# Climate Change Management Report 2023

Your Trusted Partner for a Sustainable Better Living

Berli Jucker Public Company Limited

# Climate Change Management Report 2023

## Overview

In 2023, the global spotlight on climate change and the resolute commitment to achieve the Net Zero target have captivated attention across all sectors worldwide, including the business realm. Acknowledging the significant positive and negative impacts of this issue on the business sector, there is an imperative to adopt and enhance policies, procedures, and operational processes to align with global efforts to address climate change. This alignment not only meets stakeholders' expectations but also effectively manages the spectrum of risks and opportunities stemming from climate change.

Berli Jucker Public Company Limited and its Group (BJC) recognize the importance of climate change and the risks and business opportunities it presents. Consequently, BJC has formulated strategies and operational plans aimed at both safeguarding against and mitigating the impacts of climate change.

BJC aligns with the United Nations Framework Convention on Climate Change (UNFCCC) objectives to cap the global average temperature increase below 2 degrees Celsius, with aspirations to limit it to 1.5 degrees Celsius. Together, BJC supports Thailand's ambitious aim to achieve carbon neutrality by 2050 and Net Zero status by 2065. To actualize these goals, the BJC Group has set a target to achieve Net Zero emissions by 2050, along with outlining preliminary plans and targets for medium-term objectives spanning a decade to strengthen this commitment.

Demonstrating its commitment, BJC intends to transparently disclose related information via the Climate Change Management Report, created in accordance with internationally recognized frameworks such as the Task Force on Climate-related Financial Disclosures (TCFD). This report encompasses four core frameworks consist of Governance, Strategy, Risk Management, and Metrics and Targets, empowering BJC to effectively communicate its commitment, objectives, and outcomes to all relevant stakeholders. Through this disclosure, stakeholders are kept well-informed of BJC's initiatives in addressing the issue of global warming, thereby fostering informed engagement with the group's operations in 2023.


*REF: https://sphera.com/*

## Table1: TFCD Recommendation

| Core Elements of Recommended Climate- Related Financial Disclosures | |
|---|---|
| **Governance** | **Board's Oversight**<br>The Board of Directors oversees the operation, risk management and organizational opportunity related to weather condition, by assigning the subcommittee which includes (1) Sustainable Development Committee (SDC) to supervise corporate sustainability operation as well as to manage climate change matters (2) Risk Management Committee (RMC) to supervise corporate risks and opportunities which include the risks and opportunities related to sustainable development (Environmental Social and Governance) approach (3) The Management Board which is responsible for determining goals and work plans related to the climate change, as well as to control the Company Group's operations to achieve the target set forth.<br><br>**Management's Role**<br>The Executive is responsible for overseeing and managing all business units to ensure their compliance with the policies and requirements related to climate change. In addition, to support operations to achieve net zero goal including to assess risks and opportunities related to climate change which may pose effects to the departments and organization, and to seek for appropriate management solutions and report to the Board of Directors via specified procedures regularly. |

| Core Elements of Recommended Climate- Related Financial Disclosures | |
|---|---|
| **Strategy** | Assessing the risks and opportunities linked to climate change involves evaluating its potential impacts on business operations, strategies, and financial plans within the organization. BJC prioritizes the identification of crucial issues and devises strategies and mitigation plans to address the effects of climate change. Moreover, BJC emphasizes raising awareness and providing additional knowledge to effectively manage risks and minimize greenhouse gas emissions (GHG), thus assisting the organization in reaching its climate change targets. |
| **Risk Management** | BJC has risk and opportunity management related to climate change, both at corporate and each business unit level. BJC assesses both physical and transitional risks and establishes work plans to be carried out at an acceptable level for the organization. Furthermore, BJC establishes plans to increase value for the organization and develop business operations related to climate change. |
| **Metrics & Targets** | BJC sets climate-related metrics and targets for both long-term and short-term, such as Net Zero target and the target to reduce GHG emission to support Thailand's sustainable goals. BJC also discloses data and performance to stakeholders. In addition, Key Performance Indicators (KPIs) related to the reduction of GHG emission have been created and set for relevant business operators, which will drive the organization to achieve its goals. |

To pave the way towards achieving net zero emissions, BJC has embarked on comprehensive climate change strategies aimed at fostering awareness among all employees regarding the policy's significance, conducting risk assessments, and gauging the impacts while considering both internal and external factors. These strategies have been constructed in alignment with The Science Based Targets initiative (SBTi), providing detailed and actionable guidelines for all business units within BJC to adhere to. Building upon these strategies, BJC has identified two primary groups of risks: physical risks and transition risks.

- **Physical risks:** Risks associated with physical and direct impacts from climate change that could affect carbon assets and business operations. These impacts may include natural disasters risks, rising temperatures, and extreme heat waves.
- **Transition risks:** Risks associated with changes in policies, regulations, and technology. Depending on the nature, speed, and focus of these changes, transition risks may pose varying levels of financial and reputational risk to organizations. Transition risks can be divided into four categories: policy and regulatory, technological, market, and reputational. Examples of these risks are changes in government regulations, taxation, and consumer behavior.

Both risks may pose impact to the company in monetary and non-monetary aspects. The monetary impact may reflect a through loss of sales volume from customers or increasing demand for the capital, ultimately affecting the Net Profit. However, the non-monetary impact may arise when the business's asset or operation is influenced by significant climate change, which in turn affects agricultural production, a key aspect in BJC's production process.

BJC recently established a department dedicated to climate change to oversee the assessment of risks and opportunities associated with climate change. This department is responsible for assessing the possible implications of climate change and developing operational and management plans to support the company's operations and promote sustainable development.

## (I) Governance

BJC recognized the importance of governance as a key driver to achieve the set goals to solving the issue of global warming. Therefore, BJC's Board of Directors has appointed the Sustainable Development Committee to supervise the sustainability operations of the company group, which includes climate change operations as a part of sustainable operations. Hence, the Sustainable Development Committee has a responsibility to manage and oversee operations that are related to climate change. For instance, establishing strategies, targets, as well as related operations and their results.

In addition, the Board has instituted a Risk Management Committee, dedicated to overseeing and establishing a comprehensive framework for enterprise risk management, particularly focusing on sustainability or environmental, social, and governance risks (ESG). Significant risks at the corporate level are analyzed to determine into business risk management, which enables, assesses, and monitors risk management effectively and presents to the Board of Directors' meeting.

Moreover, the management team, appointed by the company, bears accountability for the execution and realization of various climate change-related projects. Empowered to oversee, support, and make informed decisions, the management team ensures that all projects align with the company's strategic plans while considering the perspectives of relevant stakeholders.

**Roles and Responsibilities of the Board of Directors, Committees, Sub-committees, and business groups are in operations for the climate change.**

1. **Board of Directors**

   They are responsible for approving policies related to climate change and overseeing actions aimed at managing its impact. This oversight is facilitated through quarterly reports provided by the responsible committees and sub-committees. Climate-related issues are regularly scheduled on the agenda of the board meetings to ensure focused attention and discussion. Additionally, BJC ensures that climate change-related incentives are communicated starting from the highest management level, underscoring the organization's commitment to addressing this critical issue at all levels of the company hierarchy.

2. **Sustainable Development Committee**

   Its responsibilities encompass determining, reviewing, and auditing the policy framework and operational approach pertaining to climate change, with proposals submitted to the Board of Directors for approval. Additionally, the committee provides support and oversight to various entities including the Sustainable Development Subcommittee, Sustainability Management Working Group, and relevant units and personnel, ensuring the successful implementation of climate change strategies. This is achieved by fostering connectivity and integration between

climate-related initiatives and the principles of good corporate governance and business ethics. By doing so, it aims to enhance understanding and awareness among executives and employees at all levels of the organization. This concerted effort is designed to foster sustainable development, uphold good corporate governance standards, and promote ethical business practices throughout the company group. Regular quarterly meetings serve as key platforms for collaboration and decision-making, enabling the committee to drive forward BJC's climate change agenda effectively.

### 3. Sustainable Development Subcommittee

The Sustainable Development Subcommittee consists of executives from each business group. Their primary responsibility is to provide support to the Sustainability Management Working Group, ensuring alignment with the organization's policies, approaches, and strategies regarding climate change. The Subcommittee facilitates collaboration and coordination among various stakeholders, including the Sustainability Working Group, relevant agencies, and personnel, to effectively execute climate change operations and projects. By fostering synergy and cooperation, they aim to achieve the overarching goal of mitigating the impacts of climate change. Regular quarterly meetings are held to facilitate communication, review progress, and address any challenges or opportunities related to climate change initiatives.

### 4. Risk Management Committee

The committee is tasked with establishing policies and strategies for business risk management tailored to effectively address risks and opportunities associated with climate change. This involves a comprehensive process of analyzing, assessing, and monitoring risk management practices to ensure their efficacy in mitigating climate-related risks. Additionally, the committee is responsible for preparing detailed reports summarizing these findings and presenting them to the Board of Directors. The Risk Management Committee oversees and provides support to ensure the effective management of risks and opportunities related to climate change at both corporate and project levels, adhering to the principles of Enterprise-Wide Risk Management

(ERM), with the focus on raising risk awareness among the management and employees. This heightened awareness serves as a pivotal catalyst for optimal resource allocation and operational efficiency. Furthermore, the committee lends its support to the Risk Management Subcommittee and/or Risk Manager, facilitating collaboration and alignment in risk management efforts. Regular quarterly meetings are convened to review progress, address emerging challenges, and explore opportunities, ensuring that risk management strategies remain dynamic and responsive to evolving climate-related risks and opportunities.

## 5. Risk Management Subcommittee

The Risk Management Subcommittee is tasked with reviewing, preparing, and proposing risk management plans to the Risk Management Committee, focusing on assessing risks and opportunities related to climate change. These plans are created in accordance with BJC's risk management procedures and are regularly monitored, assessed, and summarized for presentation to the Risk Management Committee on a quarterly basis. Furthermore, the Subcommittee plays a pivotal role in supporting the communication of risk information throughout the organization. This involves integrating risk management practices into the organizational culture by educating employees at all levels about the importance of risk management and emphasizing its significance. By doing so, the Subcommittee helps anticipate key risks and effectively presents them to the executives for informed decision-making. Quarterly meetings are held to facilitate collaboration and ensure the smooth execution of these responsibilities.

## 6. Management Board

The Management Board comprises senior executives from each business groups within the organization. The Chief Executive Officer (CEO) and President are the Chairman of the Management Board, with responsibility in controlling and overseeing the corporate operation to ensure compliance with the strategy and target set forth. In addition to their responsibilities, the Management Board also oversees and controls various operations pertaining to climate change. This entails setting goals, devising strategies, and supervising projects and operations aimed at achieving climate change-related objectives. To ensure consistent focus and attention on

corporate sustainability, the Management Board schedules a meeting at least once a month, with the sustainable development agenda prominently featured. Within this agenda, climate change is prioritized as one of the key sustainable topics. These monthly meetings serve as platforms for deliberating and strategizing on matters related to corporate sustainability.

**7. Business Groups and Departments**

Having diversification in business, BJC's operation is various in terms of production, distribution, service provision, logistics and operation site situated nationwide. Each business group is under supervision of the President of Business Group and Business Unit Head of each department/subsidiary to oversee and proceed with the matters related to the climate change, including to assess and manage existing risk and opportunities. Moreover, there are departments with knowledge and expertise in the climate change matters which is Safety Health Environment: SHE (for factory), Safety and Maintenance (for retail) and Building and Administration Division (for Head Office). These departments will collect data connecting with management, climate change and report to the supervisor and central agency within the prescribed time. Eventually, monitoring and improving will be proceeded continuously with the focus to achieve the strategic, workplan and corporate goal set forth.

