

**CENTRAL**RETAIL

ELEVATION EXCELLENCE

# SUSTAINABLE FUTURE

**THE TASK FORCE ON CLIMATE-RELATED  
FINANCIAL DISCLOSURES (TCFD) REPORT 2023**



# INTRODUCTION

The Task Force on Climate-related Financial Disclosures (TCFD) is a globally recognized climate disclosure framework for guiding companies and organizations how to integrate climate change considerations into governance, strategy, risk management, and metrics and targets, and to disclose relevant information to external stakeholders. Resonating with the Stock Exchange of Thailand's support for TCFD, Central Retail Corporation Public Company Limited ("the Company" or "Central Retail") is determined to disclose climate-related information in alignment with TCFD's recommendations in this TCFD Report. Contained within the report, interested parties and stakeholders can find Central Retail's commitment and progress made toward becoming a climate resilience business. The Company will continue to strengthen its capacity to manage climate-related risks and opportunities, as well as improve the depth and scope of its TCFD disclosures in the coming years.

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# OUR CLIMATE GOVERNANCE

Achieving climate targets is a challenging task that requires group-wide efforts involving executives, management, and employees. This is true for Central Retail’s business operations consisting of multiple segments, formats, suppliers and customers that are spread throughout different geographic locations. In addition, achieving climate targets also requires consistent efforts at all levels within the company that must be sustained in the long-term. Therefore, climate governance becomes a critical component of our climate-related risks and opportunities management, demonstrating to key stakeholders including investors, lenders, shareholders, and other interested parties commitments and responsibilities of the Company in overseeing climate change.

<p><b>Corporate Governance and Sustainability Committee*</b></p>	<ul style="list-style-type: none"> <li>• Oversees compliance with and promotion of sustainability issues under ESG strategy framework, which covers climate change as one of key material ESG issues</li> <li>• Regularly gets reported and discussed climate-related issues for at least once per year</li> <li>• With climate change as a component of ESG framework, the Corporate Governance and Sustainability Committee also oversees:             <ul style="list-style-type: none"> <li>• Progress against climate-related goals and targets</li> <li>• Development and revisions of climate strategy and action plans</li> <li>• Implementation of measures to mitigate or enhance climate-related risks and opportunities</li> </ul> </li> </ul>
<p><b>Risk Policy Committee (RPC)**</b></p>	<ul style="list-style-type: none"> <li>• Oversees effective enterprise risk management including ESG risks, which covers climate-related risks (and opportunities)</li> <li>• With climate-related risks as a component of ESG risks, the Risk Policy Committee also oversees:             <ul style="list-style-type: none"> <li>• Integration of climate-related risks into the Company’s enterprise risk management</li> <li>• Management and assessment of climate-related risks</li> </ul> </li> </ul>
<p><b>Executive Management</b></p>	<ul style="list-style-type: none"> <li>• CEO is currently a member of the Board of Directors, the Corporate Governance and Sustainability Committee, and the Risk Policy Committee.</li> <li>• Manages business operations according to strategies and plans approved by the Board of Directors, which covers ESG strategy framework</li> <li>• With climate change as a component of the ESG strategy framework, the Executive Management oversees:             <ul style="list-style-type: none"> <li>• Integration of climate strategy into overall business strategy, and progress against climate-related goals and targets</li> <li>• Implementation of effective climate-related risk and opportunity management</li> <li>• Appointment of responsibilities for implementing climate strategy and climate-related risk and opportunity management</li> </ul> </li> </ul>
<p><b>Environment Committee</b></p>	<ul style="list-style-type: none"> <li>• Consists of Executive level management from different departments and business units to directly drive environmental programs, including climate change and decarbonization measures throughout the organization</li> <li>• With climate change as a high priority issue among the Company’s environmental programs, the Environment Committee is responsible for:             <ul style="list-style-type: none"> <li>• Setting annual climate-related targets and determine strategies and action plans to achieve those targets</li> <li>• Management, analysis and disclosure of climate-related and GHG emissions data</li> <li>• Implements climate strategy and actions plans to achieve climate-related goals and targets, and mitigate climate-related risks</li> <li>• Supervision of continuous improvement of environmental operations in accordance with laws and other corporate commitments</li> </ul> </li> </ul>

<b>Sustainable Development Working Team</b>	<ul style="list-style-type: none"> <li>• Integrates ESG strategy framework into overall business operations, which covers climate change</li> <li>• Supports the Environment Committee in driving climate strategy and action plan</li> </ul>
<b>Risk Management Working Team</b>	<ul style="list-style-type: none"> <li>• Integrates climate-related risks into the Company's enterprise risk management</li> <li>• Manages and assesses ESG risks, which covers climate-related risks</li> </ul>

\* For additional details on the Corporate Governance and Sustainability Committee, please visit: [www.centralretail.com/storage/document/cg-charter/crc-corporate-governance-and-sustainable-development-committee-en.pdf](http://www.centralretail.com/storage/document/cg-charter/crc-corporate-governance-and-sustainable-development-committee-en.pdf)

