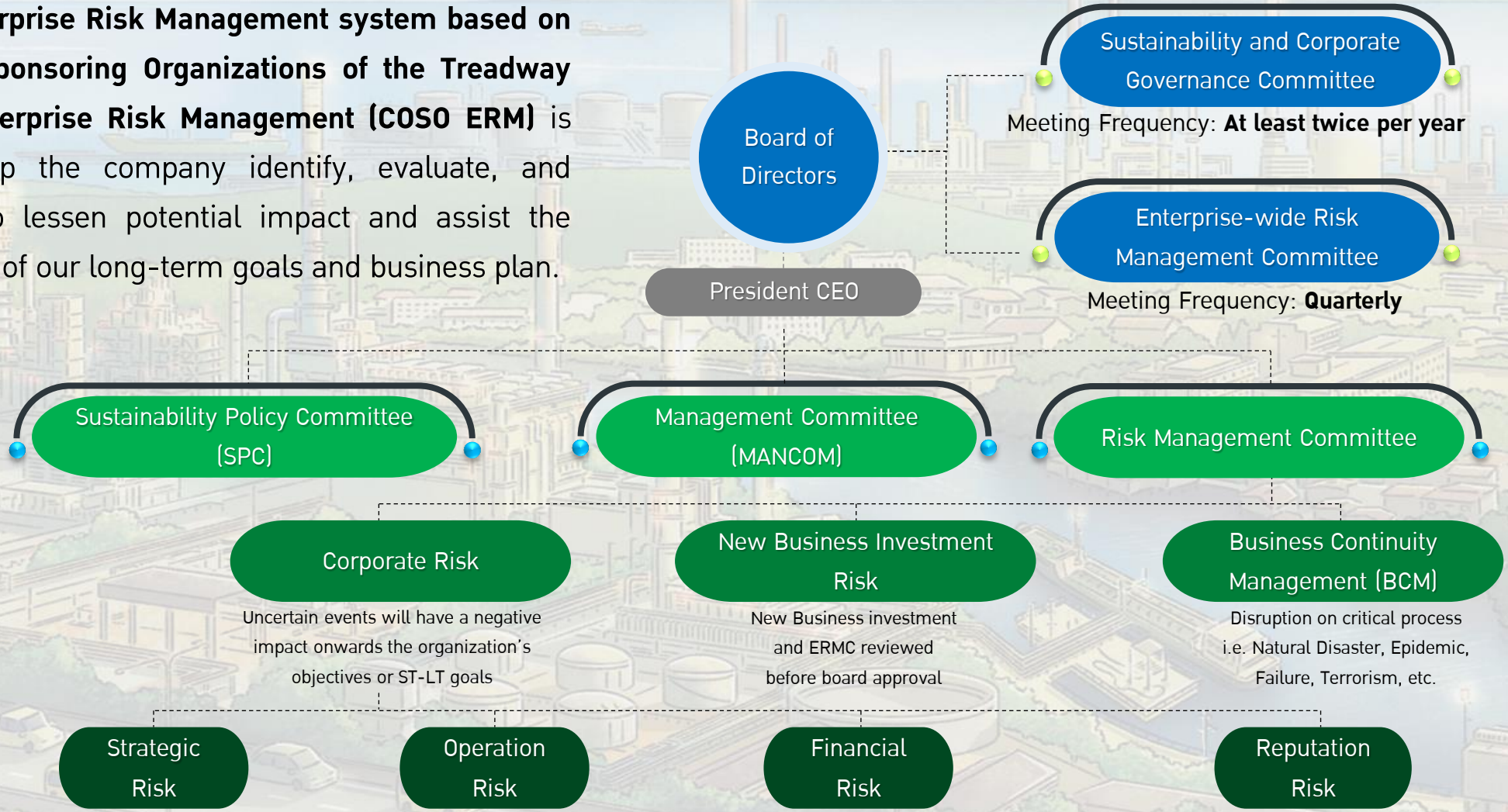




Risk Management

Describe the company's **processes for managing climate related risks**

Bangchak's Enterprise Risk Management system based on Committee of Sponsoring Organizations of the Treadway Commission Enterprise Risk Management (COSO ERM) is intended to help the company identify, evaluate, and manage risks to lessen potential impact and assist the accomplishment of our long-term goals and business plan.