**Establishing Environmental Policy**

BJC recognizes the significance of sustainable business practices, supported by principles of transparency, social accountability, and environmental stewardship. With this understanding, BJC is committed to advancing business practices that prioritize excellence while fostering harmonious connections between ecosystems and the environment. In conducting its business affairs, BJC is mindful of both the value and limitations of natural resources. Through proactive business operations, the company endeavors to combat climate change and mitigate environmental impacts across its entire supply chain.

As a result, BJC has implemented environmental measures as guiding principles for the Company Group's environmental management efforts. These measures prioritize actions and operations aimed at conserving natural resources and mitigating the impacts of

climate change. Rooted in a combination of perspective, skill, and experience, these measures aim to foster collaboration among company personnel, customers, supplier, business partner, business alliance, community, and other stakeholders. Additionally, BJC recognizes the paramount importance of transitioning to renewable or alternative energy sources, such as solar energy, as part of its commitment to reducing reliance on electricity generated from consumable natural resources and processes that contribute to greenhouse gas emissions.

Furthermore, these measures encompass regular monitoring and assessment of risks or impacts on business arising from climate change, environmental factors, weather patterns, forest conservation, biodiversity, and natural resource utilization. A comprehensive management approach will be established, supported by robust audit, assessment, review, and improvement processes for environmental management. This approach will extend to evaluating the impact of production processes, logistics operations, and ongoing service provision on climate change, forests, and biodiversity.

## (II) Climate Change Strategy

### a) Describe the climate-related risks and opportunities which BJC has identified over the short, medium, and long term.

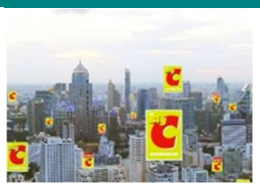
In alignment with the Paris Agreement, which aims to limit global warming to well below 2°C above pre-industrial levels and pursue efforts to limit warming further to 1.5°C, BJC is committed to achieving Net Zero across the value chain by 2050. All business unit together with Sustainability and Risk management, are regularly assessing climate-related risks and opportunities. These assessments are integrated into our business strategy to mitigate and adapt to climate change impacts, ensuring the resilience and long-term sustainability of our business.

BJC established a climate change strategy that continually assess climate-related risks and opportunities with a focus on enhancing knowledge and raising awareness amongst employees, increasing energy efficiency and clean energy and reducing emissions. In addition, BJC identifies climate-related risks and opportunities over the short, medium, and long term. It assesses the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.

Then, BJC prepares strategies and action plans to manage climate risks and opportunities. BJC's climate change strategy is resilient. It considers different climate-related scenarios, including situations where temperatures rise above 2°C, 2°C, and 1.5°C.

In 2023, BJC conducted a thorough assessment of risks and opportunities related to climate change, using both qualitative and quantitative methods. This included a business impact assessment, strategy implementation, and corporate financial analysis. The assessment considered context-specific factors for each of BJC's assets to evaluate the Impact (Severity) and likelihood (Probability) of potential climate-related impacts.
BJC has defined three timeframes for these assessments: **short-term (no more than 1 year), medium-term (1-5 years), and long-term (over 5 years).** This approach ensures that BJC is well-prepared to manage these risks and opportunities appropriately.

The assessment and analysis focus on our own operations, covering the majority of BJC's assets across all business units, which operate in four businesses:

| Businesses | Retail | Consumer | Packaging | Healthcare |
|---|---|---|---|---|
| |  |  |  |  |
| **Company name** | • Big C<br>• Big C DC | • Berli Jucker Foods Co., Ltd | • Thai Glass Industries PLC<br>• Thai Malaya Glass Co., Ltd. (plants 1 &2) | • Berli Jucker PLC |
| **Asset's type** | Retail store, Warehouse and distribution center | Factory | Factory | Office building |
| **Number of Assets** | 9 Assets | 5 Assets | 4 Assets | 1 Asset |
| **Location** | • Bangkok<br>• Pathum Thani<br>• Chachoengsao.<br>• Samut Prakan | • Samut Prakan<br>• Ayutthaya<br>• Prachinburi | • Samut Prakan<br>• Saraburi | • Bangkok |

## Identification of Climate-related Risks and Opportunities

BJC collaborates with each business unit, utilizing established methods, in-house tools, and publicly available data to identify risks and opportunities. This also follows the TCFD classification of climate risks into physical, transition risk, and opportunities, taking into

the expected lifetime of assets or activities and corporate context, covering own operation, upstream activities, and downstream activities.

The table below shows the risks and opportunities identified and expected to occur at different timeframes: short, medium, and long-term.

**Table 1 Identification of Climate-related Risks and Opportunities**

| | | Potential risks and opportunities | Time horizon and Likelihood | | |
|---|---|---|---|---|---|
| | | | Short | Medium | Long |
| Physical | Acute | Flood | | | ✓ |
| | | Water scarcity | | | ✓ |
| | Chronic | Global temperature rising and severe heat wave | | | ✓ |
| Transition risk | Policy & legal | Governance introduces carbon pricing instruments such as carbon tax and ETS | | ✓ | ✓ |
| | | More detailed and comprehensive disclosures are required according to reporting standards. | | ✓ | ✓ |
| | Technology | Change of Technology | | ✓ | ✓ |
| | Market | Lack of action to serve the shift in demand/ interest to a low-carbon product | | ✓ | ✓ |
| | Reputation | Inaction leads to loss of public trust. | ✓ | ✓ | ✓ |
| Opportunities | Products and services | Response to the shift in demand/ interest to low-carbon product | | ✓ | ✓ |
| | Resilience | Participation in renewable energy programs and adoption of energy-efficiency measures | ✓ | ✓ | ✓ |
| | Stakeholder Engagement | Collaboration with the supply chain | | ✓ | ✓ |

## b) Describe the Impact of Climate-Related Risks and Opportunities on the Organization's Businesses, Strategy, and Financial Planning

In assessing the impact of risks and opportunities, BJC employs both qualitative and quantitative methods, drawing on climate-related scenario analyses established by international frameworks like the Intergovernmental Panel on Climate Change (IPCC), the International Energy Agency (IEA), and the Network for Greening the Financial System (NGFS).

This year, BJC conducted detailed scenario analyses on Flood and Carbon Prices due to their direct implications for BJC's operational performance and financial outcomes.

These assessments are broken down to the asset or business unit level to evaluate impacts thoroughly and prepare appropriate adaptation plans for future risks. Key components of BJC's scenario analyses for assessing the impacts of risks and opportunities encompass:

**1. The Representative Concentration Pathway (RCP) from IPCC**

The Representative Concentration Pathway (RCP) are climate change scenarios to project future greenhouse gas concentrations. These pathways (or trajectories) describe future greenhouse gas concentrations (not emissions) and have been formally adopted by the IPCC. The pathways describe different climate change scenarios, all of which were considered possible depending on the amount of GHG emitted in the years to come[1]. These scenarios help BJC understand the severity and frequency of disasters, as well as how different societal choices and trends could shape future emissions trajectories and climate impacts.

There are four main RCP scenarios:

| Scenario | Global Mean Temperature Change in 2100 | Description |
|---|---|---|
| **RCP 2.6** | 1.5-2.0°C | • Represents a low GHG emission scenario<br>• This scenario assumes rapid adoption of renewable energy sources, significant technological advancements, and global cooperation in reducing emissions. |
| **RCP 4.5** | 2.0-3.0°C | • Represents a moderate GHG emission scenario where emissions peak around mid-century and then decline due to moderate climate policies and technological advancements. |
| **RCP 6.0** | 3.0-4.0°C | • Represents a medium-high GHG emission scenario where emissions continue to rise throughout the 21st century before stabilizing by 2100. This scenario assumes intermediate levels of climate policies and technological advancements. |
| **RCP 8.5** | More than 4.0°C | • Represents a high GHG emission scenario where emissions continue to increase rapidly throughout the century with no climate policies to limit them.<br>• This scenario leads to the highest levels of global warming. |

[1] Source: IPCC

## 2. Scenario Analysis conducted by IEA[2]

The IEA's scenario analysis involves a comprehensive examination of potential future energy pathways and their implications. IEA scenarios are crucial for understanding the global energy landscape under various conditions, such as policy changes, technological advancements, and shifts in energy demand and supply.

These scenarios underscore how government policies significantly shape the future of the global energy landscape. At BJC, we recognize that governmental decisions are pivotal in influencing outcomes across these scenarios. However, we also consider various other factors that impact these outcomes. These include economic and demographic conditions, technology costs and advancements, energy affordability and prices, corporate sustainability goals, as well as societal and behavioral dynamics.

There are three main IEA's scenarios:

| Scenario | Acronym | Definitions |
|---|---|---|
| **Stated Policies Scenario** | **STEPS** | A scenario which reflects current policy settings based on a sector-by-sector and country-by-country assessment of the energy-related policies that are in place as of the end of August 2023, as well as those that are under development. The scenario also takes into account currently planned manufacturing capacities for clean energy technologies. |
| **Announced Pledges Scenario** | **APS** | A scenario which assumes that all climate commitments made by governments and industries around the world as of the end of August 2023, including Nationally Determined Contributions (NDCs) and longer-term net zero targets, as well as targets for access to electricity and clean cooking, will be met in full and on time. |
| **Net Zero Emissions by 2050 Scenario** | **NZE** | A scenario which sets out a pathway for the global energy sector to achieve net zero CO2 emissions by 2050. It does not rely on emissions reductions from outside the energy sector to achieve its goals. Universal access to electricity and clean cooking are achieved by 2030. The scenario was fully updated in 2023. |

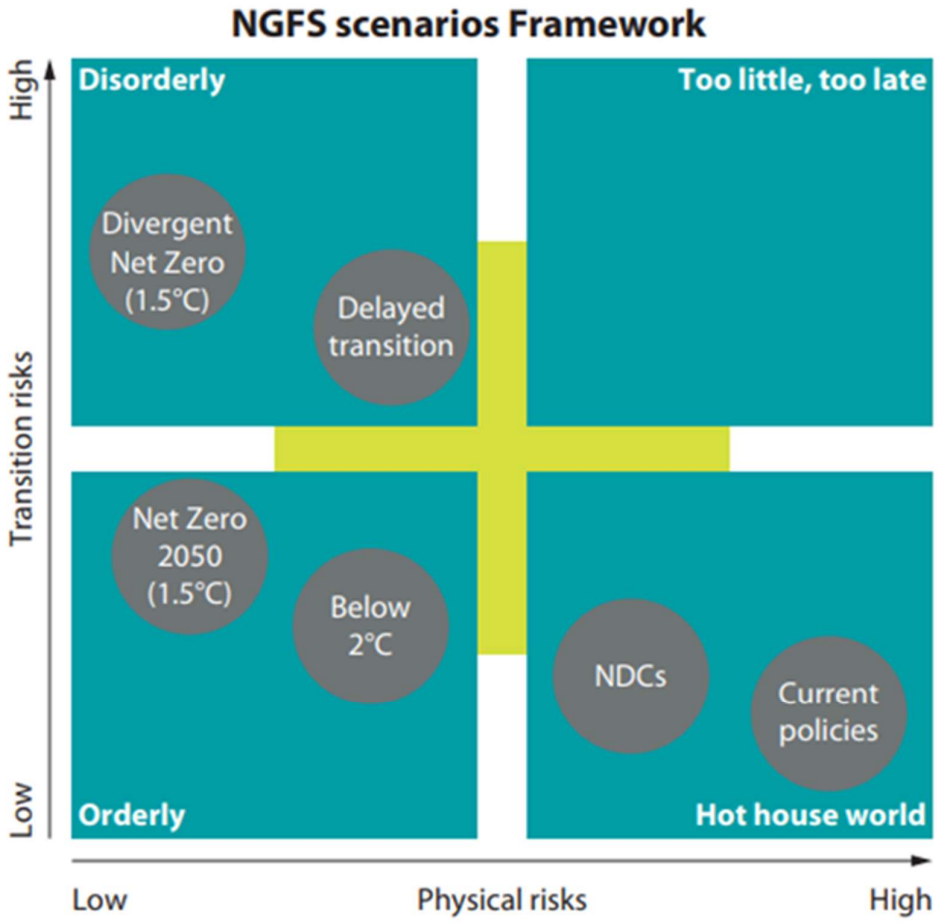
## 3. Scenario Analysis conducted by NGFS[3]