\*\* For additional details on the Risk Policy Committee, please visit: [www.centralretail.com/storage/document/cg-charter/crc-charter-risk-committee-en.pdf](http://www.centralretail.com/storage/document/cg-charter/crc-charter-risk-committee-en.pdf)

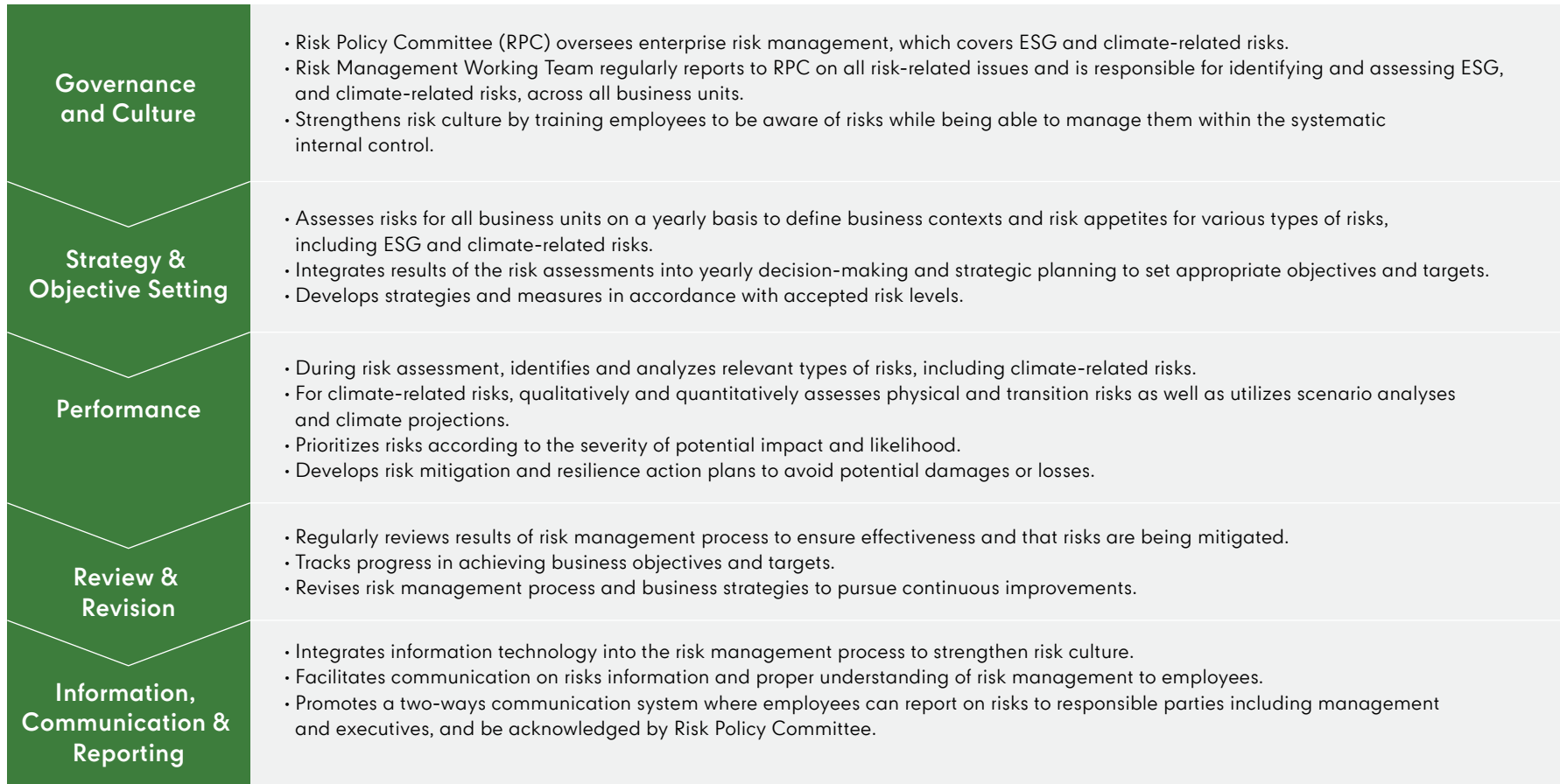
# Management Incentive on Climate Change