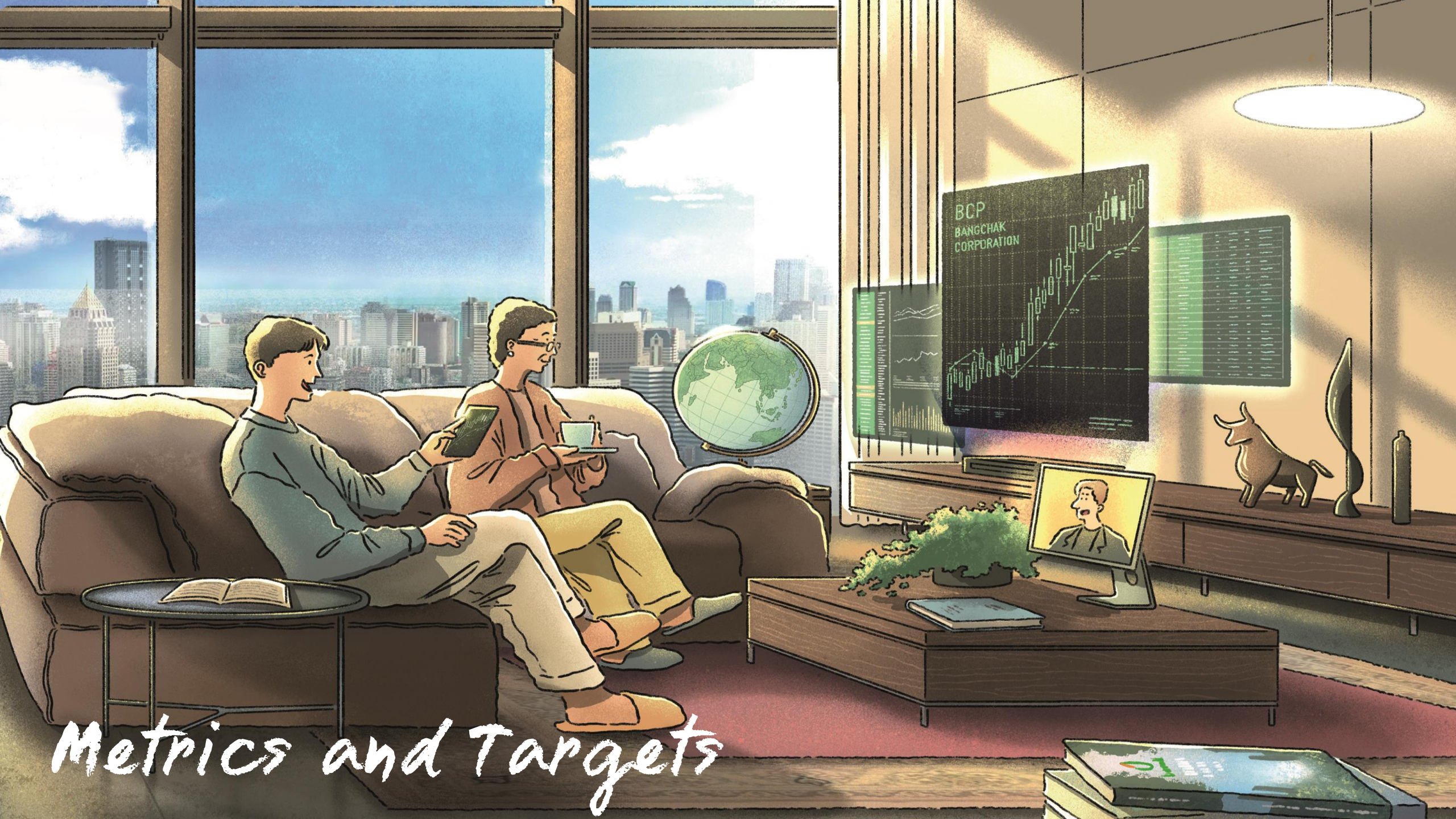
Risk Management

Describe **how processes** for identifying, assessing, and managing climate related risks are **integrated into the company's overall risk management**

