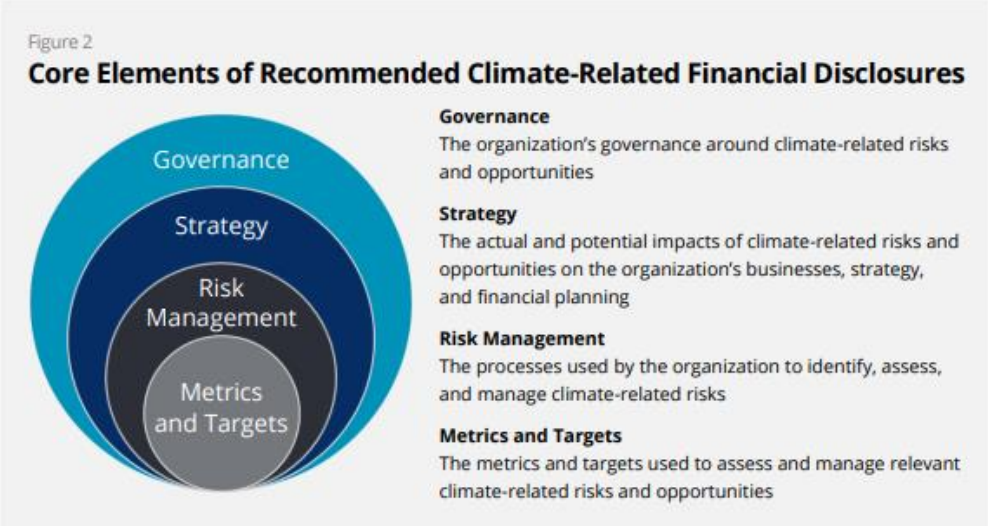
Carabao Group
TCFD Report 2025

TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (TCFD) 2025

Adopting the TCFD framework is a valuable step for Carabao Group (CBG) to address climate-related risks and capitalize on emerging opportunities. By integrating climate considerations into its governance, strategy, risk management, metrics, and disclosure practices, CBG can enhance its resilience, transparency, and long-term value creation. Embracing the TCFD framework is not only an ethical imperative but also a strategic move that positions CBG for success in a sustainable future.



Disclosure Aligned with Task Force on Climate-Related Financial Disclosure (TCFD) Framework

Recommendation Disclosure	Disclosure Source
Governance	
a) Describe the Board's oversight of climate-related risks and opportunities.	Page 4-5
b) Describe management's role in assessing and managing climate-related risks and opportunities.	
Strategy	
a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	Page 6-21
b) Describe the impact of climate-related risks and opportunities on the organization's business, strategy, and financial planning.	
c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	
Risk Management	
a) Describe the organization's processes for identifying and assessing climate-related risks.	Page 22-23
b) Describe the organization's processes for managing climate-related risks.	
c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	
Metrics and Targets	
a) Describe the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	Page 24-27
b) Describe Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	
c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	

GOVERNANCE

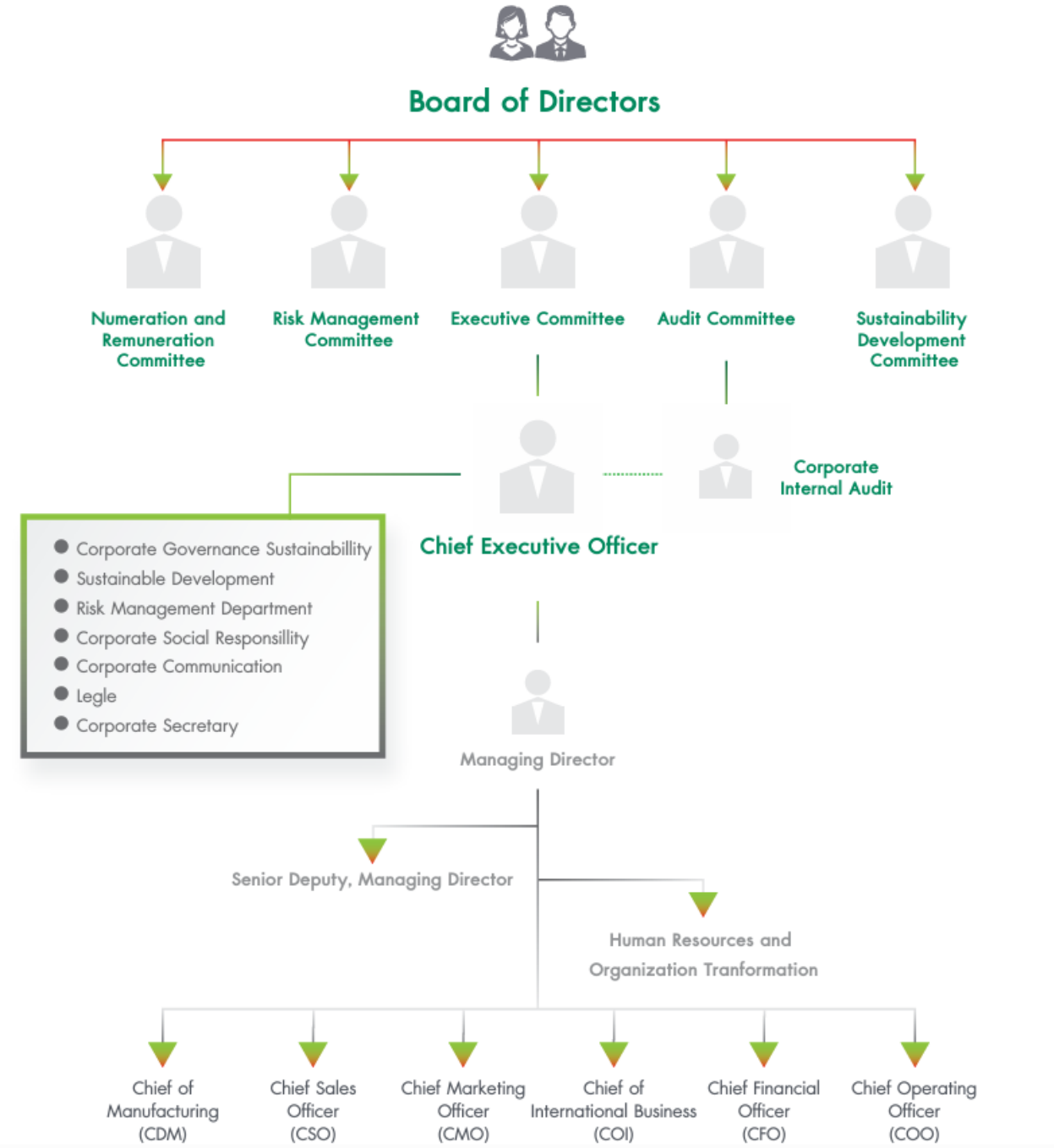
a) Describe the Board's Oversight of Climate-related Risks and Opportunities