Management Level	Management Key Actions	Incentive Methodology
Chief Executive Officer (CEO)	<ul style="list-style-type: none"> <li>One of the key indicators to evaluate CEO performance is the effectiveness on managing sustainability which determined by achieving the sustainability targets including reduction of greenhouse gas emission, energy consumption, and increase of renewable energy. Key indicators of the CEO also cover achieving excellent ESG scores and ratings from corporate sustainability assessment.</li> </ul>	<ul style="list-style-type: none"> <li>Achieving the sustainability strategy and key indicators will contribute to the annual performance review in which outstanding performance will be reflected in annual salary and cash bonus.</li> </ul>
Environment Committee	<ul style="list-style-type: none"> <li>The Environment Committee consists of diverse functions and management levels, including Directors and Head of functions from all business units. The Committee serves as a centralized group for the company to manage environmental performance proactively, setting strategic plans to accelerate towards the company's Net Zero target and goals as well as ensure effective mitigation and transition plans to the climate change.</li> </ul>	<ul style="list-style-type: none"> <li>Relevant performance will contribute towards the key indicators of each member of the Environment Committee, which will be rewarded in terms of the Company's digital currency that can be exchanged as monetary asset for promotions and other payments</li> </ul>
Business Representatives	<ul style="list-style-type: none"> <li>Each business units has assigned representatives who serve as the main agent to monitor and encourage efforts that are aligned with the Company's ReNew Strategy. Climate-related topics which the representatives set as priorities are the reduction of greenhouse gas emission, energy consumption, and increase of renewable energy.</li> </ul>	<ul style="list-style-type: none"> <li>The representatives need to ensure the initiatives are well executed and impact towards the sustainability targets and goals. Similarly, the representatives will be incentivised by the performance review against their KPIs as well as rewarded by the digital currency which can be used as monetary asset for promotions and other payments</li> </ul>

# RISK MANAGEMENT

Central Retail has developed a risk management policy and framework and has analyzed key risks inherent to its business operations to ensure good corporate governance and enhance confidence of all relevant stakeholders. The Company’s enterprise risk management system is developed to meet the internationally recognized Committee of Sponsoring Organizations of the Treadway Commission’s Enterprise Risk Management Framework 2017 (COSO ERM 2017), comply to relevant laws, and encompass all types of risks, both financial and non-financial risks including ESG risks. Importantly, climate-related risks (and opportunities) are being covered under ESG risks, and have been integrated into the Company’s existing risk management framework, policies, and internal control process. Thus, climate-related risks are managed under the same risk management process as any other type of risks.

The Company’s enterprise risk management framework and process covering climate-related risks and opportunities is as follows:



# CLIMATE STRATEGY

In order to develop a climate change strategy in alignment with the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD), Central Retail has reviewed its climate-related risk assessment in 2022 and covers both physical and transition risks and opportunities as well as applying scenario analysis recommended by TCFD.

Central Retail’s businesses comprise key five business segments, including Fashion, Food, Hardline, Property, and Health and Wellness that expand across Thailand, Vietnam, and Italy. In this TCFD-aligned climate-related risk assessment, the Company focuses on critical assets and core business units within Thailand accounting for 69% of revenue in 2022 and plans to further expand the scope and depth of assessments in the future.

## PHYSICAL RISKS - CATEGORIES

“Physical risks resulting from climate change can be event driven (acute) or longer-term shifts (chronic) in climate patterns. Physical risks may have financial implications for organizations, such as direct damage to assets and indirect impacts from supply chain disruption. Organizations’ financial performance may also be affected by changes in water availability, sourcing, and quality; food security; and extreme temperature changes affecting organizations’ premises, operations, supply chain, transport needs, and employee safety.”

Acute	Chronic
<ul style="list-style-type: none"> <li>• Event-driven risks (e.g. extreme weather events such as cyclones, hurricanes, floods, wildfires)</li> <li>• Timing: Short time horizons, and can be abrupt and difficult to forecast</li> <li>• Scope: Uncertain effects depending on type of events and geography</li> <li>• Impact: Uncertain severity with nonlinear impact for each event</li> <li>• Complex relationships between factors and variables that influence weather events</li> </ul>	<ul style="list-style-type: none"> <li>• Long-term shifts in climatic patterns (e.g. sea level rise, chronic heat waves, water stress and drought)</li> <li>• Timing: Long time horizons</li> <li>• Scope: Uncertain effects depending on type of event and geography</li> <li>• Impact: Uncertain severity with nonlinear impact from going over thresholds and tipping points</li> </ul>
<p><b>Example</b></p> <ul style="list-style-type: none"> <li>• Storm damage results in large maintenance and clean up costs</li> <li>• Flooding can cause supply chain disruptions</li> </ul>	<p><b>Example</b></p> <ul style="list-style-type: none"> <li>• Higher temperatures reduce efficiency of cooling units, drought reduces crop supply</li> <li>• Drought may result in water extraction exceeding limits leading to non-compliance, or conflict with other water users</li> </ul>