Bangchak has a Climate Risk Management process and Integrated into multi-disciplinary company-wide risk management processes of the company's centralized enterprise risk management program covering **physical risk** (acute and chronic) **and transitional risk** (current regulation, emerging regulation, technology, Legal, Market and Reputation) including opportunity. The Framework and the principles for risk management that Bangchak Corporation has been utilized to systematize the management of risks linked with climate change throughout the company. The purpose of this is to incorporate climate-related risk management into Bangchak's internal management to ensure that the company can preserve and generate long-term value.

Processes for Mitigating Climate-related Risks

- Multiple internal and external risk factors that may affect Bangchak Corporation's business operation have been analyzed both in short term, medium term and long-term period.
- The system incorporates risks in strategy and finance. It is managed with specific key risk indicators (KRIs) to monitor and track the likelihoods and severity of all identified risks and provides treatment plans to mitigate and minimize the risks and drive operations to succeed as planned.
- **The company promotes a culture of risk management in the organization and extends it to companies in the group by allowing all departments in the Bangchak Corporation of Companies to create a risk plan every year. With an action plan for climate change, Bangchak Corporation has invested in green energy business to use renewable energy and have been enhanced green procurement for products and services through supply chain management.**
- In addition, we have conducted scenario analysis of our own internal carbon price. To identify the impact on EBITDA and plan the strategy in different scenarios, a carbon tax aligned with well below 2 degrees Celsius and 1.5 degrees Celsius scenarios, as well as Thailand's cap-and-trade scheme, was considered. Examples of actions to mitigate transition risks include reducing GHG emissions through energy efficiency improvement projects and implementing internal carbon shadow prices for new investment decision-making and energy efficiency projects.
- For physical risk, drought and flood pose a significant risk to Bangchak Corporation's businesses and its business partners value chains. We have prepared measures to mitigate and mange these effects. The refinery plant located in Phra-khanong district was assessed the likelihood of hazards for physical risk as our refinery major receptor of our risks throughout our business.



Metrics and Targets

Metrics and Targets

Disclose the **metrics used** by the company to assess climate-related risks and opportunities in line with its strategy and risk management process

UN SDG13 Climate action is our key concern due to top materiality topics of Bangchak's stakeholder are Climate Change Adaptation & Risk Management and GHG Emissions. To ensure focused implementation of climate change strategy, **GHG emission reduction is set as Corporate KPI in 2024** for the all-executive levels and relevant business unit including Group Chief Executive Officer, Presidents. Removal Carbon Credit will be used for residual emissions or emissions sources that remain after a company has included all technically or economically feasible emission reduction to our target.

Bangchak considers the target to be science-based to in-line with what the climate science deems necessary to meet the goals of the Paris Agreement-limiting global warming to well-below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C. Bangchak focus and prioritize on own operational emission.

- We have **corporate-level emission reduction target publicly in absolute target related 2030-year as is near-term emissions and 2050-year as is our long-term target reduction which compare base 2019-year calendar**. baseline year emission **cover more than 95% of Scope 1 and Scope 2 emission**.
- **Our significant emission scope 3, there are comprise of Category 1** (Purchased goods and services) **and Category 11** (Use of sold products) **. Not only Bangchak's value chain but we also concern beyond value chain mitigation through climate strategy 'NET: Net Zero Ecosystem'**. This includes activities to encourage stakeholders in a company value chain and Thai society understanding to avoid or reduce GHG emission such as BSGF, BTSG and Winnonie investment. In this calendar year, **Category 15** (financed emissions) be accounted which comprise of BFPL, BCPT, BCR and BGN.
- **Boundary of GHG emission in this report include Prakanong refining process, Head Quarter, Regional Office and Service station to reflect emission of oil refinery and marketing chain**.
- **Provision of Scope 1 and Scope 2 in line with the GHG Protocol methodology.**
- Emission factor and methodology consist of Intergovernmental Panel on Climate Change (IPCC) National Greenhouse Gas Inventory Guidance 2006, ISO 14064-1, American Petroleum Institute (API) GHG Compendium 2009 and Thailand Greenhouse Gas Management Organization (TGO).