Governing Body	Roles and Responsibilities	Meeting Frequency
Board of Directors	The Board of Directors set the goals, strategy, business plan, and budget yearly and controls the overall business operation accordingly. They also consider any proposals from executives that need the Board's approval. The Board oversights of climate-related issues and considers climate-change related matters raised by SDC and RMC for the best solution for the company.	5 times per year
Sustainable Development Committee (SDC)	SDC set the policy and action-needed operation regarding Sustainability Development for the company. SDC also supports the sustainability culture throughout the company, follow-up on sustainability issues, and considers the climate-related risks and opportunities.	4 times per year
Risk Management Committee (RMC)	RMC considers and identifies any significant risks and opportunities for the company in every aspect of operation, sets the mitigation plans, and keeps track of the progress.	4 times per year

b) Describe Management's Role in Assessing and Managing Climate-related Risks and Opportunities

Governing Body	Roles and Responsibilities	Meeting Frequency
Executive Committee (Ex-Com)	CEO and top executive managements review climate-related risks and opportunities, which might affect the operations. Each risk and opportunity get explored and decided on action plan and mitigation plan.	4 times per year
Sustainable Development Department	Accesses climate-related risks and opportunities, which were identified through sustainability work throughout the company. After assessing and prioritizing its materiality, SDC can focus on those materiality and work out details on mitigation plan to propose to the Board.	4 times per year
Risk Management Department	Audits and assesses all areas of operation to find risks of any aspect. Risks will be prioritized and sorted into ESG category and set mitigation plans for each risk. Those plans will be discussed with SDC and Board Meeting to find the best solutions.	4 times a year

Organizational Structure of Climate Governance



STRATEGY

2.1 Short, Medium, and Long-term of Climate-related Risks and Opportunities

CBG has assessed climate-related risk and opportunities according to TCFD recommendations. The scope of assessment covered the whole supply chain, with a focus on CBG's production plants in Bangpakong, Chachoengsao Province. Climate-related risks and opportunities that CBG identified, analyzed, and evaluated into physical risks, transitional risks and opportunities, which were useful in its business planning and preparation for the future.

Scope of Assessment	Identification of Risk and Opportunity	Prioritization Risk and Opportunities
Own Operation in Thailand - Glass Manufacturing - Packaging Manufacturing - Can Manufacturing - Bottling Plant - Warehouse and logistics - Energy - Water - GHG	Identified as - Physical Risk - Transitional Risk - Opportunity	- Data collection of those identified climate-related risks and opportunities to gauge the likelihood and financial impact for short, medium, and long term
Upstream and Downstream - Suppliers - Customer		

2.1.1 Climate-related Risk Assessment

Physical Risk:

Drought, Flood, Extreme Weather and Temperature were the risks that happened globally, which CBG used four physical indicators to evaluate under two climate scenarios (2°C or below 2°C scenario and High Carbon Scenario). The assessment was also conducted based on short (2030), medium (2040), and long-term (2050).

Transition Risk:

Changes in legislation and policy are considered as transition risk while the world gradually shifts towards green economy. Assessment of transition risk is also based on short (2030), medium (2040), and long-term (2050) to consider for indirect and direct impact. The evaluation will be analyzed under World Energy Outlook (WEO) scenarios recommended by IEA.

Opportunity

Assessment of climate-related opportunities is also based on time horizon, covering short (2030), medium (2040), and long-term (2050) to consider for indirect and direct impact from opportunities to company.

Term	IPCC Scenario – Physical Risk	Aspect of Impact of Transitional Risk	Scenario – Transitional Risk
Short term - 2030	2°C or below 2°C scenario: Global temperature well below 2°C	Direct impact: Focusing on financial impact of carbon tax. Thailand's Excise Department is planning to impose a carbon tax on energy, transport, and industrial sectors to help the country reach carbon neutrality by 2050 and net zero greenhouse gas emissions by 2063. The tax study is underway and will be completed by the end of 2023.	NGFS Current Policy Scenario. Thai government announced the current policy, which was implemented in 2015 after COP21.
Medium term 2031-2040		sectors to help the country reach carbon neutrality by 2050 and net zero greenhouse gas emissions by 2063. The tax study is underway and will be completed by the end of 2023.	
Long term 2041-2050	High Carbon Scenario: Global temperature rising above 4°C	Indirect impact: Higher price of electricity due to the rising cost, strict policy, and regulation.	SDS: Sustainable Development Scenario. Carbon tax will become a major factor putting on electric sector, resulting in the higher costs of fossil fuels used for generating electricity. Though alternative energy technologies may help subsidize the cost, the increasing price would be significant.

2.1.2 Overview of Physical Risks

Risk Type	Description	Impact on Business and Financial Impacts	Estimated cost of these actions
Drought	- A prolonged period of abnormally dry weather or precipitation deficiency, leading to a shortage of water supply in a specific region or ecosystem. - Dedicated Water Monitoring Team was set up between CBG and supplier focusing on water quality and quantity, which communicate daily (or more frequent if needed) to prevent and resolve any problems on water supply.	Upstream - Raw material (sugar and others) shortage due to the decreasing of yield. - Rising cost of raw materials Own operation - Increasing cost of water. - Water shortage might cause the interruption of production. CBG has defined timeframes for these assessments for 5 years. • If a water shortage disrupts production for more than 15 days, the Company could face a loss of around 771 million Baht. • If a water shortage disrupts production for more than 30 days, the Company could face a loss of around 1,541 million Baht. • If a water shortage disrupts production for more than 45 days, the Company could face a loss of around 2,312 million Baht. - Total production cost of products might increase and impact the product pricing. Downstream - Risk of products not available in the market.	Implement efficient water management strategies, including water conservation measures, smart irrigation systems, and water reuse/recycling programs. We have estimated around 30,000,000 Baht in these actions.
Flood	- The overflowing or inundation of normally dry land with water. They occur when there is an excessive amount of water in each area, often caused by heavy rainfall, snowmelt, dam failure, or	Upstream - Raw material (sugar and others) shortage due to the decreasing of yield. - Rising cost of raw materials Own operation	

Risk Type	Description	Impact on Business and Financial Impacts	Estimated cost of these actions
	a combination of these factors. - The scientific study of floods involves understanding their hydrological processes, analyzing precipitation patterns, river discharge data, and hydraulic modeling to assess flood risk, and developing strategies for flood forecasting, early warning systems, and flood management practices to mitigate their impacts on human populations and the environment.	- Flood might cause the interruption of production and damage the production lines. - Total production cost of products might increase and impact the product pricing. Downstream - Risk of products not available in the market.	
Increasing Temperature	- Increased temperatures can affect production processes. Some manufacturing processes require specific temperature conditions, and rising temperatures can disrupt or limit production capabilities. Heat stress can also affect the performance of machinery and equipment, leading to operational challenges.	Upstream - Raw material (sugar and others) shortage due to the decreasing of yield because of heat stress and water demand. - Rising cost of raw materials Own operation - Increased temperatures can affect industrial production processes. Heat stress can also affect the performance of machinery and equipment, leading to operational challenges. - Higher temperatures can impact energy production and consumption. Increased cooling requirements for air conditioning during hot periods can strain electricity grids. Heat waves can affect the efficiency of power generation systems, particularly for thermal power plants reliant on cooling water sources. - Higher evaporation of raw water and other liquids.	