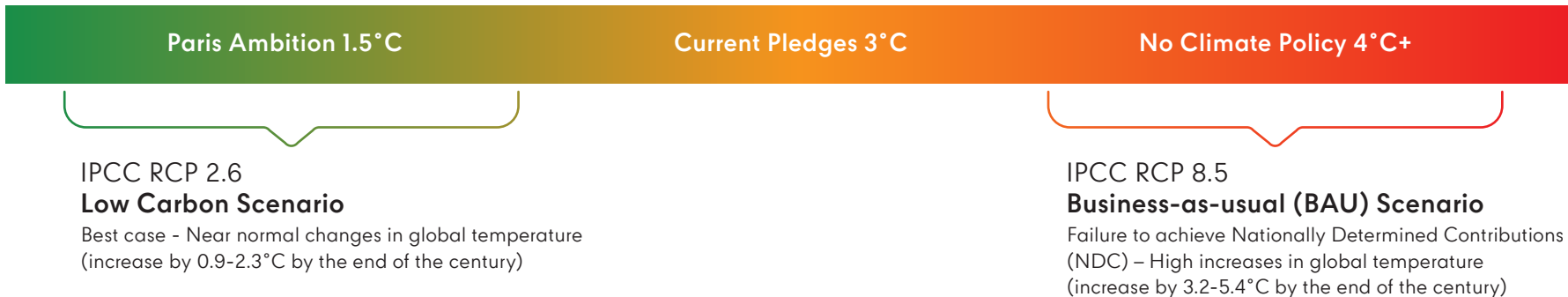


# PHYSICAL RISKS - SCOPE OF ANALYSIS

In 2022, Central Retail conducted a physical risk assessment for 26 critical assets in Thailand including relevant upstream and downstream activities. The physical risk assessment shows the levels of risks for the baseline scenario, and the projected changes in levels of risks from the baseline scenario for the Intergovernmental Panel on Climate Change (IPCC) Representative Concentration Pathway (RCP) 2.6 (low carbon scenario) and IPCC RCP 8.5 (business-as-usual (BAU) scenario) at medium-, and long-term timeframes.


<b>Scenarios</b>	<ul style="list-style-type: none"> <li>• Baseline</li> <li>• IPCC RCP 2.6 (Low carbon scenario)</li> <li>• IPCC RCP 8.5 (Business-as-usual scenario)</li> </ul>
<b>Timeframes</b>	<ul style="list-style-type: none"> <li>• Short-term: 0-2 years</li> <li>• Mid-term: 2-10 years</li> <li>• Long-term: 10 years and above</li> </ul>
<b>Physical Climate Hazards</b>	<ul style="list-style-type: none"> <li>• Water stress</li> <li>• Riverine flood</li> <li>• Coastal flood</li> <li>• Extreme heat</li> <li>• Cyclones/winds</li> </ul>
<b>Coverage</b>	<ul style="list-style-type: none"> <li>• 26 critical assets in owned by the Company in Thailand, including retail stores, shopping malls, distribution center and warehouses</li> <li>• Relevant upstream and downstream activities.</li> </ul>

## Scenarios Applied in the Physical Risks Assessment































# PHYSICAL RISKS – ASSESSMENT

Legend: Levels of Risks for Baseline Scenario

-  High
-  Moderate
-  Insignificant

Legend: Changes in Levels of Risks from Baseline Scenario

-  High Increase
-  Moderate Increase
-  Insignificant Increase or Decrease

	Baseline Scenario	IPCC RCP 2.6 (Low Carbon Scenario)		IPCC RCP 8.5 (BAU Scenario)	
		Short to Mid Term (0 - 10 yrs)	Long Term (10+ yrs)	Short to Mid Term (0 - 10 yrs)	Long Term (10+ yrs)
Extreme Heat					
Water Scarcity					
Riverine Flood					
Coastal Flood					
Cyclone & Wind					

- Risk of extreme heat will increase in both scenarios, especially in the long-term.
- Risk of water scarcity appears more critical in short- to mid-term than in the long-term.
- Risk of riverine floods will almost certainly become material in both scenarios and both timeframes, which stands out to be the most concerned type of physical hazard to Central Retail.
- Coastal floods, cyclones, and wind are the least significant physical risks in all scenarios and all timeframes.

# PHYSICAL RISKS - KEY FINDINGS

Hazard Type	Management Key Actions	Business Implication			Incentive Methodology
		Description	Short to Mid Term (0-10 yrs)	Long Term (10+ yrs)	
Extreme Heat	The extreme heat hazard is likely to intensify for all Central Retail sites studied under all climate change scenarios.	<ul style="list-style-type: none"> <li>• Potential health and safety risk for employees, contractors, suppliers, and customers due to heat stress</li> <li>• Reduced productivity of employees, contractors, and suppliers</li> <li>• Breakdown of equipment leading to increase in cost</li> <li>• Loss of agricultural products and lower crop yield because during cultivation</li> </ul>	✓	✓	Not yet calculated
Water Scarcity	Most of the Company’s assets studied may be exposed to increased water stress in the near-century. Water availability may be affected by factors such as local water demand and available water resources.	<ul style="list-style-type: none"> <li>• Unavailability of water for operations including drinking and sanitation</li> <li>• Reputational risk during water stressed periods</li> <li>• Lower crop yield and may lead to the loss of agricultural products and lead to higher costs</li> </ul>	✓	✓	
Riverine Flood	Likely moderate to significant increase in riverine flood intensity at most assets studied.	<ul style="list-style-type: none"> <li>• Safety risks for employees, contractors and suppliers, and customers</li> <li>• Increased cost for replacement or repair of damaged assets</li> <li>• Water damage to infrastructure, equipment and stored goods</li> </ul>	✓	✓	<ul style="list-style-type: none"> <li>• 10 - 30% increase in cost incurred from flood damage by 2030*</li> <li>• 14 - 48% increase in cost incurred from flood damage by 2050*</li> </ul>
Coastal Flood	Likely increase in coastal floods is expected for selected assets that are located within 5 km from the shoreline	<ul style="list-style-type: none"> <li>• Increased insurance costs</li> <li>• Disruption in food production leading to higher costs</li> <li>• Supply chain and logistics interruptions leading to loss in revenue</li> </ul>			
Cyclone & Wind	Selected assets in Southern and Northeastern Thailand may be more exposed to cyclones under all climate change scenarios.	<ul style="list-style-type: none"> <li>• Safety risks for employees, contractors and suppliers, and customers</li> <li>• Increased cost for replacement or repair of damaged assets</li> <li>• Damage to buildings and infrastructure</li> <li>• Increased insurance costs</li> <li>• Supply chain and logistics interruptions leading to loss in revenue</li> </ul>	✓	✓	Not yet calculated