The NGFS scenarios explore a set of six scenarios which are consistent with the NGFS framework (see figure) published in the First NGFS Comprehensive Report covering the following dimensions:

[2] https://www.iea.org/reports/global-energy-and-climate-model/understanding-gec-model-scenarios

[3] Source: NGFS

- **Orderly scenarios** assume climate policies are introduced early and become gradually more stringent. Both physical and transition risks are relatively subdued.
- **Disorderly scenarios** explore higher transition risk due to policies being delayed or divergent across countries and sectors. For example, carbon prices would have to increase abruptly after a period of delay.
- **Hot house** world scenarios assume that some climate policies are implemented in some jurisdictions, but global efforts are insufficient to halt significant global warming. The scenarios result in severe physical risk including irreversible impacts like sea-level rise.




Positioning of scenarios is approximate, based on an assessment of physical and transition risks out to 2100.

Based on the methods and scenarios mentioned above, BJC has chosen to assess the impact of risks and opportunities using the following detailed approaches:

**Table 2 Selection of Methods and Scenario Analysis for risks and opportunities**

| | | Potential risks and opportunities | Scenario | Method | | Financial assessment |
|---|---|---|---|---|---|---|
| | | | | Qualitative | Quantitative | |
| Physical | Acute | Flood | RCP 4.5, 8.5 | ✓ | ✓ | Yes |
| | | Water scarcity | RCP 2.6, 8.5 | ✓ | ✓ | Yes |
| | Chronic | Global temperature rising and severe heat wave | | ✓ | ✓ | Yes |
| Transition risk | Policy & legal | Governance introduces carbon pricing instruments such as carbon tax and ETS | NGFS:<br>• NDC<br>• Delayed Transition<br>• Net Zero 2050 | ✓ | ✓ | Yes |
| | | More detailed and comprehensive disclosures are required according to reporting standards. | IEA:<br>• STEPS<br>• APS<br>• NZE | ✓ | ✗ | No |
| | Technology | Change of Technology | | ✓ | ✓ | Yes |
| | Market | Lack of action to serve the shift in demand/ interest to a low-carbon product | | ✓ | ✓ | Yes |
| | Reputation | Inaction leads to loss of public trust. | | ✓ | ✗ | No |
| Opportunities | Products and services | Response to the shift in demand/ interest to low-carbon product | | ✓ | ✗ | No |
| | Resilience | Participation in renewable energy programs and adoption of energy-efficiency measures | | ✓ | ✗ | No |
| | Stakeholder Engagement | Collaboration with the supply chain | | ✓ | ✗ | No |

## Physical Risks Analysis

The physical risks stem from various climate drivers such as increasing mean temperatures, severe heat waves, tropical storms, heavy rains, droughts, and rise in sea level. These drivers directly impact BJC's operations, affecting the sourcing of raw materials, especially agricultural inputs, and production yields. Additionally, they can pose risks to fixed assets and operational areas that are vulnerable to damage from floods, storms, or droughts. Such events can disrupt shipping schedules and present significant challenges to BJC's supply chain.

## Acute Physical Risk

### A: Flood Assessment

The impact of climate change could result in more severe and frequent riverine and coastal floods in various parts of Thailand. In this assessment, BJC has chosen 19 assets from 4 business groups to evaluate their exposure and financial impact under RCP 4.5 and 8.5 in 2030 and 2050.

The possible outcomes in different scenarios are shown in the picture below.

| RCP | Temperature rise by 2100 | Sea level rise | Chance of ice-free Arctic summer | Frequency of extreme rainfall | People facing extreme heatwaves | Global GDP impact | Stranded assets | Food supply |
|---|---|---|---|---|---|---|---|---|
| RCP 8.5 | >4°C | 0.5 – 1.7 m | 6 in 6 | +150% | x300 | -44% | Physical: uninhabitable zones, agriculture, water-intense industry, lost tourism etc | 60% yield loss |
| RCP 6.0 | 3-4°C | 0.4 – 0.9 m | 4 in 6 | + 70% | x80 | -23% | Mixed: some fossil fuel assets mothballed, some physical stranding | 24% yield loss |
| RCP 4.5 | 2-3°C | 0.4 – 0.8 m | 1 in 6 | + 36% | x27 | -13% | Transition: fossil fuel assets (supply, power, transport, industry) | Changing diets, some yield loss in tropics |
| RCP 2.6 | 1.5-2°C | 0.3-0.6 m | 1 in 30 | + 17% | x22 | -10% | | |

BJC assesses the impact of flood in 3 dimensions:

| Impact to | Describe impacts |
|---|---|
| **Own operation** | • Damage to equipment, facilities, and inventory can lead to production process disruption.<br>• Disrupting employee's commute to work during floods. |
| **Upstream** | • Affecting raw material costs, particularly those of farmers, through the quality and yield of crops.<br>• Flooding impacts operational costs by increasing transportation cost. For example, longer transport routes may be necessary, or businesses might have to choose transportation options that emit more GHG to procure necessary goods and services. |
| **Downstream** | • Floods can disrupt the distribution of consumer goods, leading to stock shortages in retail outlets.<br>• Disrupt customer's travel to the store. |

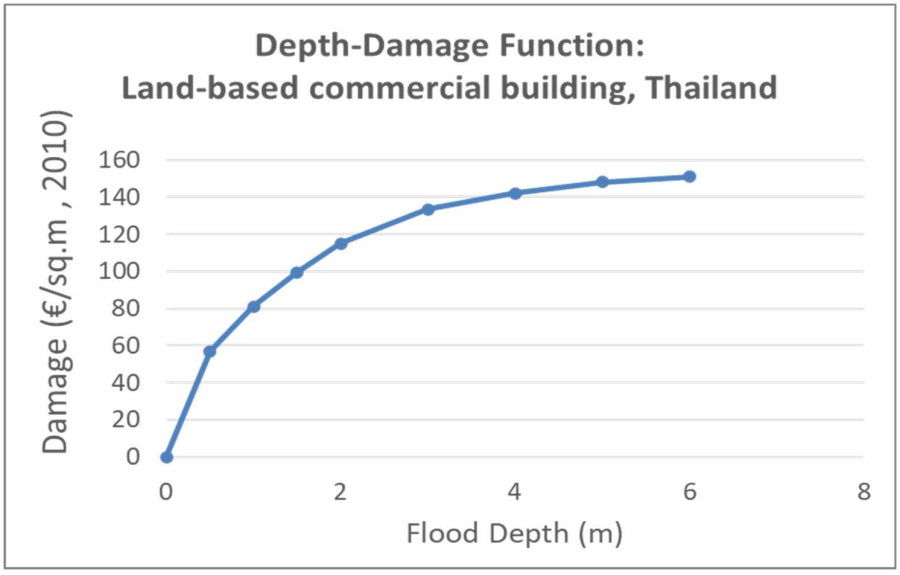
Crucial factors in assessing flood risk include average flood depth and the ability to adapt. These factors were crucial in evaluating risks at various asset locations, such as office buildings, retail stores, distribution centers, and factory plants.

Datasets from multiple climate impact models were used to assess these risks, such as the World Resources Institute's Aqueduct Floods, to generate mean flood maps for each scenario of specified time frames. Within a 2-kilometer radius surrounding each asset location, flood depths were analyzed to calculate the average flood depth in the asset's surroundings.

The analysis included both riverine and coastal floods. The flood depth-damage function for building structure and content developed by Huizinga et al., 2017 is used to estimate asset damage. **Flood depths below a certain threshold are assumed not to damage the assets.**

Estimating the damage incurred at each facility involves predicting repair costs, primarily dependent on flood depths at the location.

This estimation draws from past records on flood damage and cost engineering practices. Alternatively, global depth-damage datasets from the European Commission – Joint Research Center can provide valuable supplementary information when local data is unavailable.




The impact of the flooding on BJC's assets is detailed in the table below.

**Table 3 Flood exposure and financial impacts**

| BU | Assets | Flood Dept 2030 (meter) | | Flood Dept 2050 (meter) | | Certain Threshold (Meter) | Flood Exposure | Financial Impacts (MTHB) |
|---|---|---|---|---|---|---|---|---|
| | | RCP 4.5 | RCP 8.5 | RCP 4.5 | RCP 8.5 | | | |
| Retail and Logistic | BIG C Supercenter Ratchadamri* | | | | | 1.0* | NO | - |
| | Thanyaburi DC | - | - | - | - | 1.3 | NO | - |
| | Chachoengsao DC | 0.04 | 0.07 | 0.08 | 0.09 | 1.3 | NO | - |
| | Ging kaew DC | 0.14 | 0.22 | 0.23 | 0.33 | 1.50 | NO | - |
| | Ladkrabang DC | 0.08 | 0.13 | 0.14 | 0.22 | 1.58 | NO | - |
| | Bang Pakong DC | 0.02 | 0.05 | 0.06 | 0.06 | 1.35 | NO | - |
| | BDC1 | 0.39 | 0.52 | 0.56 | 0.74 | 1.60 | NO | - |
| | BDC4 | 0.39 | 0.52 | 0.56 | 0.74 | 1.55 | NO | - |
| | HBL | 0.39 | 0.52 | 0.56 | 0.74 | 1.60 | NO | - |
| Consumer Products | BJF - Snack (Bangplee) | 0.26 | 0.32 | 0.34 | 0.43 | 0.5 | No, but keep monitoring | - |
| | BJF - Dairy (Ayutthaya) | 0.48 | 0.54 | 0.58 | 0.63 | 0.5 | Yes | 15.79 – 25.26 |
| | BJC Cellox (Prachinburi) | - | - | - | - | 0.3 | NO | - |
| | BJC Cellox (Bangplee) | 0.39 | 0.52 | 0.56 | 0.74 | 0.7 | No, but keep monitoring | - |
| | Rubia Industry Co., Ltd. | 0.26 | 0.32 | 0.34 | 0.43 | 0.26 | Yes | 31.58 |

| BU | Assets | Flood Dept 2030 (meter) | | Flood Dept 2050 (meter) | | Certain Threshold (Meter) | Flood Exposure | Financial Impacts (MTHB) |
|---|---|---|---|---|---|---|---|---|
| | | RCP 4.5 | RCP 8.5 | RCP 4.5 | RCP 8.5 | | | |
| Packaging | Thai Glass Industries PCL | - | - | - | - | 2 | NO | - |
| | Thai Malaya Glass Co., Ltd. (TMG1) | - | - | - | - | 0.9 | NO | - |
| | Thai Malaya Glass Co., Ltd. (TMG2) | - | - | - | - | 1.7 | NO | - |
| | Thai Beverage Can Co., Ltd. | - | - | - | - | 7.0 | NO | - |
| Healthcare | Office Building in BKK | - | - | - | - | 1..0* | NO | - |
| | | | | | | | **Total Financial Impacts (MTHB)** | **47.37-56.84** |

Remark: * assumed certain threshold is 1 meter

- BDC1 refers Bangna -Trad Road Branch Km.19 Warehouse and distribution center
- BDC4 refers Suvarnabhumi Warehouse and distribution center
- HBL refers Warehouse and Distribution Center for Medicines and Medical Equipment
- BJF refers Berli Jucker Foods Ltd.