Risk Type	Description	Impact on Business and Financial Impacts	Estimated cost of these actions
		Downstream - Heat stress can cause vehicles distribution to overheat and disrupt the delivery dates. - Higher cost for cooling the products for customers.	

2.1.3 Overview of Transition Risk

Transitional Risk	Description	Impact on Business and Financial Impacts	Estimated cost of these actions
Legislation and Policy	- Financial and operational risks that the company faces because of changes in laws, regulations, and government policies aimed at transitioning to a low-carbon and sustainable economy.	Upstream - Rising cost of raw materials Own operation - Increase the cost of production improvement to be in accordance with the law. - Electricity Vehicle (EV) will become the norm of transportation in the plant and on logistics. - Energy and GHG regulations maybe enforced by carbon tax and there will be charges on emission which is increasing cost around 1,700,000 Baht per year from diesel and gasoline consumption within organization. Average estimated time for financial implications of this risk is defined timeframes for 5 years. - EU (and other countries) enforces on CBAM, which requires its products to be certified on its CFP and keep its carbon footprint as low as possible. Downstream - Product price might be affected.	For sourcing renewable energy, we have projected an annual cost of approximately 220 million Baht for installation of solar panel in on-site power generation unit. Moreover, additional financial planning approximately 66 million Baht is allocated for the installation of a system to recover waste heat from furnaces for use in boiler systems. In term of risk mitigating actions, these actions can reduce GHG emission and energy costs over the long term which help to reduce the risks driven by changes in regulation may be enforced by carbon tax. Average estimated time for financial implications of this risk is defined timeframes for 5 years.
Technology	- Improvements or innovations that drive towards the transition to lower-carbon, energy efficiency operation. - Adapting new technology might cause some issues replacing old systems.	Upstream - Higher cost of raw materials and fuel that geared toward cleaner and greener energy. Own operation - Fossil fuel technologies might face the problems, such as	

Transitional Risk	Description	Impact on Business and Financial Impacts	Estimated cost of these actions
		increasing price or insufficient volume. - Higher cost of installing new technology and machines - Shifting from fossil fuel to green power fuel might cause disruption to the systems and operation. Downstream - All investment might cause the bottom line and affect the product price.	
Market	- Shifts in market dynamics and investor preferences associated with the transition to a low-carbon and sustainable economy. - Changes in consumer preferences and demand for environmentally friendly products and services.	Upstream - Suppliers must comply to ESG and sustainable methods and receive standard certifications to be able to do business with their customers. Own operation - Higher cost in research and development of low-carbon products - Higher demand from customers for waste packaging solution Downstream - Higher demand from customers for greener and more circular economy of products	
Reputation	- Customers' perceptions on brands shift toward more circular economy, lower-carbon products, and sustainability brand.	Upstream - Suppliers must comply to ESG and sustainable methods and receive standard certifications to be able to do business with their customers. Own operation - Move toward circular economy and promote it to consumers. - Solve waste packaging issue effectively. Downstream - Customers give credit to more sustainable brand and select their products first.	

2.1.4 Overview of Opportunity

Opportunity	Description	Positive Impact on Business and Financial Impacts	Estimated cost of these actions
Renewable energy	- Renewable energy presents significant opportunities for businesses and economies in the transition to a sustainable future. - The use of solar cell, biomass, and bio-fuel is the way forward to answer to legislation and customers' expectation.	Upstream - Upstream businesses may be subject to regulations related to emissions reductions or sustainability targets. Investing in renewable energy can help meet regulatory requirements and ensure compliance. Own operation - Adopting renewable energy sources, such as solar panels, for on-site power generation can help businesses reduce energy costs over the long term around 26,906,177.72 Baht per year, particularly as renewable energy prices continue to decline. - Transitioning to renewable energy can significantly reduce CBG's carbon footprint, enhancing sustainability credentials and aligning with environmental targets and initiatives. - Generating renewable energy on-site provides a degree of energy independence, reducing reliance on grid electricity and mitigating risks associated with energy price fluctuations or supply disruptions. - Embracing renewable energy technologies often drives innovation and efficiency improvements within CBG's own operation. Downstream - Incorporating renewable energy into products can offer a unique selling point and differentiate itself from competitors, appealing to environmentally conscious customers. - Renewable energy is increasingly sought after by consumers who prioritize sustainability, which might increase customer loyalty. - Encouraging suppliers to adopt renewable energy or meet certain sustainability	For sourcing renewable energy, we have projected an annual cost of approximately 220 million Baht for on-site power generation, with an additional 66 million Baht allocated for the installation of a system to recover waste heat from furnaces for use in boiler systems. In term of opportunity management, these investments aim to enhance energy self-sufficiency and reducing our carbon footprint, in line with our commitment to sustainable business practices. The average estimated time for financial implications of this opportunity is energy cost saving around 26,906,177.72 Baht per year in timeframes for 5 years.

Opportunity	Description	Positive Impact on Business and Financial Impacts	Estimated cost of these actions
		criteria, thereby contributing to broader renewable energy adoption.	
Low-carbon Products	- Products that have a reduced carbon footprint compared to conventional alternatives throughout its lifecycle, including production, use, and disposal. These products are designed to minimize greenhouse gas emissions, energy consumption, and resource depletion while maintaining or improving performance and functionality. Low carbon products often utilize sustainable materials, energy-efficient technologies, renewable energy sources, and eco-friendly manufacturing processes.	Upstream - Low carbon products often require changes in the supply chain, such as sourcing sustainable raw materials or components. Upstream businesses may need to work closely with suppliers to ensure the availability and traceability of low carbon inputs. - Regulations related to emissions reductions and sustainability may influence the upstream sector. Businesses that produce or source low carbon products can position themselves to meet regulatory requirements and demonstrate compliance. - Adopting low carbon products in the upstream sector can enhance a company's reputation and improve stakeholder engagement, particularly among environmentally conscious customers and investors. Own operation - Integrating low carbon products into a company's own operations expands the product portfolio and offers new revenue streams. By providing sustainable alternatives to customers, businesses can capture a growing market demand for environmentally friendly options. - Low carbon products are often associated with energy efficiency improvements. Implementing energy-saving measures and using energy-efficient technologies in own operations can enhance sustainability, reduce costs, and improve operational efficiency. - Adopting low carbon products helps businesses reduce their own carbon footprint. This contributes to meeting	