Hazard Type	Response Measures / Adaptation Plan**		
	Description	Short to Mid Term (0-10 yrs)	Long Term (10+ yrs)
Extreme Heat	<ul style="list-style-type: none"> <li>Consider extreme heat conditions in emergency response plan</li> <li>Provide training to employees to identify symptoms of heat stress and provide first aid</li> </ul>	✓	
Water Scarcity	<ul style="list-style-type: none"> <li>Adopt water-efficient/ saving technology to reduce water usage</li> <li>Explore opportunities for rainwater harvesting at the site and at the catchment level</li> </ul>	✓	
	<ul style="list-style-type: none"> <li>Explore opportunities to reuse/recycle wastewater within the plant or from nearby communities.</li> </ul>		✓
Riverine / Coastal Flood	<ul style="list-style-type: none"> <li>Implement/ follow monitoring mechanisms with the national or regional meteorological agencies for the early warnings system.</li> <li>Evaluate existing spill management plans/ storm water management plans</li> <li>Design and implement suitable mitigation measures such as increasing capacity of pumping system, construction of flood barrier etc.</li> </ul>	✓	
	<ul style="list-style-type: none"> <li>Consider flood hazard in emergency response plan with due consideration for passengers during flooding</li> </ul>		✓
Cyclone & Wind	<ul style="list-style-type: none"> <li>Implement/ follow monitoring mechanisms with the national or regional meteorological agencies for the early warnings system.</li> <li>Develop a response mechanism to plan operations and take preventive steps (e.g. planned shut down before cyclone, etc.) to reduce impacts</li> </ul>	✓	

\* Based on a semi-quantitative estimation of 2 selected assets, and in comparison to historical cost incurred from flood damage.

\*\*For existing and new operations within the same area.

# TRANSITION RISKS - CATEGORIES

“Transitioning to a lower-carbon economy may entail extensive policy, legal, technology, and market changes to address mitigation and adaptation requirements related to climate change. Depending on the nature, speed, and focus of these changes, transition risks may pose varying levels of financial and reputational risk to companies.”

## TCFD Guidance on Risk Management Integration & Disclosure

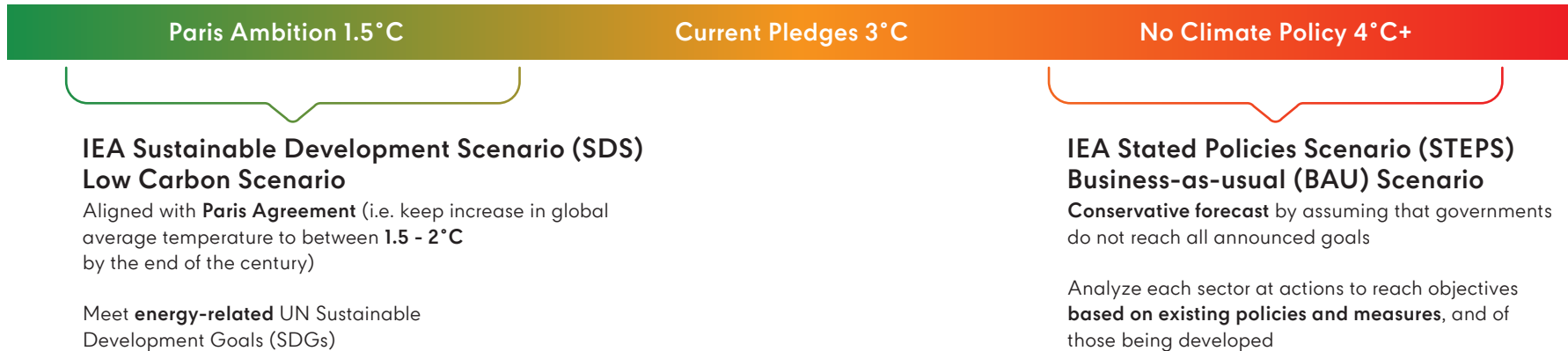
Policy and Legal	Market
 <ul style="list-style-type: none"> <li>• Policy actions seeking to reduce activities that contribute to climate change, or promote climate adaptation activities</li> <li>• Climate-related litigation actions taken from stakeholders</li> </ul> <p><b>Example</b></p> <ul style="list-style-type: none"> <li>• Paris Agreement and COP26</li> <li>• Carbon tax, emission trading</li> </ul>	 <ul style="list-style-type: none"> <li>• Shifts in supply and demand for certain products/services from climate change</li> <li>• Customer behavior change to prefer energy from renewable sources</li> </ul> <p><b>Example</b></p> <ul style="list-style-type: none"> <li>• Fluctuations in price levels</li> <li>• Net Zero commitments, etc.</li> </ul>
Technology	Reputation
 <ul style="list-style-type: none"> <li>• Technological improvements or innovations that support the transition to lower-carbon, energy-efficiency</li> <li>• Disruption of old systems by new technology</li> </ul> <p><b>Example</b></p> <ul style="list-style-type: none"> <li>• Greener and cheaper clean technology</li> </ul>	 <ul style="list-style-type: none"> <li>• Stakeholders are aware and concern of emissions from fossil fuel and impacts</li> <li>• Community perceptions of the Company’s contribution to or detraction from low carbon economy</li> </ul> <p><b>Example</b></p> <ul style="list-style-type: none"> <li>• Shifts in public perception and attitudes</li> </ul>