Based on the financial impact assessment of flooding on 19 BJC assets, it was found that the assets at risk are factories within the consumer products business unit, namely BJF - Dairy (Ayutthaya) and Rubia Industry Ltd. This risk is projected to occur in the long term (by 2030 and beyond), with the financial risk estimated to be between 47.37 to 56.84 million baht.

However, all assets have already developed flood response and prevention plans, with detailed information provided in the "Flood Responses and Adaptation Plan".

**B: Water Scarcity**

Climate change worsens water scarcity over a larger geographic area. This affects agriculture, manufacturing, and service sectors that depend on adequate water availability. As water scarcity intensifies due to climate change, businesses encounter greater difficulties in maintaining operational stability and managing supply chain dependencies.

Water scarcity can greatly impact businesses, potentially disrupting production and services. Additionally, shortages of agricultural products or raw materials may arise, leading to increased costs over time.

| | Business Impacts | Financial Impacts |
|---|---|---|
| Overview | • A water scarcity crisis in some areas may result in additional expenses since the Company will need to find an alternative source of water to supply to affected areas or raw materials from an alternative source in which the price of raw materials or shipping cost will rise, or the quality will not be equivalent.<br>• In case the water scarcity crisis spreads to a wider area and affects every zone, it may incur expenses from sourcing water to feed operations and employees. If the water supply is insufficient, the operation will be suspended, affecting customer production and service. | 1. Increasing costs and expenses due to finding alternative sources of water, water storage, or purchasing water from another source for consumption.<br>2. Increasing costs and expenses from changing raw material sources in case there is a drought crisis in a certain area that supplies raw materials to the Company.<br>3. Decrease of income due to production or service discontinuity |
| Best Case (RCP 2.6) | • The drought crisis occurs occasionally in some areas, causing a shortage of raw materials and certain products. Our business operations in areas exposed to the drought crisis must have a proper water management approach. | Cost and expenses increased by 10%-20% from higher cost of raw materials. Some areas may need an alternative source of water. |
| Worst Case (RCP 8.5) | • Drought events could pose a severe impact in many areas where agricultural products are adversely affected. The Company may encounter a shortage of raw materials and products for production and sales. Meanwhile, operations in many sites will be at risk of water shortage, and it is vital to find an alternative source of water with a proper and effective water management process. | Cost and expenses increased by over 20% from a shortage of raw materials and goods. Alternative sources of water are rare with leaping prices. |

## Chronic Physical Risk

### A: Global mean temperature rising and severe heat waves

Global warming is leading to a rise in global mean temperatures, with particularly significant impacts on countries situated in the tropical regions including Thailand. Thailand is especially vulnerable to extreme temperature variations. These rising temperatures can have severe consequences on the health and well-being of BJC's employees. High temperatures can exacerbate heat-related illnesses, strain water resources, reduce agricultural productivity, and increase the frequency of extreme weather events.

| | Business Impacts | Financial Impacts |
|---|---|---|
| Overview | • Temperature rising affect the transportation and product storage, especially fresh food and medicine which exposed to the risk of being damaged or spoiled. In addition, there will be additional expenses rising out of improvement of cooling system at operating sites, customer service points and warehouses, which means more investment and electricity expenses.<br>• The sale of certain goods, such as beverages and air conditioners, will rise, while some goods may experience a downturn, such as outdoor exercise equipment, equipment for protecting against cold, and water heaters.<br>• Building a new branch may be delayed, especially during high temperatures. Additional costs for installing flood prevention and maintenance fees for the area at risk or affected area are expected.<br>• This may affect business operation in the branch located in the area affected by rising sea level. | 1. Additional cost of improvement of storage system for products and logistics: without proper improvement, there could be additional cost from spoiled products.<br>2. Additional costs of improving cooling system and higher cost for electricity consumption.<br>3. Revenue may drop without product optimization to meet consumer demand. Proper product adjustment enhances opportunities for boosting income and market share.<br>4. Additional expenses from improving flood prevention system and maintenance for the factory or branch in the affected area from rising sea level. |

| | Business Impacts | Financial Impacts |
|---|---|---|
| Best Case (RCP 2.6) | • This risk poses a long-term impact. With the scenario where the global temperature rising up to 2°C, cooling system and air-conditioning system must be optimized, productivity and fresh product management must be more stringent. Health and safety of employees, especially those working in the factory having high temperature must be monitored. | The cost may increase by 10% - 20% |
| Worst Case (RCP 8.5) | • If the temperature rises over 2 °C, the Company must implement additional measures for monitoring the cooling and air-conditioning systems, including health care for employees.<br>• Meanwhile, the public, who are considered our customers, may be affected by the heat issue. Some may relocate, reducing the number of customers in certain areas. The rising sea level may affect the branches adjacent to the sea. | • The cost increases by 20% - 50%<br>• Revenue drops by over 30% after reduction of customers. |

## Transition Risks

BJC Assesses transition risk based on potential scenarios for legislation, technological development, and market conditions based on short-term, medium-term, and long-term horizons considering the expected lifetime of the assets and activities. The scope of risk assessment and activity for managing risk cover own operation, upstream activity, and downstream activity. So, BJC identifies transition risks as below.

## Policy and Legal (policy include emerging regulation and current regulation)

### Current Regulations

Thailand has committed to reducing greenhouse gas emissions in alignment with the Paris Agreement, aiming to cut emissions by 20-25% below Business-As-Usual (BAU) levels by 2030. Recently, at COP26, a more ambitious target was set, aiming for a 40% reduction in emissions by 2030, with plans to achieve carbon neutrality by 2050 and net-zero emissions by 2065. The government is actively drafting legislation related to climate change, including potential carbon taxation, to facilitate more efficient management of emissions. In the short term, there may be no immediate changes in laws or regulations affecting current business operations.

### Changes to Laws and Regulations

**A: Carbon Price**

The new rules and regulations may affect the business operation in which the change of certain formats or procedures is required for conformity, where additional operating costs and expenses could increase.

In addition, the change of operation may limit the production of goods and services and eventually satisfy some customers during the initial phase.

Furthermore, this impact also occurs to the supplier of raw materials or goods to the Company. Without proper management, the cost to BJC could rise.

The analysis leverages carbon prices from the NGFS scenarios to assess the financial impact. In the NGFS framework, carbon price is defined as the marginal abatement cost of an additional ton of GHG emissions resulting from government policies.

| Scenario | Indicators | Timeframe | Description | Global Mean Temperature Change in 2100 | Tools |
|---|---|---|---|---|---|
| **National Determined Contribution (NDCs)** | • BAU emissions<br>• EBITDA growth<br>• Carbon price | 2025 – 2050 | • Climate policies are introduced in 2025<br>• Carbon pricing will be implemented in 2025 at USD 4/tCO2. It will reach USD 74/tCO2 in 2050. | 2.0 °C | NGFS |
| **Delayed Transition** | | 2025 - 2050 | • New climate policies are not introduced until 2030<br>• Requires accelerated and disruptive policies<br>• Transition risks are considered very high<br>• Carbon pricing will commence in 2035 at USD 75/tCO2. It will continually increase to reach USD 325/tCO2. | Below 2.0 °C | |
| **Net Zero 2050** | | 2025 - 2050 | • Ambitious climate policies introduced immediately, resulting in steady increases in carbon prices from 2025-2050<br>• Carbon pricing will commence in 2025 at USD 19/tCO2. It will continually increase to reach USD 938/tCO2. | 1.5 °C | |

From the figure above, BJC uses three NGFS scenarios in the analysis: Net Zero 2050, NDCs, and Delayed Transition. These three scenarios approximate Thailand's emissions pathways as shown in its Long-term Greenhouse Gas Emission Development Strategy (LT-LEDS).

BJC's carbon price risk is evaluated by calculating the potential carbon costs under two cases Business as Usual (BAU) and SBTi aligned target. These costs are then compared to the 2023 EBITDA.

1. **BAU Case:** BJC does not implement any decarbonization measures or adaptation plans.
2. **SBTi Aligned Target Case:** BJC implements decarbonization measures and adaptation plans to meet SBTi and Net Zero targets.

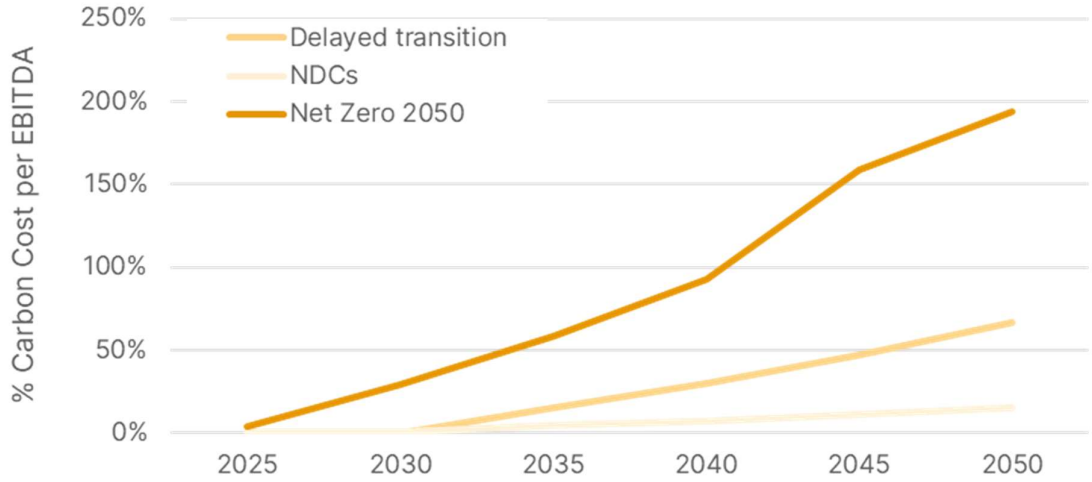
These scenarios are compared to BJC's EBITDA in 2023 to determine the impact of carbon pricing on operating performance.

**Case 1: Carbon price for business-as-usual (BAU Case)**

BJC has quantified the potential financial impacts for the BAU case as follows:

| BAU Case | NDCs | Delayed transition | Net Zero |
|---|---|---|---|
| **2025** | | | |
| Carbon Cost (MTHB) | 172 | - | 926 |
| %Decrease of EBITDA | 1% | - | 4% |
| **2030** | | | |
| Carbon Cost (MTHB) | 308 | - | 8,702 |
| %Decrease of EBITDA | 1% | - | 29% |
| **2050** | | | |
| Carbon Cost (MTHB) | 11,979 | 52,558 | > 52,558 |
| %Decrease of EBITDA | 15% | 67% | >100% |

The figure below shows the carbon cost as a percentage of 2023 EBITDA if BJC does not implement any response or adapt the business for resilience.