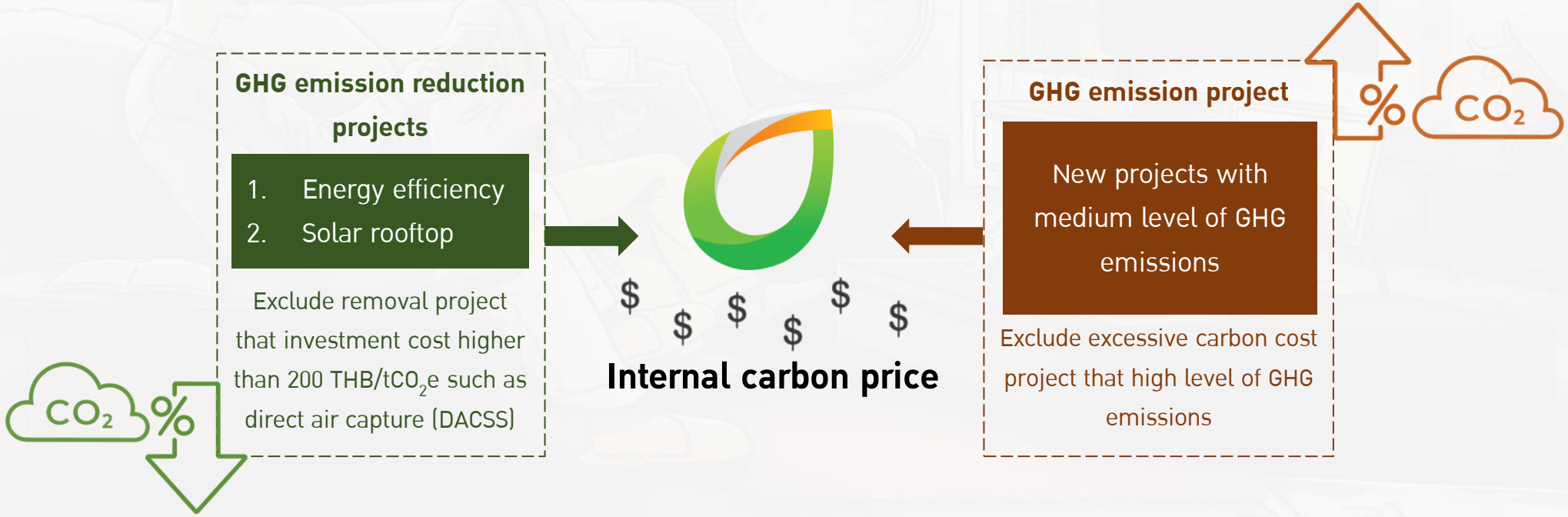
Metric according to GRI standard which covers GRI 305-1 (Scope 1), GRI 305-2 (Scope 2), GRI 305-3 (Scope 3), GRI 305-4 (GHG Intensity), GRI 305-5 (GHG reduction), GRI 305-7- Air emission, GRI 303-3 Water management in the stress area, GRI 303-5 Water consumption in the stress area including energy: Sustainability report 2024

Metrics and Targets

Disclose the **metrics used** by the company to assess climate-related risks and opportunities in line with its strategy and risk management process

The stakeholder expectations is one of the Bangchak's objectives on implementing an internal carbon price.

We use an internal price of carbon at rate 200 THB/tCO$_2$e (a hypothetical cost of carbon to each ton of CO$_2$e as a tool to reveal hidden risks and opportunities throughout its operations and supply chain) and Internal fee type (quantify the capital investment required to meet climate-related target). **We apply these programs to company-wide** by external resources (price projections from the International Energy Agency; IEA) and Internal consultation price setting approach. **This core element is integrated ongoing in our strategy and has become a standard operating practice in business planning as a means of testing strategics and investment assumptions. Internal assumptions of a carbon price as a planning tool to help identify revenue opportunities, risk, and as an incentive to drive maximum energy efficiencies to reduce costs and guide capital investment decisions.**