# TRANSITION RISKS – SCOPE OF ANALYSIS

Central Retail conducted a transition risk assessment for business operations in Thailand, and relevant upstream and downstream activities. All types of transition risks (i.e. policy and legal risks including current regulations, current regulations and legal risks, market risks, technology risk, and reputational risk) have been identified, but the risk assessment prioritized only the transition risk drivers that are considered as having the most significant impact to the Company. The transition risk assessment shows a comparison of the levels of risks between the Sustainable Development Scenario (SDS, or the "low carbon scenario") and the Stated Policies Scenario (STEPS, or the "Business-as-usual scenario"), developed by the International Energy Agency (IEA).

<b>Scenarios</b>	<ul style="list-style-type: none"> <li>• IEA SDS (Low carbon scenario)</li> <li>• IEA STEPS (Business-as-usual scenario)</li> </ul>
<b>Timeframes</b>	<ul style="list-style-type: none"> <li>• Short-term: 0-2 years</li> <li>• Mid-term: 2-10 years</li> <li>• Long-term: 10 years and above</li> </ul>
<b>Transition Drivers</b>	<ul style="list-style-type: none"> <li>• Carbon pricing</li> <li>• Changing input prices</li> <li>• Green consumerism for low-carbon products</li> <li>• Low-carbon logistics</li> <li>• Low-carbon solutions for commercial buildings</li> <li>• Circular economy adoption</li> <li>• Ban on single-use plastics</li> <li>• Increased stakeholder appreciation for climate responsible • businesses</li> </ul>
<b>Coverage</b>	<ul style="list-style-type: none"> <li>• All business units in Thailand,</li> <li>• Relevant upstream and downstream activities.</li> </ul>

## Scenarios Applied in the Transition Risks Assessment



# TRANSITION RISKS – IMPLICATION OF DRIVERS

Transition Drivers	Risk or Opportunity	Category	Business Implication
Carbon Pricing	Risk	Policy & Legal (Emerging Regulation)	The government may introduce direct carbon tax as an economic instrument to mitigate climate change, resulting in higher operation expense (OPEX) for the Company.
Changing Input Prices	Risk	Market	Climate change may cause availability of certain inputs such as energy, water, and raw materials to become volatile, which put increase pressure on costs of those inputs and increase OPEX for the Company.
Green Consumerism for Low Carbon Products	Risk	Market	Demand for environmental-friendly products is increasing as consumers become aware of climate change, and not able to meet these demands can lead to decreases in revenue and customer satisfaction.
Low Carbon Logistics	Risk	Technology	Expanding business operations and e-commerce will lead to higher fuel consumption/costs. Climate change and other transition drivers can cause increases in OPEX and investment in response measures (CAPEX).
Low Carbon Solutions for Commercial Building	Risk	Technology	Expanding business operations will lead to construction of more department stores, distribution centers and warehouses, which lead to higher electricity consumption/costs. Climate change and other transition drivers, can cause increases in OPEX and investment in response measures (CAPEX).
Low Carbon Solutions for Commercial Building	Risk	Technology	Expanding business operations will lead to construction of more department stores, distribution centers and warehouses, which lead to higher electricity consumption/costs. Climate change and other transition drivers, can cause increases in OPEX and investment in response measures (CAPEX).
Circular Economy Adoption	Risk	Technology	Investors and stakeholders are becoming increasingly aware of circular economy and environmental footprint of production. The Company can face higher CAPEX and OPEX in trying to meet these stakeholder expectations to reduce environmental impact and reduce greenhouse gas emissions.
Ban on Single-use Plastics	Opportunity	Policy & Legal (Current Regulation)	With the slated ban on single-use plastics, the Company may be able to create higher revenue from environmentally-friendly packaging made from renewable materials and using eco-design.
Increased Stakeholder Appreciation for Climate Responsible Businesses	Opportunity	Reputational	Higher awareness and more stringent expectations from regulators, investors and other key stakeholders on climate-related issues will put pressure on businesses to take climate actions. The Company's early start on climate journey ahead of certain peers can lead to competitive advantage and higher capital.