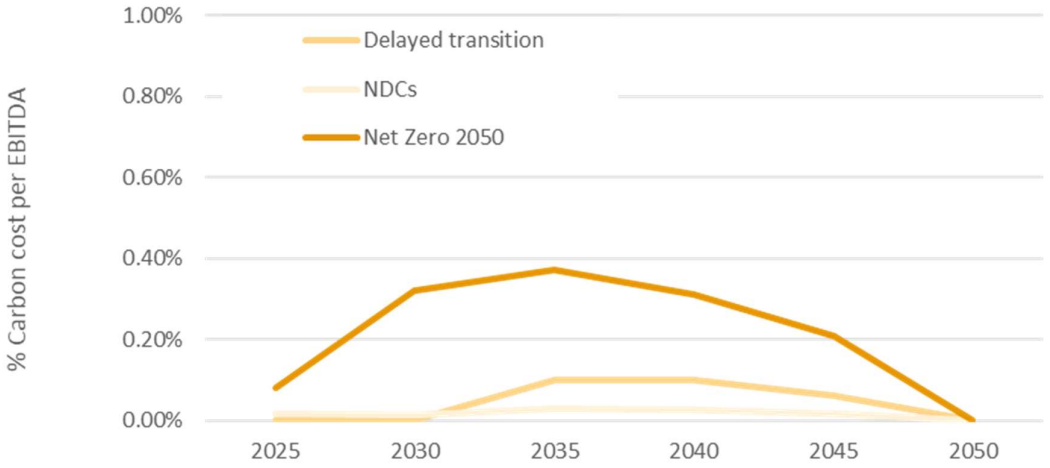



## Case 2: Carbon price for SBTi Aligned Target

BJC has quantified the potential financial impacts for the SBTi case as follows:

| SBTi Case | NDCs | Delayed transition | Net Zero |
|---|---|---|---|
| **2025** | | | |
| Carbon Cost (MTHB) | 150 | - | 809 |
| %Decrease of EBITDA | 0.02% | - | 0.08% |
| **2030** | | | |
| Carbon Cost (MTHB) | 114 | - | 3,212 |
| %Decrease of EBITDA | 0.01% | - | 0.32% |
| **2050** | | | |
| Carbon Cost (MTHB) | - | - | - |
| %Decrease of EBITDA | - | - | - |

The figure below shows the carbon cost as a percentage of 2023 EBITDA if BJC implements any response or adapts the business for resilience.




**B: More detailed and comprehensive disclosures are required according to reporting standards**

Globally, there is a strong push towards more comprehensive climate reporting standards, driven by initiatives like the GHG Protocol, Science-Based Targets initiative (SBTi), and the International Financial Reporting Standards (IFRS) S2. These frameworks aim to enhance transparency, consistency, and comparability of climate-related information, enabling stakeholders to make informed decisions. BJC must provide detailed information on its GHG emissions, including Scope 1, 2, and Scope 3 emissions. Additionally, BJC must comprehensively report on climate actions. This will require adjustments in operations, including hiring new employees, providing training, changing processes, improving efficiency, and reducing emissions.

| | Business Impacts |
|---|---|
| STEPS | BJC does not incur any additional costs for preparing reports or verifying information beyond its current operations. |
| APS | BJC has incurred additional costs in designing a system to closely monitor and track GHG emissions data, as well as to prepare and verify reports that go beyond their current operations. |
| NZE | Due to increased details, BJC has incurred additional costs in hiring employees to prepare reports. This includes capacity building, hiring consultants, designing systems to monitor data, more detailed GHG emission measurements, and preparing comprehensive reports or verifying additional data from current operations. |

## Technology Risk

### A: Change of Technology

The advancement of different technologies that address climate change, such as those related to clean energy, eco-packaging, and logistics systems, can enhance productivity and reduce production costs while maintaining or even improving product and service quality.

These technologies have an influence on competitiveness in terms of generating income and reducing expense in the long term.

Furthermore, with our determination to resolve the climate change problem, there may be the need to develop a technology for carbon storage and BJC have to use such technology in the future to achieve the net zero goal for greenhouse gas emission. The cost of investment in this technology could be high in the early stage.

| | Business Impacts | Financial Impacts |
|---|---|---|
| Overview | Emergence of new technologies will affect business competition directly and indirectly. Without implementing correct technologies, the cost will be higher than the competitor or the Company will not be able to manufacture products and services to meet consumers' demands. | Higher costs in the short-term as a result of investments in technology, generating more fixed assets. Consequently, maintenance and depreciation costs also increase.<br>In the long-term, these technologies will result in higher savings due to more efficient operations. Moreover, they can increase company revenue from products and services that meet their customers' demands. |
| STEPS | • Technology change is insignificant, with minor support from the government. The Company consider investing in business unit, which require a small budget. There are only a few changes in business processes to accommodate technology change. | In the short term, the required investment is no more than 10 million baht per year. In the long term, operating expenses will drop by about 10%. |

| | Business Impacts | Financial Impacts |
|---|---|---|
| APS | • There is a huge change in technology or it is necessary to shift into the new technology to achieve the greenhouse gas emission reduction as planned. Therefore, the investment budget is high with possible additional expenses. Certain business processes will be changed significantly. | • In the short term, the investment required is over 10 million but not exceeding 100 million baht per year. For long term, operating expense will drop around 10% - 30%. |
| NZE | • New technology is required to achieve the reduction of greenhouse gas emission goal as planned. Investment budget is considerably high. Business process change and improvement is massive. | • In short term, the investment budget is over 100 million baht per year. In long term, the operating expense could drop by over 30%. |

## Market Risk

### A: Lack of action to serve the shift in demand/ interest to a low-carbon product

At present, consumers are likely to choose environmentally friendly products by buying products and/or services with the least greenhouse gas emissions and environmental impact. Nowadays, consumers easily receive information on global warming and climate change from online media, raising their concerns and awareness on this issue.

Consumers focus more on corporation operations, including the Company's operation throughout the entire supply chain: the sourcing of raw materials, the transportation of raw materials from suppliers, the production process, the distribution of the products, and the provided customer service. They assess whether these processes positively or negatively impact the environment and society.

If such a process causes a negative impact on the environment and/or society, and the company cannot explain the cause or assume responsibility for the issue at an explicit and reasonable approach, it may affect corporate image or customer satisfaction.

| | Business Impacts | Financial Impacts |
|---|---|---|
| Overview | • Without adaptation to meet gradual consumer trends by offering environmentally friendly products or services, the Company's revenue could drop, or the market share is cut. Moreover, the corporate reputation and image could be affected by the anti-product by customers and society.<br>• On the contrary, If BJC responds to consumer's behavior regarding the environment, it will pave the way to enhance competitiveness while leveraging a positive reputation for the organization. | 1. Without adaptation, revenue and market share will decrease. Adaptation brings more revenue.<br>2. Increasing cost of products within the short term: as nowadays, the cost of environmentally friendly products is high but in the long term, upon advanced technology and the eco-product is widely popular, the cost will probably drop. |
| STEPS | • Moderate change of consumer behavior: The company will have proper time for adaptation. However, such a level of change could impact the long-term competition. | Revenue and market share may be reduced by 5%-10%. |
| APS | • Consumer behavior has changed rapidly and clearly: the time for adaptation is less while the resources required for such is more. It is vital to lay out strategy and investment within 365 days. | Revenue and market share may be reduced by 10%-30%. |

| | Business Impacts | Financial Impacts |
|---|---|---|
| NZE | • Consumer behavior has changed rapidly and clearly and has a significant impact on business operations. It is vital to have in place a strategy and adaptation plan that is explicit, adequate, and timely to maintain market share, business opportunities, and reputation. The cost of investment could be higher, or there must be a whole change of certain operations. | Revenue and market share may be reduced by over 30%. |

After conducting qualitative and quantitative physical and transition assessments, BJC maps risks and opportunities using a risk matrix based on COSO's Enterprise Risk Management Framework.

## Reputation Risk

**A: Inaction leads to the loss of public trust**

Inaction on climate issues can result in a significant loss of public trust for BJC. Stakeholders, including customers, investors, and regulatory bodies, increasingly expect companies to be transparent and proactive in their climate change actions.

Without timely and detailed reporting on GHG emissions and other sustainability efforts, BJC may appear to be neglecting its environmental impact, leading to:

**Customer Distrust:** Customers are more inclined to support businesses that demonstrate environmental responsibility. Lack of action may cause customers to choose competitors who are more transparent and proactive in their sustainability efforts.

**Investor Concerns:** Investors are increasingly considering environmental, social, and governance (ESG) factors in their investment decisions. Inaction can lead to a decrease in investor confidence, potentially affecting BJC's stock value and access to capital.

**Regulatory Scrutiny:** Regulators may impose stricter regulations and penalties on companies that do not comply with GHG reporting standards. This can lead to legal and financial repercussions for BJC.

**Reputation Damage:** In today's socially conscious world, companies that fail to address environmental issues risk damaging their reputation. Negative public perception can be difficult to recover from and can have long-lasting effects on the company's market position.

| | Business Impacts |
|---|---|
| STEPS | If BJC lacks climate action, it may not face substantial negative impacts because its stakeholders do not currently prioritize comprehensive climate action from the company. |
| APS | If BJC lacks climate action, it will face low risk of decreased customer satisfaction and a drop in sales as environmentally conscious consumers turn to competitors. Additionally, investors may hesitate or withdraw due to concerns about reputational risk affecting financial performance. |
| NZE | If BJC lacks climate action, it will face high risk to:<br>• Difficulty Adapting: BJC will struggle to keep up with future market demands and new regulations, which could threaten its business model.<br>• Loss of Support: Customers, employees, investors, and partners may lose trust in BJC, making it hard for the company to recover.<br>• Financial Trouble: The ongoing loss of public trust could lead to financial instability and possibly even business failure in the long run. |

Nevertheless, this poses a low risk for BJC. The company is dedicated to reaching net-zero emissions by 2050 and is actively putting decarbonization strategies into practice. **This commitment is demonstrated by their top-ranking awards for**

**sustainable disclosure. BJC is in the top 1% of the Dow Jones Sustainability Index (DJSI) and has received an AA score in the MSCI rating.**

**The criteria for impact and likelihood levels are as follows:**

| Level | Rating | Likelihood (%) | | Financial impact (MTHB) | | Non-Financial Impact |
|---|---|---|---|---|---|---|
| | | From | To | From | To | |
| 1 | Low | 1% | 25% | 0 | 25 | • No impact (Cost/ expenditure) on business.<br>• Have impacts on the production/ delivery of the products or main services, resulting in **less than 5%** decrease in product/ service. |
| 2 | Medium | 26% | 50% | 26 | 51 | • Result in expenditure but does not cause disruption to the business or operation.<br>• Have impacts on the production/ delivery of the products or main services resulting in **5 - 10%** decrease in product/ service. |
| 3 | High | 51% | 75% | 52 | 76 | • Result in high expenditure and negative impact on business.<br>• Have impacts on the production/ delivery of the products or main services resulting in **10 - 20%** decrease in product/ service. |
| 4 | Very High | 76% | 100% | 77 | ∞ | • Result in very high expenditure and extremely negative impact on business<br>• Have impacts on the production/ delivery of the products or main services, resulting in **over 20%** decrease in product/ service |