Metrics and Targets

Disclose **Scope 1, Scope 2, and, if appropriate, Scope 3** greenhouse gas (GHG) emissions, and the related risks

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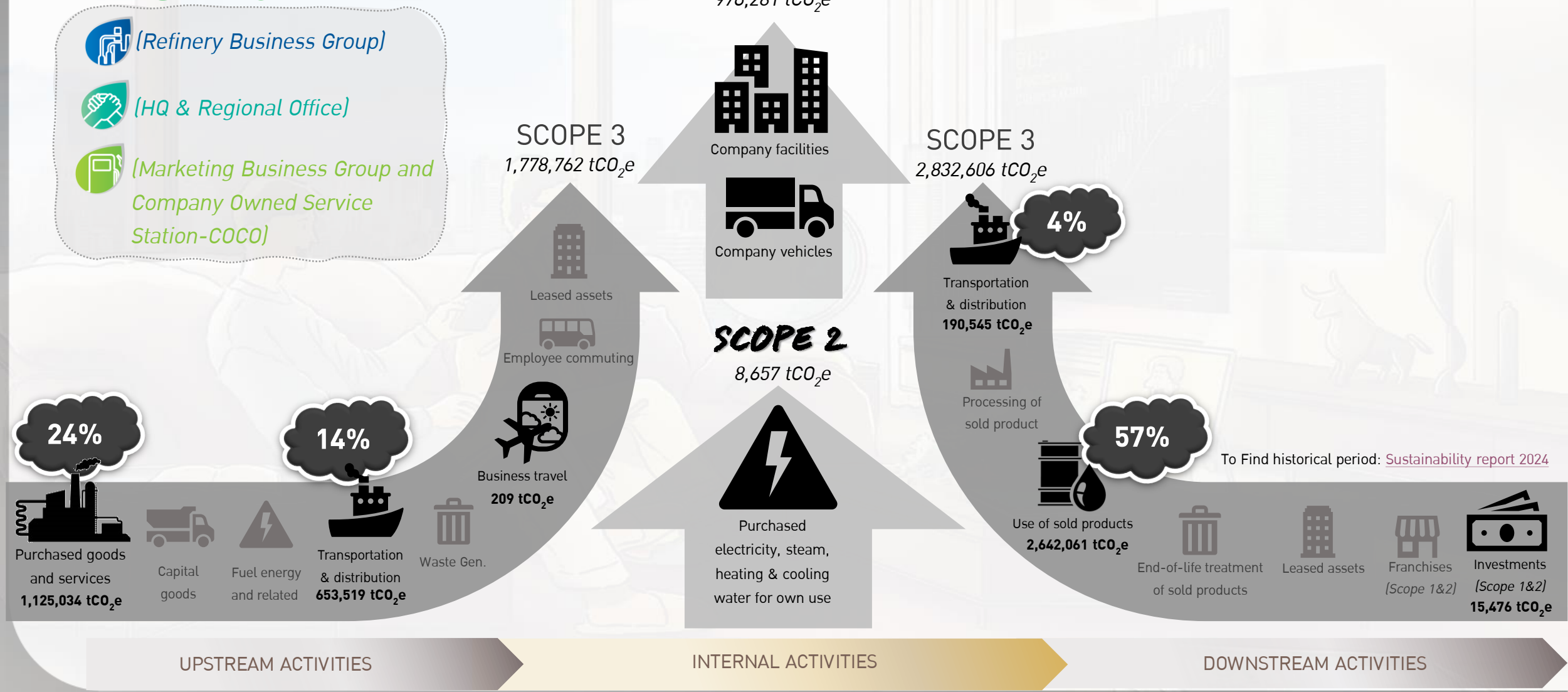
(Refinery Business Group)

(HQ & Regional Office)

(Marketing Business Group and Company Owned Service Station-COCO)



To Find historical period: Sustainability report 2024

Boundary for net zero GHG emission target:

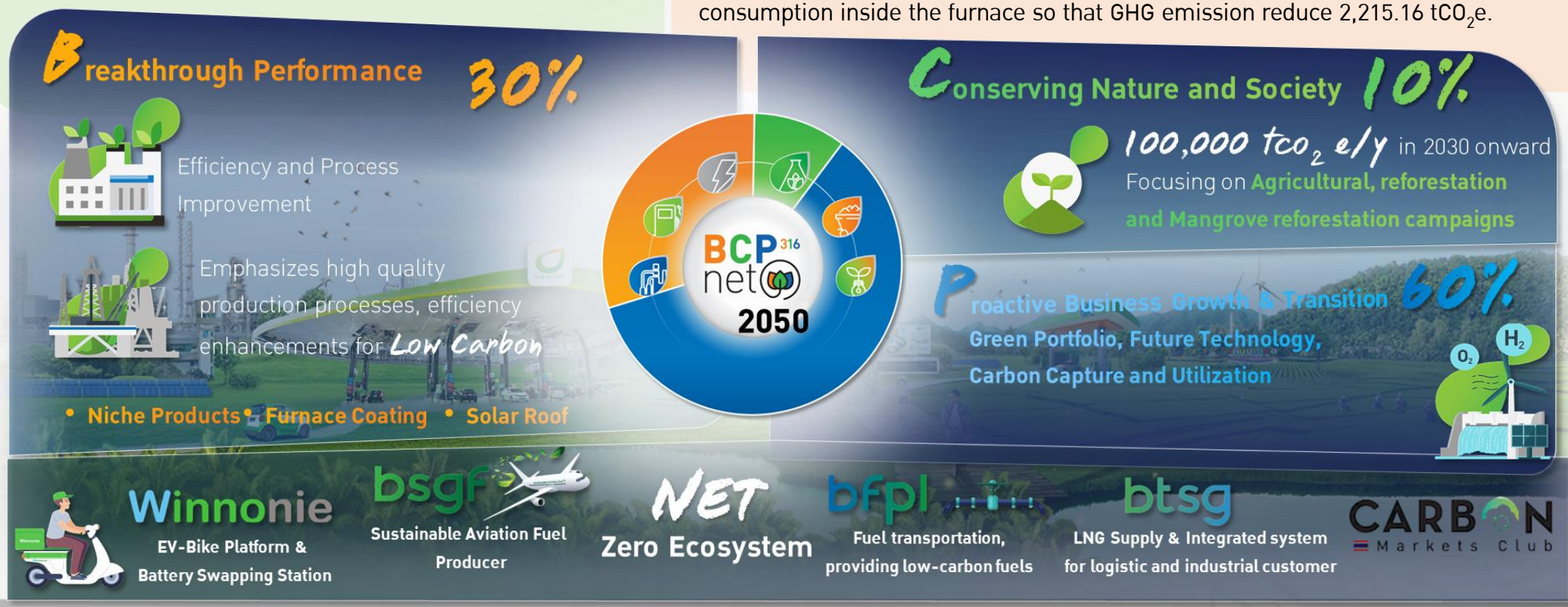
Scope 1 & 2: Refinery Business Group and HQ & Regional Office/ Scope 3: Refinery Business Group, HQ & Regional Office, Use of sold product by Marketing Business Group and Company Owned Service Station including BFPL, BCPT, BCR and BGN