Opportunity	Description	Positive Impact on Business and Financial Impacts	Estimated cost of these actions
		sustainability goals and addressing environmental concerns, enhancing the company's environmental performance. - Embracing low carbon products often requires innovation and research and development efforts. Companies that successfully develop and offer low carbon solutions can differentiate themselves from competitors and drive industry innovation. Downstream - Offering low carbon products in the downstream sector can differentiate a business from competitors, attracting environmentally conscious customers and capturing market share in the growing sustainability-focused consumer segment. - Producing and marketing low carbon products positions companies to meet sustainability regulations and comply with relevant standards. - Collaborate with suppliers and partners to create a low carbon value chain. This collaboration can lead to joint initiatives, knowledge sharing, and innovation that supports the development and adoption of low carbon products.	

2.2 The impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning

Climate-related risks and opportunities have a significant impact on an organization's business, strategy, and financial planning. Risks such as physical impacts, regulatory changes, and reputational damage can disrupt operations and result in financial losses. Conversely, opportunities such as adopting renewable energy, developing climate-resilient products, and embracing sustainable practices can drive innovation, enhance competitiveness, and attract investors. Effective identification, assessment, and integration of climate-related risks and opportunities into business strategies and financial planning are critical for long-term resilience and success.

The Company classifies risks into five categories: strategic risks, operational risks, financial risks, compliance risks, and sustainability risks. The sustainability risks include climate-related risk and opportunity assessments which affect its business and strategy and integrated into the Company's centralized enterprise risk management program.

2.2.3 Climate Risk Analysis

2.2.3.1 Physical Risk Scenario Analysis

Type of Physical Risk	Physical Risk Scenario Analysis
Drought	- RCP 2.6: there could be scenarios of more manageable drought conditions compared to higher emission scenarios. While water scarcity may still be a concern, the impact on agriculture, water resources, and ecosystems might be relatively moderate. - High Carbon Scenario represents a high-emission scenario, which could result in more severe drought conditions in Thailand. Water scarcity and impacts on agriculture, water resources, and ecosystems may be more pronounced, leading to greater challenges in managing water supplies and maintaining agricultural productivity.
Flood	- RCP 8.5: The frequency and intensity of flood events may be reduced compared to higher emission scenarios, resulting in a lower risk of flooding in certain areas. However, localized heavy rainfall events can still occur, necessitating attention to local drainage systems and infrastructure. - High Carbon Scenario projects an increased risk of intense rainfall events and higher flood occurrences in Thailand. This could lead to more frequent and severe flooding, posing significant risks to infrastructure, communities, and the economy.
Increase Temperature	- RCP 2.6: Temperature rise and heatwave occurrences may be limited, leading to relatively lower risks associated with heat stress and its impacts on ecosystems, public health, and energy demand. - High Carbon Scenario implies a substantial temperature rise, resulting in increased heatwaves, heat stress, and associated impacts on human health, ecosystems, and energy demand. The risks of heat-related illnesses and energy consumption for cooling purposes may be higher under this scenario.

2.2.3.2 Transition Risk Scenario Analysis

Type of Transition Risk	Transition Risk Scenario Analysis
Carbon Tax	- NGFS (2°C and below scenario) represents a scenario with stringent mitigation efforts, aiming to limit global warming well below 2 degrees Celsius above pre-industrial levels by the end of the 21st century. • Low-carbon economy and Energy transition will be more gradual, allowing CBG more time to adapt and potentially minimize economic disruptions. • With greater focus on research and development of clean technologies, carbon tax can encourage innovation and deployment of these technologies. - High Carbon Scenario represents a high-emissions scenario with no significant climate policy, resulting in a pathway that leads to a potential increase in global warming of around 4 degrees Celsius or more by the end of the century. • High-emissions trajectory and the abrupt introduction of carbon tax could lead to more significant economic shocks and disruptions to adapt rapidly to additional policies and regulations. • Lack of significant policy support and incentives may limit technological innovation and hinder the transition to a low-carbon economy, reducing the effectiveness of the carbon tax. - IEA STEPS framework allows for a comprehensive analysis by considering various aspects such as economic implications, technological advancements, and policy changes. With this approach, decision-makers can evaluate different scenarios based on varying levels of carbon pricing and their corresponding impacts on different sectors. By quantifying the potential risks and uncertainties, stakeholders can make informed decisions to mitigate negative consequences and optimize pathways towards a low-carbon economy. Furthermore, incorporating scientific research and expert opinions through scenario analysis enhances the credibility of the outcomes and provides valuable insights for designing effective policies that align with sustainability goals. This methodology enables policymakers to ensure a just transition towards decarbonization without undermining economic stability or neglecting social considerations.