Classify overall risk and likelihood into a risk matrix with four levels: Low risk, medium risk, high risk, and very high risk.

| Likelihood \ Impact | Low | Medium | High | Very High |
|---|---|---|---|---|
| **Very High** | Medium | High | Very High | Very High |
| **High** | Medium | Medium | High | Very High |
| **Medium** | Low | Medium | Medium | High |
| **Low** | Low | Low | Medium | Medium |

BJC can summarize risks related to climate change for long term (by 2030) as the table below

**Risk Level**

Low Medium

High Very High

| | | Potential risks | Long-term (by2030) | | |
|---|---|---|---|---|---|
| | | | Likelihood | Max Impact | Risk level |
| **Physical** | Acute | Flood | H | H | H |
| | | Water scarcity | H | VH | VH |
| | Chronic | Global temperature rising and severe heat wave | H | VH | VH |
| **Transition risk** | Policy & legal | Governance introduces carbon pricing instruments such as carbon tax and ETS | VH | VH | VH |
| | | More detailed and comprehensive disclosures are required according to reporting standards. | VH | L | M |
| | Technology | Change of Technology | L | VH | M |
| | Market | Lack of action to serve the shift in demand/ interest to a low-carbon product | M | VH | H |
| | Reputation | Inaction leads to loss of public trust. | L | H | M |

## Climate-Related Opportunities

In addition to the risk related to climate change, BJC has considered the opportunities in comprehensive aspects of climate change to not lose major business opportunities and to enhance competitiveness and profitability. The important opportunities for BJC in the climate change matter are as follows:

### Response to the shift in demand/ interest to low-carbon product

Raising awareness about global warming can influence consumer behavior and increase the demand for BJC's eco-friendly packaging, energy-efficient appliances, and sustainable consumer goods. These products, both under the company's brand and those distributed in retail, can help mitigate global warming.

Furthermore, the company can arrange marketing programs or projects to build relationships with customers who prefer green products. This advantage will allow the company to generate more income and profit and maintain good customer relations. The Exclusive Product line can be added (available at Big C only) to attract more customers.

### Participation in renewable energy programs and adoption of energy-efficiency measures

#### Increased consumption of renewable energy sources

In the long term, renewable energy sources like solar often have lower operational costs than fossil fuels. Although the initial investment in renewable infrastructure can be substantial, long-term savings on energy bills offset it. Unlike fossil fuels, renewable energy prices are less volatile, offering greater stability and enabling better financial forecasting and budgeting.

Additionally, transitioning to renewables helps BJC lower GHG emissions, mitigating climate-related risks such as carbon taxes and stricter emissions regulations.

#### Enhancement of efficiency and effectiveness in business operation

The strategy, work plan, and projects of BJC concerning climate change focus on reducing fuel and dirty energy use. This includes upgrading machinery, optimizing production processes, and improving building insulation.

Additionally, the quantity of waste must be reduced, as it is one of the reasons for greenhouse gas emissions. A proper management plan will significantly minimize expenses related to waste management. Reusing solid waste is another option to minimize expenses. As a result, the business will become more efficient, with the potential for higher profitability.

## Collaboration with the Supply Chain

Collaboration with the supply chain is crucial for BJC to achieve its sustainability goals, as supply chain emissions often represent a significant portion of a company's overall carbon footprint. Engaging suppliers in climate action can help BJC create long-term relationships and build a sustainable business across the value chain.
BJC can effectively collaborate with the supply chain through:

### Tiered Supplier Categorization

Tier 1 Suppliers: These direct suppliers have the most significant impact on BJC's operations. The initial collaboration efforts will focus on these suppliers through the green procurement initiative program.
Tier 2 and Beyond (Non-Tier 1): Future phases will involve engaging Non-Tier 1 and subsequent suppliers, cascading sustainability practices throughout the entire supply chain.

### Green Procurement Initiatives Program

Develop a preferred supplier program that recognizes and rewards suppliers who demonstrate exceptional commitment to sustainability.

### Knowledge Sharing and Capacity Building

BJC can educate suppliers on climate action and sustainability practices, emphasizing the importance of reducing GHG emissions and fostering a culture of sustainability throughout the supply chain.
BJC can summarize opportunities related to climate change for the long term (by 2030) in the table below.

**Opportunity Level**

Low | Medium | High | Very High

| | | Potential opportunities | Long-term (by2030) | | |
|---|---|---|---|---|---|
| | | | Likelihood | Max Impact | Opportunity level |
| Opportunities | Products and services | Response to the shift in demand/ interest to low-carbon product | M | H | M |
| | Resilience | Participation in renewable energy programs and adoption of energy-efficiency measures | VH | M | H |
| | Stakeholder Engagement | Collaboration with the supply chain | VH | L | M |

### c) Describe the Resilience of the Organization's Strategy, taking into Consideration Different Climate-related Scenarios, including a 2°C or Lower Scenario.

Our analysis of different scenarios helps us understand how potential flood risks and carbon costs could affect our strategy. This ensures that our operations remain resilient while also ensuring that BJC operations comply with the goals set in the Paris Agreement, the Nationally Determined Contribution of Thailand (NDCs), the Sustainable Development Goals (specifically the 7$^{th}$ and 13$^{th}$ goals), and Thailand's commitment to achieving Net Zero GHG Emissions. This includes our mission to address climate change through a comprehensive strategy.

1. Educate and raise awareness among employees about climate change
2. Conduct an assessment to identify opportunities and risks to planned work to appropriately address climate change by integrating climate change risks into corporate risk management and conducting risk management and assessment through BJC's central computer network.
3. Prioritize BJC's energy consumption by increasing the proportion of clean energy consumption to reduce greenhouse gas emissions.

## Physical risk and opportunities responses and adaptation plan

### Flood responses and adaptation plan

The total **estimated cost for implementing these flood prevention measures**, including sandbag deployment, water pump installation, and the other described efforts, **is around 50 million baht**. This investment is critical for ensuring the resilience of BJC's operations in flood-exposure areas, helping to mitigate potential damage and disruption caused by flooding.

- **Site Selection**: Prioritize locations with low flood risk, avoiding known floodplains, river-adjacent areas, and regions with poor drainage.
- **Building Design**: Construct buildings with elevated foundations using stilts, raised platforms, or flood-resistant materials for lower levels.
- **Flood Protection Systems**: Implement easily deployable and maintainable flood barriers, shields, and water-tight doors to safeguard critical areas.
- **Drainage Solutions**: Integrate efficient drainage systems around buildings, utilizing permeable surfaces for landscaping to reduce runoff.
- **Maintenance and Inspection:** Regularly clean the factory's drainage system and conduct annual inspections of nearby external waterways that could pose flood risks.
- **Preventative Measures:** Procure sandbags, prefabricated concrete barriers, and water pumps for emergency water blockage and removal.
- **Monitoring and Communication:** Continuously monitor weather updates from reliable sources, check water levels in public canals around the Rojana Industrial Park, and survey water entry and exit points.
- **Emergency Preparedness:** Prepare communication devices and maintain a list of emergency contact numbers for relevant personnel and agencies.

## Transition risk and opportunities responses and adaptation plan

BJC has in place operational guidance in response to the concrete strategy for transition and opportunities implemented as follows:

**1. Building knowledge and awareness of employees**

With consideration on improving the knowledge and skills of employees regarding the climate change matter, in order to drive the organization toward the goal set forth, BJC has collaborated with external agencies, such as the Greenhouse Gas Management Organization and universities, to launch a project for assessing the greenhouse gas generated from the corporation as the study approach to identify the greenhouse gas released from the product of company activities (carbon footprint) under correct procedures. Moreover, BJC concentrates on raising awareness among all employees regarding climate change to encourage cooperation for the strategy. BJC arranges training courses for employees from all business units about sustainable development and sustainability risk assessment, including climate change risk.

**2. Increase energy efficiency**

BJC prioritizes energy efficiency from upstream to downstream, covering production processes, logistics, and customer services. To use resources efficiently, reduce environmental impact, and effectively add value to the organization, BJC establishes a work plan to change tools and devices that will enhance energy efficiency, e.g., equipment in the factory, changing to energy-saving bulbs and installing doors for freezers in department stores. All these efforts are to reduce electricity consumption, which is non-clean energy, significantly.

**3. Clean energy consumption**

BJC supports using clean energy in running its business and aims to increase the proportion of clean energy consumption year by year. Eventually, the company installed solar panels (solar roofs) for retail, packaging and consumer business, and it plans to expand such projects to other business groups. Moreover, upon the vision of business opportunities related to clean energy, the Company has established BJC Power Co., Ltd., to conduct business with clean energy.

## 4. Efforts to reduce GHG emissions

Realizing the importance of managing pollution generated from energy consumption and pollution from other sources i.e., coolants and waste management, BJC has change coolant type for the new one that generates less impact to environment, recycle projects are launched to reuse waste or for other utilization to reduce the GHG from waste disposal process, such as the Green Roof and SOS Project which aims to reduce food waste and Tissue Exchange Project to reduce waste. Another effort is to reduce GHG in the atmosphere by initiating a tree-planting project to absorb carbon dioxide in the operating site and community area, including introducing suppliers for participation, raising awareness, and encouraging participation within our supply chain. Additionally, BJC has adapted and managed the risk related to climate change in our major business units as follows:

1) **Retail Business** plans to install solar roofs in different branches until 2025 to increase the proportion of clean energy consumption and to install charging points for electric cars in support of the increasing demand in the future. Electric vehicles are more environmentally friendly than vehicles that use fossil fuels. In addition, electricity consumption will be more efficient. For example, the refrigerators will have a door to save energy, the lighting system optimization, including the plan to change coolant to minimize environmental impact. The Retail Business has prepared the Business Continuity Management Plan (BCM) and the Business Continuity Plan (BCP) and appointed the Working Group to prepare for coping with acute impacts such as floods or severe storms. Moreover, there is a plan to study the GHG emission of the Company under collaboration with the Thailand Greenhouse Gas Management Organization (TGO) to study the greenhouse gas emission of the sample branch - Big C Pathum Thani in 2021. Moreover, the Company will buy carbon credit to compensate in accordance with the greenhouse gas emission rate from its operation. Big C Pathum Thani will be our first branch, which is regarded as Carbon Neutral Store. The related departments will apply the knowledge for further study and develop another branch's GHG emission management plan.

2) **Factory (Packaging and Consumer)** will install a solar roof to use clean energy with plans to expand to other factories within the next 3 - 5 years.The Factor also conducts an analysis to identify whether the factory is in a water-stress area, prepares a plan to cope with drought crisis for the factory situated in the at-risk area by searching for an alternative source of water, implements water-saving measures, and develops a water recycling plan within the factory to ensure efficient water use. There is consideration on water stress area for our major suppliers to determine proper management plan in the future for the consumer business group. The help is for contracted farms to ensure efficient water consumption, and the flood and drought crisis will be monitored closely.

The Company researches and develops new technologies and innovations to enhance production or minimize environmental impacts. The research and development cover many projects from business groups, such as packaging and consumer, which are pending the development phase. The plan will be implemented within the next 2-3 years.

The project to grow trees within the factory and communities, for instance, Growing Big Tree for Our Home by Berli Jucker Cellox Co., Ltd. (CPC), aims to build carbon dioxide absorbents and mitigate global warming. In addition, each factory under the BJC Group has a continuous operation plan in place for a crisis, such as a flood, to cope with a natural disaster that is likely to become more severe.