# TRANSITION RISKS – ASSESSMENT

## Legend: Categories of Transition Risks

PL = Policy & Legal

M = Market

T = Technology

R = Reputation

## Legend: Levels of Opportunities

 High

 Moderate
























 Insignificant

## Legend: Levels of Risks

 High

 Moderate

 Insignificant

	Variance of SDS from STEPS (Variance of Low Carbon from BAU Scenarios)		
	Short Term (0 - 2 yrs)	Medium Term (2 - 10 yrs)	Long Term (10+ yrs)
	Carbon Pricing (PL)		
Changing Input Prices (M)			
Green Consumerism for Low Carbon Products (M)			
Low Carbon Logistics (T)			
Low Carbon Solutions for Commercial Building (T)			
Circular Economy Adoption (T)			
Ban on Single-use Plastics (PL)			
Increased Stakeholder Appreciation for Climate Responsible Businesses (R)			









# TRANSITION RISKS – KEY FINDINGS

Hazard Type	Potential Impact		Financial Implications	Response Measures
	Short to Medium Term (0-10 Years)	Long Term (10+ Years)		
Carbon Pricing (PL – Emerging Regulations)	Mandatory carbon pricing in Thailand is unlikely in both SDS and STEPS scenarios, which also makes impact insignificant.	Likelihood may increase to possible while impact becomes moderate.	STEPS: Operating profits expected to decrease by 0.78% in 2030, and 1.16% in 2050.  SDS: Operating profits expected to decrease by 1.93% in 2030, and 5.61% in 2050.	<ul style="list-style-type: none"> <li>Develop internal carbon pricing tool to track current and expected increase in operational costs due to carbon pricing</li> <li>Implement greenhouse gas mitigation measures to reduce carbon cost.</li> </ul>
Changing Input Prices (M)	Prices of certain inputs, such as fossil fuels and consumer goods, are possibly to become volatile, affecting operation expenses with moderate level of impact.	Changing input prices are likely to occur and to have high impact on business operations with increasing operational expenses.	Not yet calculated	<ul style="list-style-type: none"> <li>Diversify raw material sourcing strategy to avoid sourcing goods from geographic locations that experience significant impact from climate change</li> <li>Review the Company's existing inventory management process with regards to warehouses and distribution centers to identify any issues that may result in unnecessary waste.</li> </ul>
Green Consumerism for Low Carbon Products (M)	Green consumerism trend is expected to increase from higher public awareness and increasing prevalence of eco labels, which can pose high risk to Central Retail's revenue.	Trend continues to intensify and may pose high risk to revenue as low-carbon products become the norm.		<ul style="list-style-type: none"> <li>Assess and expand existing products that are categorized as low-carbon and sustainable.</li> <li>Adopt carbon footprint and sustainability standards in sourcing criteria (e.g. TGO labels).</li> </ul>
Low Carbon Logistics (T)	Poses moderate risk from increased costs of fuel as supply chains and logistic systems expand.	Risk becomes high as costs of fuel are expected to further increase along with further expansion of supply chains. Leads to increase in operating costs if no actions are taken.	Not yet calculated	<ul style="list-style-type: none"> <li>Increase investment in renewable energy technologies for buildings' energy supply, such as solar PV, as they becomes more cost-competitive.</li> <li>Green retrofit of owned assets and replace energy-intensive with energy-efficient electrical equipment.</li> <li>Reinforce energy saving measures to raise employees' awareness</li> </ul>
Low Carbon Solutions for Commercial Buildings (T)	Risk is considered moderate from increase in energy costs. Investment can lead to increase in CAPEX.	Risk becomes high due to increasing CAPEX as new department stores are being built as part of business expansion. Leads to increase in operating costs if no actions are taken.		<ul style="list-style-type: none"> <li>Increase investment in renewable energy technologies for buildings' energy supply, such as solar PV, as they becomes more cost-competitive.</li> <li>Green retrofit of owned assets and replace energy-intensive with energy-efficient electrical equipment.</li> <li>Reinforce energy saving measures to raise employees' awareness</li> </ul>
Circular Economy Adoption (T)	Increased CAPEX and OPEX to improve circularity with new technologies becoming available, but risks are moderate.	Higher likelihood but impact of risks remains moderate.		<ul style="list-style-type: none"> <li>Review the existing inventory management process to address issues that result in unnecessary waste.</li> <li>Implement processes to transform remaining wastes into useful products.</li> <li>Engage with suppliers to reduce wastes throughout supply chain.</li> </ul>
Ban on Single-Use Plastics (PL – Current Regulations)	Government's ban on various plastics by 2030 presents an opportunity to reduce OPEX. However, given that packaging is a relatively minor cost item, the impact of reducing packaging may be moderate.	In the long run, the Company may be able to create higher revenue from more environmentally friendly packaging, although the impact is expected to be moderate as explained in the short and medium term.	Not yet calculated	<ul style="list-style-type: none"> <li>Transition to eliminating 100% single-use plastics.</li> <li>Adopt bio-based or eco-design packaging solutions.</li> <li>Engage with suppliers and customers to reduce plastic packaging</li> </ul>
Increased Stakeholder Appreciation for Climate Responsible Businesses (R)	Reputation can have impact on revenue and costs. Central Retail early move ahead of certain peers presents a moderate opportunity in the short to medium term.	With recognition and awareness of climate disclosures increasing, the advanced progress of the Company's climate journey will become critical opportunity to increase revenue.		<ul style="list-style-type: none"> <li>Continue to improve sustainability and climate journey with information disclosure in accordance with international frameworks (e.g. DJSI CSA, TCFD, CDP, etc.)</li> <li>Engage with key stakeholders to drive low carbon transition such as integrating climate-related criteria in sourcing policy</li> </ul>