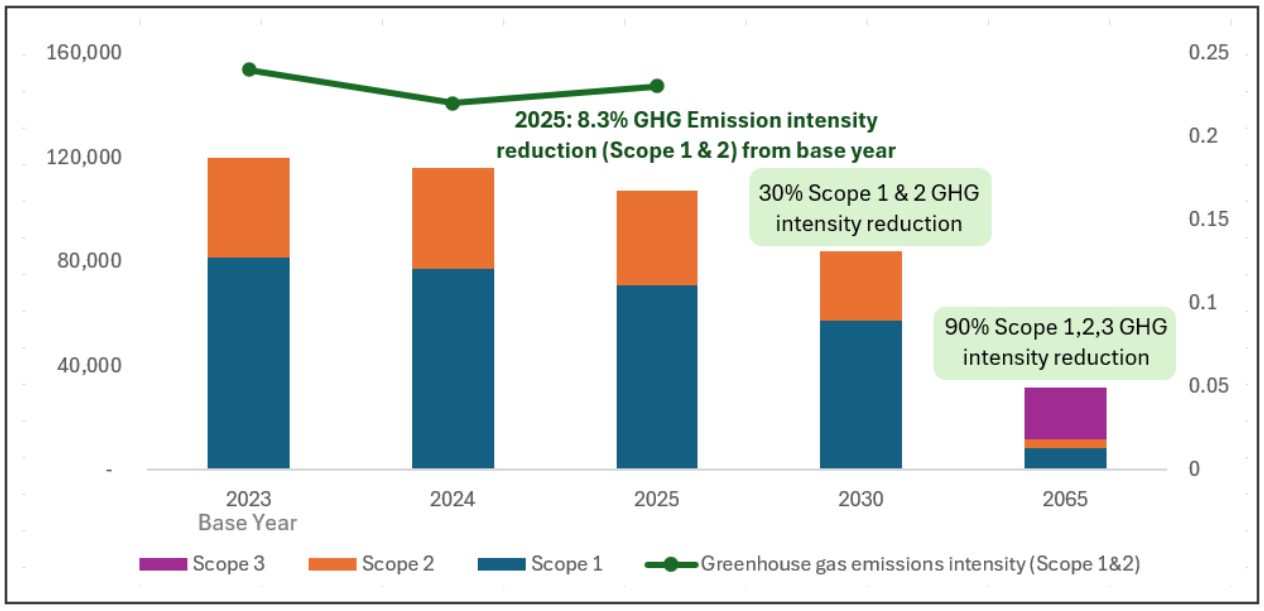
CBG Decarbonization and Transition Plan

The company has developed a decarbonization strategy and transition plan outlining GHG reduction targets for the short term (2025), medium term (2030), and long term (2065). CBG has set near-term target to reduce GHG emission scope 1&2 by 30% within 2030. We also commit to long-term target to become Net zero by 2065, which is in the alignment with Thailand's aspiration goal. Our climate strategy defines the specific actions planned to meet these targets within the designated timeframes. The measures focus on the primary sources of the company's GHG emissions, including Scope 1 (mainly from fuel consumption), Scope 2 (mainly from electricity consumption), and Scope 3 emissions from Categories 1 and 3.

The company aspires to achieve decarbonization through the "CLEAN" strategy, which includes the following pillars:

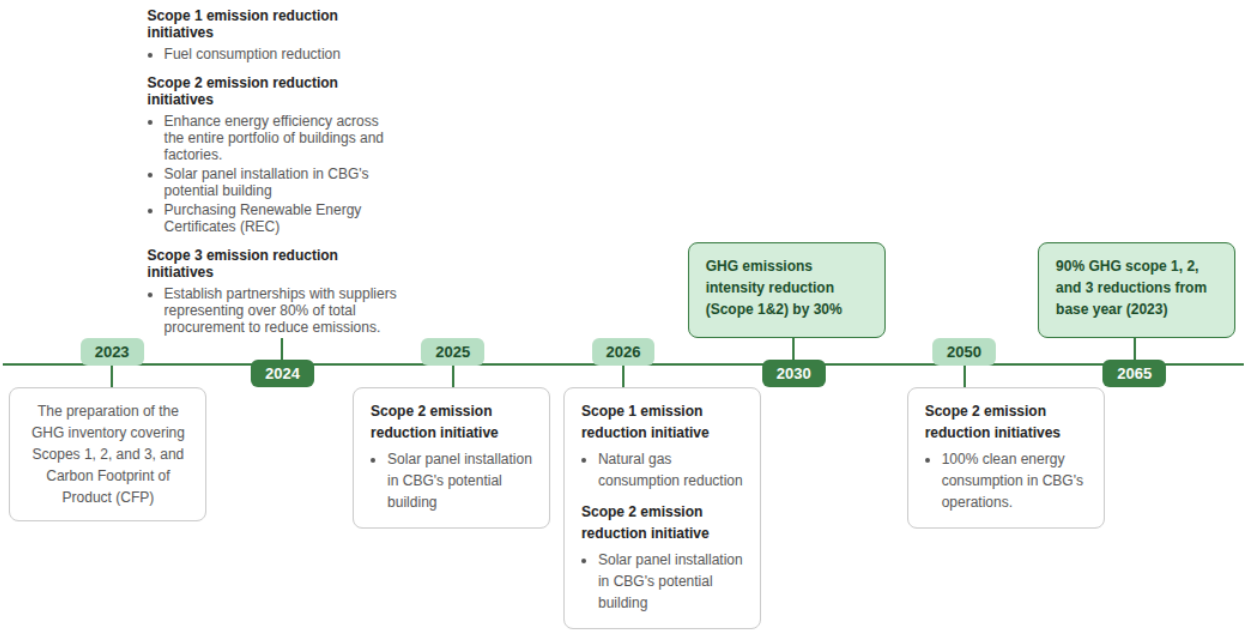
- Conserve & Clean Electricity: Maximize energy efficiency and promote the use of renewable energy across operations.
- Lower Natural Gas Usage: Optimize natural gas consumption in manufacturing processes at key facilities, including CBD, APG, ACM, and APM.
- Employ E-Mobility for the Future: Facilitate the transition to electric vehicles within logistics and company operations.
- Avoid Emissions from Industrial Processes: Enhance production processes to minimize greenhouse gas (GHG) emissions.
- Net-Positive Growth: The transition to low-carbon products and packaging with the commitment to reducing GHG emissions while supporting the sustainable growth of the business.

Carabao Group's Pathway Gas Emissions



CBG's GHG emissions reduction roadmap shows a steady decline in total emissions driven by reductions in Scope 1 and Scope 2. The Company targets a 30% reduction in emissions intensity by 2030 and aims to achieve up to 90% reduction across Scope 1 Scope 2 and Scope 3 by 2065 reflecting its long-term commitment toward net zero. Therefore, the company is actively addressing its Scope 1, 2, and 3emissions reduction strategy to be implemented within the designated timeframes (short, medium, and long terms) as follows:

Scope 1, 2, and 3 emission reduction roadmaps



CBG's Scope 1 decarbonization strategy focuses on reducing direct emissions through energy efficiency improvements, transition to EVs, and technological upgrades across its production operations. The Company is actively transitioning to electric company vehicles at CBD, APG, ACM, and APM. Also, lower-emission alternatives including natural gas, while optimizing combustion efficiency in boilers and thermal systems. In parallel, investments in advanced production technologies are being implemented to enhance operational efficiency and reduce fuel consumption intensity per unit of output from the increasing recycled content of glass to help in reducing energy use. These initiatives are integrated into the Company's broader operational excellence framework, ensuring that emissions reduction is embedded within process optimization and continuous improvement across key manufacturing facilities (CBD, APG, ACM, and APM).

CBG's Scope 2 strategy is to increase the proportion of clean energy consumption while improving energy efficiency across all operations. The Company is expanding the deployment of on-site renewable energy, particularly solar photovoltaic systems, and complementing this with the procurement of Renewable Energy Certificates (RECs) to accelerate the transition toward low-carbon electricity. At the same time, CBG continuously enhances energy performance across its facilities through process optimization, equipment upgrades, and energy management systems aimed at reducing energy intensity.