3) **Logistics and warehouse,** a business unit responsible for logistics, has implemented a cooling system optimization for the fresh food warehouse to preserve the quality of the food. In addition, there is an emergency plan to cope with a flood or severe storm to continue logistics.

Furthermore, the Company has implemented a computer system for planning transportation routes to ensure efficiency, reduce unnecessary fuel use, and minimize the environmental impact of our operation. Inside the warehouse, electric forklifts are used in place of diesel-fueled ones to minimize the

environmental impact at a better rate. At present, BJC is studying the feasibility of using electric vehicles for transportation to reduce greenhouse gas emissions from the logistics process.

BJC continually monitors situations and adjusts the strategy and operation plan, including business and matters related to climate change, to conform and ensure efficiency. This supports business growth and sustainability while maintaining the benefits for all stakeholders.

## (III) Risk Management

### a) Describe the organization's processes for identifying and assessing climate-related risks.

BJC owns a variety of businesses, and each unit has its own risks and opportunities, including different management approaches. Currently, BJC business is divided into 4 main groups: Retail, Consumer, Packaging and Engineering, and Pharmaceutical Products and Services. Analyzing the situation related to climate change is considered as forecasting the future, considering external and internal factors, including the possibility of a situation beyond expectation. Following are the details of BJC's analysis of the situation, risk, and opportunity related to climate change.

**Identifying and assessing climate-related risks and opportunities process**

BJC has assessed the risks and opportunities related to climate change (Corporate Risk Assessment), which include physical risk, transition risk, and opportunities. It has considered internal and external factors and a Climate Scenario that conforms to the expected lifetime of assets or activities and corporate context, covering own operation, upstream activities, and downstream activities. The enterprise risk management will include identifying, assessing, and managing the risk related to climate change.

This year, the Sustainability and Risk Management (SRM) team will support each business unit by conducting workshops on risks and opportunities. These workshops will enhance understanding of the climate landscape, peer-reviewed risks and opportunities, and methodologies for scenario analysis. During the workshops, each business unit will discuss the identification and preliminary assessment of the likelihood (Probability) and impact (Severity) of various factors affecting their operations. This includes considering internal and external factors and assessing the current situation and future outlook. The results will be used to analyze risks and opportunities related to potential climate change and business impacts. Additionally, the SRM team will provide tools and templates for data collection and support the recording of GHG emission data for each unit. This will ensure that each unit comprehends and manages these risks and opportunities effectively. SRM gathers data and analyzes the identification, assessment, and management of significant risks and opportunities associated with the company's response to climate change. This information is presented to the management and risk management subcommittee for feedback following a presentation to the Risk Management Committee and Sustainable Development Committee for consideration and approval at least once a year.

### b) Describe the organization's processes for managing climate-related risks

After identifying risks, assessing their impacts, and conducting scenario analysis, BJC designed risk management (control activities) to manage potential risks and respond effectively when risks materialize (risk response).

**Control Activities:**

- **Preventive controls** are designed to prevent risks from occurring. Many of these activities are applied before the processing activity takes place. Examples include Using Renewable Energy to reduce GHG Emission, replacing fluorescent lightbulbs with LEDs, buying insurance, business systems integrity and continuity controls (such as application design standards, change controls, security controls, systems backup and recovery), physical safeguard and access restriction controls, and an effective planning and budgeting process.
- **Detective controls** are designed to detect errors or irregularities that may have occurred after processing has been completed. These controls include activities such as reconciling batch balance reports with control logs maintained by originating departments, comparing reported results with plans and budgets, reviewing online access and transaction logs, and conducting physical counts of cash and inventory balances.
- **Corrective controls** are designed to address and rectify errors or irregularities that have been identified. For example, in the event of flooding, a special team will investigate the incident, determine its impact and urgency, and then recommend corrective actions to the operating management.

**Risk Responses**

- Accept: Identify the risk as acceptable and allow it to happen.
- Reduce: Implement measures to minimize the risk's impact or likelihood.
- Transfer: Have someone else handle the risk, for example, through insurance. This response involves shifting the risk to a third party, such as purchasing insurance coverage to protect against potential losses.
- Avoid: Not participate in events that give rise to risk.

## C) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management


BJC's Enterprise Risk Management (ERM) process encompasses a 5-step approach, including the following key steps:

1. **Objective:** By defining its business goals and long-term strategic direction, BJC can establish a clear objective for the risk management process, employing the "SMART" principle—Specific, Measurable, Attainable, Relevant, and Time-bound.
2. **Risk Identification:** In this step, a risk owner provides inputs on key risk drivers, including environmental, social, and governance (ESG) factors, as well as climate-related events that may impact BJC's business as either risks or opportunities. They also identify the root causes of these events.
3. **Risk Assessment:** The likelihood (Probability) of risk occurrence and the impact (Severity) of events are assessed together to determine the inherent risk level. This assessment comprehensively evaluates two primary dimensions: likelihood and impact. It involves scenario analysis to quantify some risks and opportunities in financial terms.
4. **Risk Management:** Mitigation measures are addressed, and control levels are evaluated to ensure their risk management effectiveness.

5. **Risk Monitoring & Reporting:** Risk management practices are monitored and evaluated to assess the effectiveness of mitigation measures and strengthen the risk management framework for the future.

## (IV) Metrics & Target

BJC assesses risks and opportunities related to the climate change using the following metrics for support.

- Greenhouse gas emission rate
- Volume of energy consumption and proportion between the clean energy and dirty energy
- Revenue of the eco-friendly products
- Cost of agricultural products and seafood
- Number of branches affected by the disaster and additional costs

Furthermore, in a bold display of our commitment to combatting global warming, BJC has set forth a Net Zero Goal encompassing both long-term and short-term objectives aligned with Thailand's Net Zero goal and the expectations set forth at COP26. The targets are stated below:

**Net Zero Targets:**

BJC Group aims to achieve the Net Zero Goal by the year 2050.

**Near-term targets aligned with SBTi:**

- Reduce GHG emissions (Scope 1 and Scope 2) per unit of income by 42% from the base year 2022 by the year 2032.
- Reduce GHG emissions (Scope 3) per unit of income by 10% from the base year 2022 by the year 2032.

Short-term targets and performance 2023

BJC has set the short-term targets or annual target for Greenhouse Gas Emissions reduction for the group by comparing with the number of operations sites. In 2023, the goals and performance are as follow,

| Climate | 2022 | 2023 | Target 2023 |
|---|---|---|---|
| **Greenhouse gas Scope 1 (Tons CO2 equivalent)** | 506,660 | 501,436 | **505,000** |
| Greenhouse gas Scope 1/Operation | 304.67 | 282.02 | **284.03** |
| Compared to 2022 (%) | | -8.62 | **-7.84** |
| **Greenhouse gas Scope 2 – Location (Tons CO2 equivalent)** | 608,933 | 578,874 | **600,000** |
| Greenhouse gas Scope 2- Location/Operation | 366.17 | 337.46 | **369.47** |
| Compared to 2022 (%) | | -11.09 | **-7.84** |
| **Greenhouse gas Scope 2 – Market (Tons CO2 equivalent)** | 618,065 | 603,816 | **609,000** |
| Greenhouse gas Scope 2- Market/Operation | 371.66 | 339.60 | **342.52** |
| Compared to 2022 (%) | | -8.62 | **-7.84** |
| **Indirect Greenhouse Gas Emissions (Scope 3)** | 6,835,433 | 7,734,745 | **7,800,000** |
| Greenhouse gas Scope 3- Market/Operation | 4,110.30 | 4,350.25 | |

Breakdown of greenhouse gas scope 3 emissions (tCO2eq)

| No | Category | 2022 | 2023 | Emissions calculation methodology and exclusions |
|---|---|---|---|---|
| 1 | Purchased goods and services | 6,176,779 | 6,923,857 | Emission is calculated by carbon footprint of product of the key raw materials used in the factory and the products sold in Big C stores. |
| 2 | Capital goods | 5,743 | 20,531 | Emission is calculated by the number of newly opened Big C Mini branches in reporting year x average area per branch x EF in constructing one unit of area. |
| 3 | Fuel- and energy related activities | 207,816 | 288,554 | Emission is calculated by total amount of energy consumption within organization, which used for Scope 1 & 2 calculations |

| No | Category | 2022 | 2023 | Emissions calculation methodology and exclusions |
|---|---|---|---|---|
| 4 | Upstream transportation and distribution | 153,548 | 146,044 | Emission is calculated by total amount of fuel consumption in the transportation of raw materials/mass or volume of goods. |
| 5 | Waste generated in operations | 90,379 | 139,033 | Emission is calculated by total amount of waste generated x Emission factors (EF) for specific waste treatment methods. |
| 6 | Business travel | 4,172 | 751 | Emission is calculated by total amount of fuel consumption by employees for business travel. |
| 7 | Employee commuting | 32,193 | 33,846 | Emission is calculated from the survey data of distance between the reporting company and the employees' home and the employees' travel methods. For employees who have not been surveyed, the average Emission value from the specified distance traveled will be used, multiplied by the remaining number of employees. |
| 8 | Upstream leased assets | 1,557 | 114 | The emissions factor for warehouse operations was estimated based on the total electricity consumption in distribution center for a one-year period. |
| 9 | Downstream transportation and distribution | 6,508 | 12,579 | Emission is calculated by fuel consumption and applying the appropriate emission factor for that fuel. |
| 10 | Processing of sold products | Processing of sold products is considered irrelevant to BJC's business because it sells a final product that does not undergo any additional processing before being sold to the end-user. | | |
| 11 | Use of sold products | GHG emissions from Category 11 (use of sold products) are included in Category 1 (Purchased goods and services). | | |
| 12 | End-of-life treatment of sold products | 50,366 | 61,877 | Emissions are calculated by the total number of sold product going to each disposal method (e.g., landfill) x Emission factor (EF) for each disposal method |

| No | Category | 2022 | 2023 | Emissions calculation methodology and exclusions |
|---|---|---|---|---|
| 13 | Downstream leased assets | 103,920 | 103,949 | Emission are Calculated based on the electrical consumption of customers leasing space within Big C stores. |
| 14 | Franchises | 3,610 | 3,610 | Emissions are calculated by total number of franchise x Electricity consumption per branch x Emission factor (EF). |
| 15 | Investments | The data is not available for FY 2023 because BJC has only collected the relevant information from its subsidiaries. | | |
| | **Total** | **6,836,591** | **7,734,745** | |

In 2023, BJC took significant steps to enhance its environmental accountability by extending the calculation of greenhouse gas (GHG) emissions to include Scope 3 emissions. This expansion was prompted by the requirements of the Science Based Targets initiative (SBTi), which mandates companies to address and reduce Scope 3 emissions alongside Scope 1 and 2 emissions. By adopting a centralized GHG emission data collection template covering 15 categories, BJC utilized a combination of revenue estimates and production data to ensure comprehensive and accurate reporting. The inclusion of Scope 3 emissions allows the company to better understand its complete carbon footprint, encompassing emissions generated throughout its value chain, including both upstream and downstream activities. This holistic approach enables BJC to identify areas of high emissions intensity and develop targeted reduction initiatives accordingly, aligning with the corporate target to reduce Scope 3 emissions by 10% by 2032.

**Operational Plan to achieve Net Zero goal in 2050**

BJC is committed to achieve the goal to be Net Zero within 2050. Currently, 45% of GHG emission Scope 1 consists of 30% fuel consumption, 5% transportation, and 10% refrigerant. For Scope 2, 55% comes from electricity consumption.