Metrics and Targets

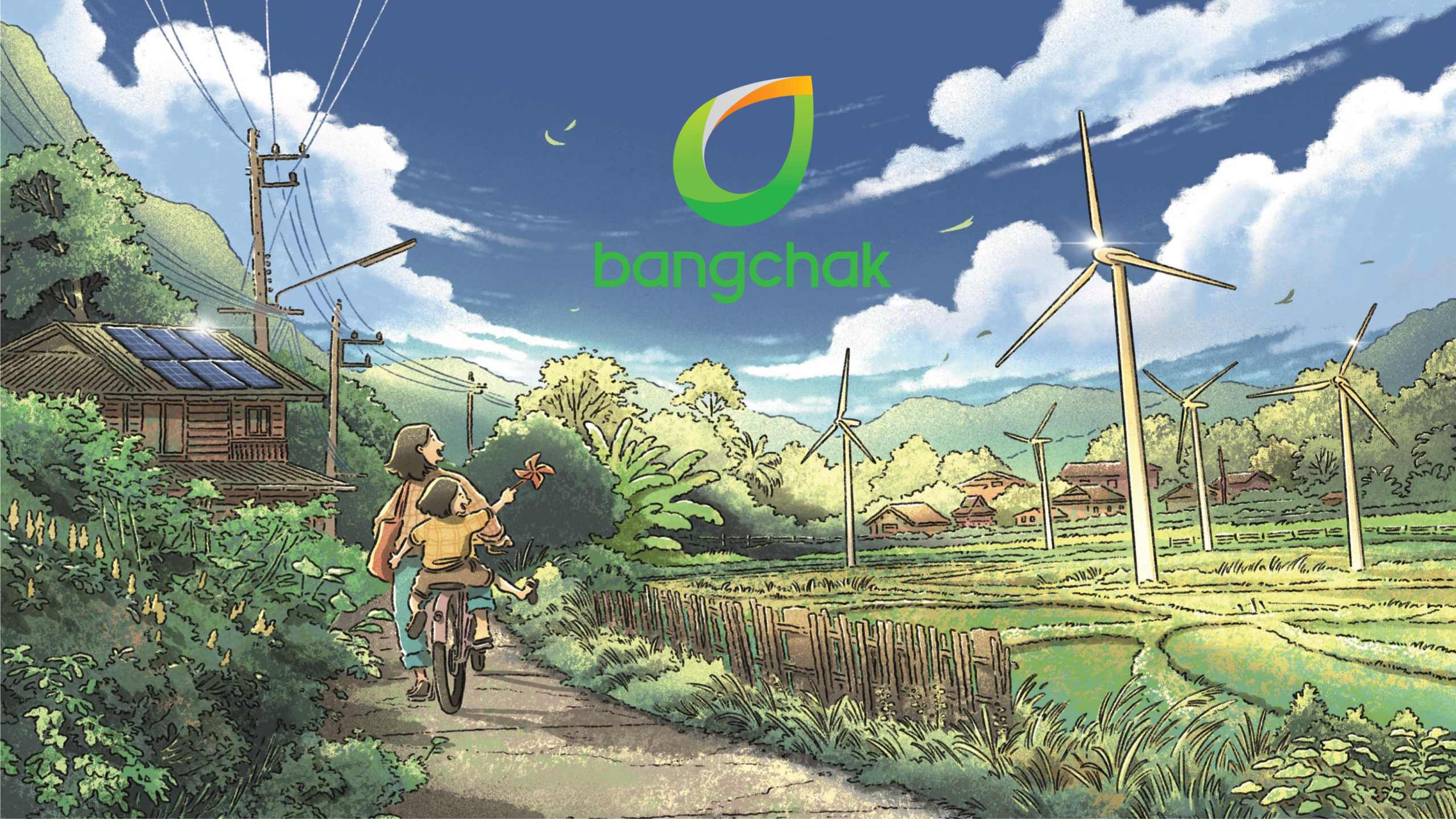
Describe the **targets used** by the company to manage climate-related risks and opportunities and performance against targets

Bangchak publicly committed to reaching net-zero GHG emissions and **set targets and programs to achieve Carbon Neutrality by 2030 and Net Zero GHG Emission by 2050 which 90% reduction and 10% offsetting with removal type of carbon credits** to fulfil the commitment through TCNN-CALO platform and Bangchak's website: https://investor.bangchak.co.th/en/net-zero .

Absolute GHG emission in 2024 (scope 1 and 2) of the refinery including HQ and Regional office increase 8 % and GHG emission intensity increase 10% compared with base year 2019 due to the company conducted a turnaround, resulting in a decrease in average refining capacity and increasing energy consumption in the production unit, which reached 5.20%FOEB. Nevertheless, we has a project to improve the production process and operations, including various projects during the major maintenance shutdown. These include Installing protective coating materials to prevent heat loss on the walls of the furnace in the production process to reduce energy consumption inside the furnace so that GHG emission reduce 2,215.16 tCO_2e.



To find water management including total fresh water withdrawn and percentage recycled, refining throughput of crude oil and other feedstocks and refining operating capacity: Sustainability report 2024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