CBG addresses Scope 3 emissions through an integrated value chain strategy focused on green procurement and sustainable sourcing, circular material use, and supplier engagement. The Company is actively shifting its product mix toward more sustainable packaging by increasing the proportion of recycled

content, particularly in aluminum coils, thereby reducing upstream emissions associated with raw material extraction and processing. In line with its decarbonization commitment, CBG has explicitly committed to phasing out carbon-intensive products from those shifting toward more sustainable packaging, supported by an investment to transition toward more sustainable alternatives. In addition, CBG engages closely with key suppliers representing a significant portion of its procurement to communicate climate expectations, promote low-carbon practices, and encourage the adoption of Carbon Footprint of Product (CFP) methodologies.

To support financial investment planning for decarbonization initiatives and transition plan, CBG has allocated budget to invest approximately 98 million THB in 2025 to support decarbonization initiatives for GHG reduction target. These initiatives will support the company to progress toward CBG long-term GHG reduction ambitions. The financial planning comes from internal funding source allocation for climate strategy.

These initiatives are strategically aligned with the company's GHG emission reduction goals as below.

The performance of CBG's decarbonization initiatives and transition plan

GHG emission	GHG emission reduction initiatives	GHG reduction contribution and progress in 2025	Investment planning
Scope 1	- Fuel reduction measures such as transitioning to electric company vehicles, natural gas optimization at CBD, APG, ACM, and APM	7.4% reduction in 2025 (Scope 1 reduced from 77,116 to 71,386 tCO_2e vs 2024)	> 45 million THB
Scope 2	- Enhance energy efficiency across the entire portfolio of buildings and factories - Solar panel installation in CBG's potential building. Solar energy generation: 12,902,940 kWh/year (CBD: 4,240,011 kWh, APG: 8,662,928 kWh). CO_2 reduction: 6,450.18 tCO2e/year - Purchasing Renewable Energy Certificates (REC)	6.4% reduction in 2025 (Scope 2 reduced from 38,768 to 36,293 tCO_2e vs 2024)	> 53 million THB
Scope 3	- Establish partnerships with suppliers representing over 80% of total procurement to reduce greenhouse gas emissions under Scope 3	Scope 3: 288,544 tCO_2e in 2025 (expanded data coverage, including Category 1: Purchased goods & services 263,837 tCO_2e)	> 0.3 million THB

Internal Carbon Pricing

Integrating carbon pricing into investment decisions is a key approach to enhancing the feasibility of decarbonization projects aimed at cutting greenhouse gas emissions. Additionally, it serves as a vital strategy to mitigate the adverse impacts of climate change and guide the company's operations toward lowering its carbon footprint.

The company employs shadow pricing for its carbon pricing into investment decision making processes as presented in table below.

Topics	Description
Objective	Reduce the company's GHG emissions and support investment decisions to increase renewable energy usage
GHG emission coverage	GHG emission scope 1 and 2
Scope of application	Investment decision
Internal carbon price	145 THB/tCO_2e

2.3 Physical Climate Risk Adaptation

Physical climate risks pose significant challenges that require adaptation measures to mitigate their impacts. Here are some considerations for adapting to these climate risks:

Responses	Adaptation Actions	Implementation Time Frame (Baseline 2023)
Drought	- Implement efficient water management strategies, including water conservation measures, smart irrigation systems, and water reuse/recycling programs. - Develop alternative water sources, such as rainwater harvesting, desalination, and groundwater management, to reduce reliance on rainfall-dependent sources. - Enhance monitoring systems to detect drought conditions and establish early warning systems to facilitate timely response and preparedness.	Within 5 years
Flood	- Design and construct buildings and critical infrastructure with flood-resistant features, such as elevated foundations, flood barriers, and flood-proofing techniques. - Improve flood forecasting capabilities and emergency response mechanisms to ensure timely evacuation, early warning communication, and effective rescue operations.	Within 5 years
Increase Temperatures	- Preserve and restore natural ecosystems, such as forests and wetlands, as they provide vital cooling services, regulate local climate, and support biodiversity that contributes to overall resilience. - Implement planning strategies that promote green spaces, reflective surfaces, energy-efficient building design. - Energy-efficiency operations at plant to reduce GHG.	Within 5 years

The Company has processed physical climate risks adaptation, covering 100% of its existing operations.

RISK MANAGEMENT

a) Describe the Organization's Processes for Identifying and Assessing Climate-related Risks.

The company integrates the climate risk management process as part of its enterprise risk management system. The four stages of climate-related risk management process is presented in table below.

1. Risk Identification	2. Risk Assessment / Risk prioritization	3. Risk management	4. Risk monitoring
Risk owners from the Sustainable Development Department are responsible for assessing climate-related risks and opportunities identified through the company's ongoing sustainability initiatives. Meanwhile, the Risk Management Committee (RMC) works in coordination with the Risk Management Department to evaluate all operational areas and identify potential climate-related risks across various aspects. These climate-related risks may affect the company's ability to reach its targets and meet stakeholder expectations, such as risk of water scarcity caused by drought, risk of operation disruption caused by natural disasters, etc. The company classified these risks into short, medium and long-term risks.	Risk owners responsible in analyzing and assessing the risks, by considering both financial and non-financial impacts which might impact the company's targets and its probability to prioritize those risks. Then, the Risk Management Committee (RMC) and Sustainable Development Committee (SDC) set up appropriate mitigation plans for each risk, which are overseen by the Board to identify the best solutions for the company.	Risk Management Committee sets the policies and framework of climate-related risk management, which each department will deploy to identify and assess risks across the company.	Risk Management Committee (RMC) follows up on the progress of Risk Management every quarter, covering both Physical Risks and Transition Risks. The risk assessment process will consider positive and negative impact on the company, and setup short, medium, and long-term mitigation plans to minimize the impacts and prepare for the coming changes. This will help the company to be more resilience and further its competitiveness.

b) Describe the Organization's Processes for Managing Climate-related Risks.

The Company has set its risk management systematically according to the international standard of The Committee of Sponsoring Organization of the Treadway Commission or "COSO" by setting its risk management policy, risk management manual, including climate-related risks, to create understanding and knowledge of risk management, and raise awareness in the importance of risk management. CBG integrated climate-related risk management into its Enterprise Risk Management framework. Once the climate risks are identified and prioritized using adopted risk assessment criteria through scenario analysis, the Risk Management Committee (RMC) and Sustainable Development Committee (SDC) will determine the response strategy to mitigate and control the risks.