1. The procedures are to shift from the current source of electricity generation to the clean energy source. Once, the entire electricity source of the Company is changed, BJC will reduce the greenhouse gas emission rate by approximately 40%-50%.

2. Using electric cars fueled with clean energy will reduce the greenhouse gas emission by 3% - 5%.
3. Use (ecofriendly) refrigerant that does not cause GHG will which reduce the greenhouse gas emission by 5% - 10%.
4. Enhance energy efficiency in the production process or use the hybrid machine to reduce energy consumption, based on electricity will reduce the greenhouse gas emission by 10% - 15%.

According to the data above, BJC has the potential to reduce greenhouse gas emissions by 58%-80%. In addition, greenhouse gas emissions can be further reduced through trees planting projects, carbon capture and storage technologies and buying of carbon credits. The estimate proportion of reduction and offsets likely to be achieved are 65% and 35% respectively. Moreover, in 2023, BJC hired experts to assist BJC to improve its plan, enabling the Group to achieve its Net Zero Goals, and help set related goals appropriately and in line with international standards (SBTi). BJC also plans to obtain SBTi target certification in the near future, achieved through long-term plans, divided into three phases as follow:

**Phase 1: Restructuring to Net Zero company (2022-2031)**

After the announcement of the Net Zero Goal in 2022, we expect that the first 10 years will be the initial phase of developing the company into a net zero company. The initial phase will highlight the continuity of our existing process - using clean energy, optimizing work process, adding recycle proportion, growing more tress, educating, and creating corporate culture for all employees to reduce the GHG emission. The aim is to enhance performance of the said operation, to study and assess for investing in innovation or to alter significant variation to certain operation, to pave robust foundation and to become the net zero company. Our further involvement includes monitoring on laws and government requirement which may be subject to changing or those to be imposed in support or promotion of the carbon-free society or carbon tax, in order to shift the business operation in conformity with the newly imposed law.

**Goal for Phase 1: Reduce GHG emission by 15%**

- 10% from work optimization and application of new technologies or innovation
- 5% from growing trees and purchasing carbon credit

**Major Factors to Achieve the Goal**

- Reduce energy consumption
- Install solar panels, i.e., solar roof
- Government support
- Growing trees
- Purchasing carbon credits

**Phase 2: Change to Net Zero company (2032-2041)**

After having a solid foundation, BJC will then emphasize the target to become the net zero company by investing or using new technologies and innovation to reduce the greenhouse gas emission. At this phase, BJC aims to progress for significant reduction of the greenhouse gas emission as a result of using clean energy, electric cars and changing work procedures, including setting the goal to increase the carbon absorption by growing trees and applying technologies for enhancement such as carbon storage technology.

**Goal for Phase 2: Decrease GHG emission by 25%**

- 15% from changing work procedures and/or investing in innovation with an aim to reduce the greenhouse gas emission from our business operation.
- 10% from growing trees, carbon adsorbent technology and purchasing carbon credits.

**Major Factors to Achieve the Goal**

- Using electricity from the source of clean energy
- Using electric cars
- Changing work procedures and/or using new machinery
- Study the benefits and applying from the new laws as well as government support
- Applying the technology for carbon adsorbent
- Growing trees

- Purchasing carbon credits

**Phase 3 Continuous improvement to Net Zero company (2042-2050)**

This phase is called post-transition. Upon significant investment and/or change of work procedure for reduction of the greenhouse gas emission, when the greenhouse gas emission rate will have been momentous, BJC will continue with strong determination to reduce the greenhouse gas emission based on the effort to optimize the machine or system implemented for maximum efficiency. With regular maintenance and repair of the machine and continual study of new opportunities that will contribute to reducing the greenhouse gas emission. Meanwhile, BJC will also highlight the importance of growing more trees, applying carbon adsorbent technology and purchasing carbon credits, collaborating with an external entity in seeking for alternative approach to set off the greenhouse gas emission to achieve the Net Zero Goal set forth.

**Goal for Phase 3: Decrease GHG emission by 50%**

- 30% from investment and/or development of new technologies to reduce the greenhouse gas emission.
- 20% from growing trees and applying carbon adsorbent technology

**Major Factors to Achieve the Goal**

- Increase proportion of clean energy consumption
- Applying the technology for carbon adsorbent
- Develop work procedures and/or use a new machine for improved performance and maintain the machine periodically.
- Growing trees
- Purchasing carbon credits

According to the reduction and compensation of the greenhouse gas emission mentioned above, followings are summary of the target for reduction and compensation in each phase and different scenarios:

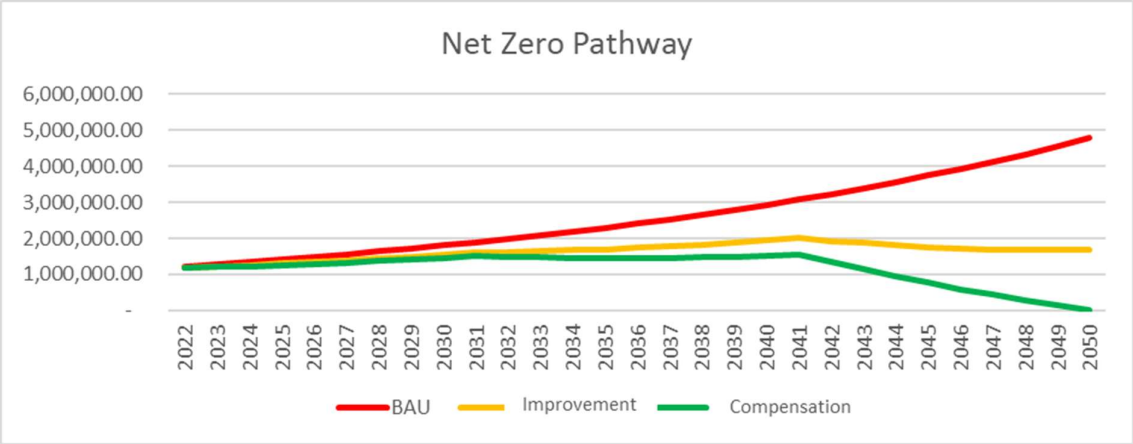
| | Phase 1 | Phase 2 | Phase 3 | Total FY2050 |
|---|---|---|---|---|
| Reduction of GHG emission (Scope 1+2) | 15% | 25% | 50% | **90%** |
| GHG compensation (Scope 1+2) | 5% | 3% | 2% | **10%** |
| Reduction of GHG emission Scope 3 | 90% | | | |

## Progress against SBT targets

| SBT Targets | 2023 |
|---|---|
| Reduce scope 1&2 emission by 42% | 3.78% |

## Scenario analysis

1. The red line - with no actions taken within 2050, there will be 4.8 million tons of greenhouse gas emission per year (it is estimated that the greenhouse gas emission rate will increase by 5% per year as a result of business growth).
2. Yellow line – if the greenhouse gas emission rate can be decreased upon change or improvement of work procedures as well as application of new technologies or innovation, the greenhouse gas emission rate will drop by 65% accordingly.
3. Green line - in addition to the greenhouse gas emission reduction mentioned in Article 2., growing trees, using carbon adsorbent technology, and purchasing carbon credits will contribute to compensation of greenhouse gas emission by 35% according to the plan.



## Management Systems for Lobbying Activities and Trade Association Membership Related to Climate Change

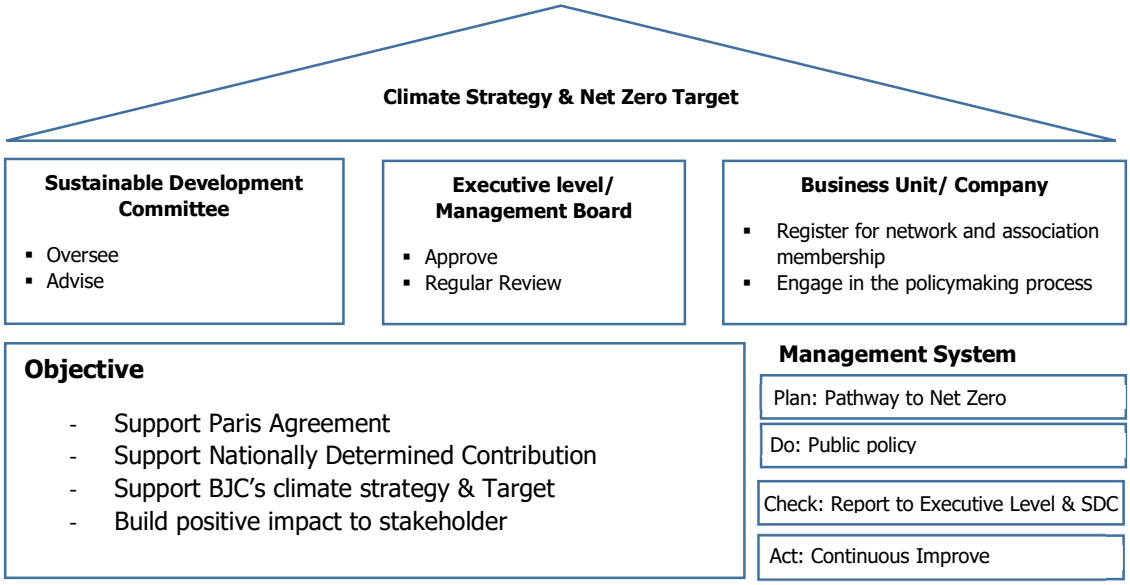
Across all jurisdictions, the BJC Big C Group places significant emphasis on supporting governmental laws, regulations, and policies aligned with the Paris Agreement to effectively manage climate change. Moreover, the group actively participates in various networks dedicated to climate change management. Notably, Thai Beverage Can, a packaging business under BJC, contributed as a committee member in the development of the Extended Producer Responsibility (EPR) law in Thailand. Additionally, BJC itself has become an active member of the Thailand Carbon Neutral Network (TCNN).

BJC has established a robust management system outlining the conduct of negotiation activities and memberships in related trade associations. The management team holds accountability for assessing the suitability of operations, overseeing relevant operations, and ensuring alignment with the objectives of the Paris Agreement and Thailand's Net Zero target.

Furthermore, BJC has implemented a structured process to regularly review and monitor its participation in advocacy efforts for governmental policies related to the Paris Agreement. This includes both direct persuasion negotiations and memberships in trade associations. The company ensures that its actions support the Paris Agreement and regularly assesses whether the climate change policies of its trade association memberships align with its internal objectives. In cases of significant nonconformity, the management team evaluates policy adjustments, membership reviews, or seeks to influence the trade association's policies to better align with the Paris Agreement.

Relevant departments within BJC report on climate change policy stances and related activities of trade associations to the management department. Any significant issues are brought to the attention of the Sustainable Development Committee for acknowledgment and consideration. This structured approach underscores BJC's commitment to actively addressing environmental challenges and advancing sustainability efforts in line with international agreements and targets.

## Governance Framework for public policy engagement




In conclusion, BJC's proactive engagement in initiatives such as the Thailand Carbon Neutral Network (TCNN) and participation in the development of Extended Producer Responsibility (EPR) legislation underscores its commitment to combatting climate change. By joining TCNN, BJC aligns with a network dedicated to reducing greenhouse gas emissions and fostering sustainable growth in line with the Paris Agreement's objectives. Additionally, the company's involvement in shaping EPR laws reflects its dedication to minimizing environmental risks and contributing to a greener future. Through these efforts, BJC demonstrates its steadfast commitment to environmental stewardship and sustainability.