In order to manage physical risk, CBG has adopted KRIs for water stress arising from climate change. These KRIs define threshold based on the ability of the third-party water supplier to provide an adequate and reliable water supply to support the operation. The risk exposures are categorized into four levels as follows:

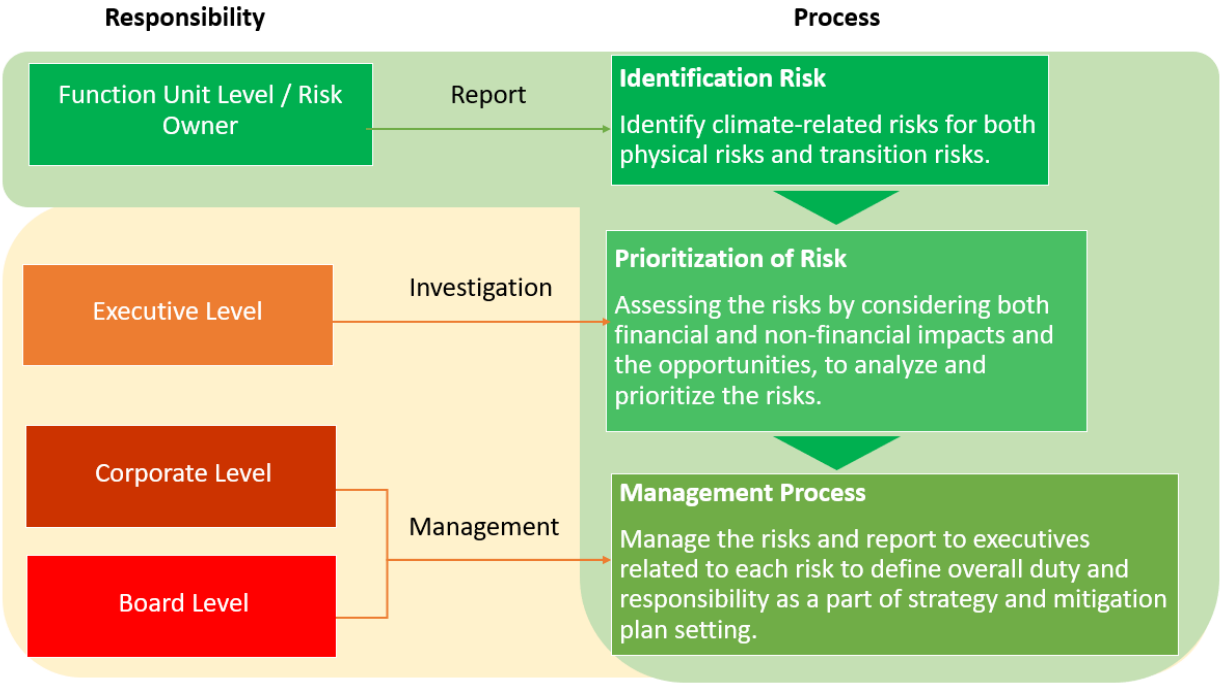
- Low risk: Adequate and stable supply from the primary third-party water source
- Moderate risk: Partial water supply shortfalls that require supplementary supply.
- High risk: Constraints in both primary and reserve water sources, which may potentially affect operations but have no impact on sales.
- Very high risk: Severe water shortages across all water sources, leading to production disruptions and impacts on sales.

In addition to managing climate mitigation and adaptation risk, CBG is evaluating risk exposure based on the Company's performance in reducing GHG emissions intensity (for GHG Scope 1 and 2) compared with production output. The assessment allows CBG to monitor whether emissions reduction performance remain alignment with climate targets and transition pathway. The risk exposures are categorized into four levels as follows:

- Low risk: Emission intensity is below the 2025 GHG intensity reduction target.
- Medium risk: Emission intensity aligned with or exceeds the 2025 GHG intensity reduction target threshold.
- High risk: Emission intensity equals or exceeds the 2024 target level
- Very high risk: Emission intensity equals or exceeds the 2023 baseline, reflecting a significant deviation from the company's reduction targets and indicating a high level of climate transition risk.

The Company has established mitigation and adaptation strategies to manage these risks and opportunities. In addition, CBG promotes a risk management culture across all levels of the organization and continuously communicates with employees to encourage all departments to enhance their risk management practices. Also, Risk Management Committee has set up workshop with executives from those risk-related departments every quarter to assess and follow up the progress of risk management strategies.

c) Describe how Processes for Identifying, Assessing, and Managing Climate-related Risks are Integrated into the Organization's Overall Risk Management.



METRICS AND TARGETS

Carabao Group is strongly committed to integrating sustainability into our core business by aligning with the TCFD recommendations. To drive progress, in 2023, we established annual targets and initiated performance tracking for GHG emissions, waste management, energy management, packaging, circular economy, and operational waste and discharge. Notably, our performance in 2023 surpassed the set targets.

Looking ahead, CBG will strengthen its commitment by establishing ambitious long-term targets for 2025 and beyond. Our focus will be on further reducing GHG emissions, aiming for carbon neutrality, and increasing the use of renewable energy in our operations. These proactive efforts are in line with Thailand's national goals of achieving carbon neutrality by 2050 and net zero emissions by 2065.

1. Metrics Used by the Organization to Assess Climate-related Risks and Opportunities

In 2023, CBG implemented a comprehensive set of metrics to assess and manage climate-related risks and opportunities. These metrics focus on key operational areas and are designed to mitigate risks related to resource scarcity, regulatory changes, and carbon pricing while capitalizing on opportunities to improve efficiency and reduce environmental impact. The five main metrics are described in table below.

Metrics Used by CBG in 2025

Metric	Description
1. GHG operational emissions	CBG tracked both direct (Scope 1) and indirect (Scope 2) emissions in accordance with the ISO 14064-1 standard, ensuring the company can monitor and reduce its carbon footprint. In 2025, total Scope 1&2 emissions were 107,679 tCO_2e, a reduction of 10.2% (GHG absolute emission) compared to the 2023 baseline.
2. Water Management	CBG measured municipal water usage, especially in areas like cooling systems, to mitigate risks related to water scarcity and increasing water costs. In 2025, net total water consumption was 1.27 million cubic meters which is 8.6% lower than year 2024.
3. Energy Management	CBG tracked energy consumption across key areas, including water chiller pumps, compressors, and refrigerant air dryers. In 2025, net total energy consumption was 1,419,473 GJ. Solar energy generation: 46,451 GJ/year. Energy intensity: 4.87 GJ/production ton.
4. Packaging and Circular Economy	CBG tracked the reduction of materials used in packaging, such as aluminum and glass, and assessed its recycling rates to mitigate risks related to resource dependency and supply chain disruptions. In 2025, recycled glass content: 73.76% increasing 0.69% compared to 2024. Aluminum can weight per unit reduction: 2.6% (vs 2023). Glass bottle weight per unit reduction: 2.1% (vs 2024). 11 products with CFP certification.
5. Operational Waste and Discharge	CBG monitored the amount of waste sent to landfills and the recycling rate of materials such as plastic bags. In 2025, total waste: 47,009 metric tons. Waste recovery rate: 97%. Landfill waste: 468 metric tons (38% reduction from 2024). Hazardous waste: 723 metric tons (34% reduction from 2024).

2. Targets Used by the Organization to Manage Climate-related Risks and Opportunities and Performance Against Targets.

In 2025, the company successfully met its annual targets for key metrics, making significant progress as demonstrated in table as below. The company not only exceeded its GHG emissions reduction target by achieving an 8.3% reduction but also achieved substantial energy savings through efficiency measures, particularly in its water chiller pumps, compressors, cooling tower and lighting. Additionally, CBG are achieving to use 100% recyclable material for packaging. These achievements highlight CBG's strong operational performance and proactive approach to managing climate-related risks. Moving forward, CBG will continue expanding its solar rooftop panels as planned and explore other alternative energy sources to further enhance its sustainability efforts.

Climate-related targets and performance in 2025

Metric	2025 target	2025 performance against target
1. GHG operational emissions	Reduction of direct and indirect greenhouse gas emissions (Scope 1&2) by 8.6% per unit of product compared to the base year 2023	Direct and indirect greenhouse gas emissions (Scope 1&2) reduced by 8.3% per unit of product. Total Scope 1&2: 107,679 tCO_2e (reduced 10.2% absolute vs 2023 baseline of 119,880 tCO_2e).
2. Water Management	Recover 96,000 cubic meters of RO Reject water at CBD factory	Recovered 88,652 m^3 of RO Reject water (Jan-Aug 2025). Total water consumption reduced to 0.12 million m^3. Total water savings from 3Rs: 131,731 m^3/year.
3. Energy Management – APG Glass Melting	Reduction of glass melting energy consumption by 1%	Reduced by 1.3% (Furnace 1) and 1.4% (Furnace 2). Cost savings THB 4,459,270.
4. Energy Management – CBD Lighting	Reduction of electricity consumption at least 40,406 kWh/year from lighting system.	Reduce electricity 53,314 kWh/year by upgrading to high-efficiency lighting system. Cost savings THB 202,593.
5. Energy Management – CBD Root Blower	Reduction of electricity consumption at least 51,490 kWh/year from VSD installation.	Reduce electricity 115,778 kWh/year by installing VSD blower.
6. Energy Management – APM Compressed Air	Reduction of electricity consumption at least 9,254 kWh/year from pressure reduction.	Reduce electricity 11,129 kWh/year by compressed air pressure reduction. Cost savings THB 43,445.
7. Energy Management – Solar Energy	Maximize solar energy generation across CBD and APG.	Total solar generation: 12,902,940 kWh/year (CBD: 4,240,011 kWh, APG: 8,662,928 kWh). CO2 reduction: 6,450.18 tCO2e/year.

Metric	2025 target	2025 performance against target
8. Packaging and Circular Economy	- Reducing flexible packaging waste from Blow film machine setup process less than 500 kg per time. - Increase recycled glass content. - Reduction of aluminum can unit weight by 3.4% - Reduction of glass bottle unit weight by 2.4%	- Reducing flexible packaging waste from Blow film machine setup process 147 kg per time. - Recycled glass content: 73.76% (+0.69%, over 160,000 tons). - Aluminum coil thickness reduced to 0.245 mm. and 2.6% unit weight reduction - Reduction of glass bottle unit weight by 2.1%
9. Operational Waste – APM Corrugated	- Reducing waste in sheet board process of corrugated paper by less than 1.3%. - Reducing waste in RSC box gluing process by less than 0.5%	- Sheet board waste is 1.38%. - Waste of RSC box gluing process is 0.45%, previously, RSC box gluing waste was 0.6% in 2024.
10. Operational Waste – Landfill	Reduce waste to landfill.	Landfill waste is 468 metric tons (36% reduction from 2024, down from 760 metric tons). Total waste recovery rate is 97%.

3. GHG emissions inventory (Scope 1, 2, and 3) from 2021 to 2025

CBG continues to rigorously monitor its greenhouse gas (GHG) emissions in accordance with the ISO 14064 standard, ensuring accurate and transparent reporting of both Scope 1 and Scope 2 emissions. The inventory was verified by a third party.

Between 2021 and 2025, CBG significantly expanded its greenhouse gas (GHG) emissions reporting, incorporating a more comprehensive assessment of Scope 3 emissions. Under its own operation, CBG improved its emissions efficiency with continued reduction in Scope 1&2 emissions, reflecting the company's proactive approach to addressing climate-related risks and enhancing transparency in its GHG inventory. The total GHG emissions by scope within the CBG organizational boundary are as follows.

GHG emission inventory (scope 1, 2, and 3) from 2021 to 2025.

Indicator	Unit	2021	2022	2023	2024	2025
Absolute emission						
Direct GHG emissions (Scope 1)	tCO_2e	15,838	81,903	81,550	77,116	71,386
Location-based energy indirect GHG emissions (Scope 2)	tCO_2e	42,761	41,647	38,330	38,768	36,293
Other relevant indirect GHG emissions (Scope 3)	tCO_2e	1,298	74,328	296,178	30,409	288,544
Total GHG emission (Scope 1 and 2)	tCO_2e	58,599	123,550	119,880	115,884	107,679
Total GHG emissions (Scope 1, 2 and 3)	tCO_2e	59,897	197,878	416,058	146,293	396,223
Data coverage (by % of operation sites)	%	100	100	100	100	100
Intensity emission						
GHG emissions per product unit (Scope 1 & 2 Location-based)	tCO_2e /ton	-	0.22	0.24	0.22	0.22

Notes:

- The scope of GHG emission data covers 100% of CBG, CBD, DCM, APG, ACM, and APM.
- Direct GHG emissions (Scope 1) consist of emissions from various activity categories, including mobile combustion, stationary combustion, wastewater treatment, raw material combustion, and seepage/leakage.
- Indirect GHG emissions (Scope 2) come from electricity consumption from the power grid.
- Other indirect GHG emissions (Scope 3) have been collected more comprehensively, covering 13 relevant categories. The significance category covers 5 categories: Purchased goods and services, Fuel- and energy-related activities not included in Scope 1 or 2, Upstream transportation and distribution, Downstream transportation and distribution, and Use of sold products.
- In 2025, Scope 3 Category 1 (Purchased goods & services) was significantly expanded to cover 263,837 tCO2e, reflecting more comprehensive supplier data collection covering raw materials, cans, and packaging.

In addition, CBG continues its journey on Carbon Footprints for Organization (CFO) certification, which started in 2022. With the expansion to Carbon Footprints for Products (CFP) certification for 11 products in 2024 and aiming for more in 2026 and beyond, CBG will be able to manage its GHG emissions better and develop low-carbon products in the future.