# CLIMATE STRATEGY FRAMEWORK

Based on climate-related risk assessment, Central Retail has formulated a climate strategy to guide the Company toward the climate aspirations of the ReNEW Strategy in fulfilling its important role as Thailand's First Green and Sustainable Retail.

 <b>Vision</b>	<b>Thailand's First Green &amp; Sustainable Retail</b>			
 <b>Climate Aspirations</b>	<b>30% Reduction in Scope 1 &amp; 2 Greenhouse Gas Emissions + 100% Environmental-friendly packaging by 2030 Net-Zero Emissions in Scope 1 &amp; 2 by 2050</b>			
 <b>Climate Strategy Pillar</b>	<b>Low-carbon and Climate-Friendly Business</b>		<b>Climate Resilience Enhancement</b>	
 <b>Climate Focus Areas</b>	<b>GHG Emissions Reductions</b>	<b>Supporting Transition Towards Low-Carbon Lifestyles and Shopping Experience</b>	<b>Managing Physical Climate Risks</b>	<b>Embracing Nature-Based Solutions for Climate Adaptation and Mitigation</b>
 <b>Key Initiatives</b>	<ul style="list-style-type: none"> <li>• Energy efficient appliances and equipment</li> <li>• Renewable energy installations in owned assets</li> <li>• Green retrofit of owned assets</li> <li>• Company fleet modernization</li> <li>• Smart energy management in retail, logistic and warehouse operations</li> </ul>	<ul style="list-style-type: none"> <li>• Strategic raw material sourcing for low-carbon and sustainable products</li> <li>• Encouragement of packaging reduction and bio-based packaging solutions</li> <li>• Improvement in inventory management to avoid expired products (i.e., food waste)</li> <li>• Waste reduction initiatives and education programs for employees, suppliers, consumers and relevant stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>• In-depth site-level and quantitative physical risk assessment for critical assets</li> <li>• Preparation of site-level emergency response plans for high-risk climate hazards (i.e., flood, heatwave)</li> <li>• Exploration of water-efficient and saving opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Forest and ecosystem restoration through farming methods that promote biodiversity, polyculture, and regenerative agriculture</li> <li>• Decarbonization and offsetting of agri-food value chain through promoting regenerative agriculture and reforestation.</li> <li>• Support communities in developing nature-based products</li> </ul>
 <b>Enablers</b>	<p><b>Governance</b></p> <ul style="list-style-type: none"> <li>• Board/Executive engagement</li> <li>• Creation of climate-related committees and working groups at group and business unit levels</li> <li>• Climate strategy integration into business processes</li> <li>• Staff engagement and capacity building</li> </ul>	<p><b>Data Management</b></p> <ul style="list-style-type: none"> <li>• Improvement in GHG data management</li> <li>• Regular standardized GHG inventory (Scopes 1 &amp; 2)</li> <li>• Assessment of Scope 3 GHG emissions</li> </ul>	<p><b>Compliance and Communication</b></p> <ul style="list-style-type: none"> <li>• Regulatory compliance and certifications</li> <li>• Compliance to the Company's Environmental Policy, and Management Commitment on Biodiversity Conservation and No-Deforestation</li> <li>• Climate disclosure &amp; reporting (Sustainability Report, CDP and TCFD).</li> </ul>	<p><b>Collaboration</b></p> <ul style="list-style-type: none"> <li>• Collaboration with value chain partners to drive the transition towards a low carbon economy</li> </ul>

# METRICS & TARGETS

Central Retail sees the importance of setting climate-related targets and collecting data for establishing a baseline and to track progress. With regards to climate change, the Company has been conducting greenhouse gas (GHG) inventories for scope 1 & 2 emissions on an annual basis. In 2023, the Company expanded the coverage of GHG inventory towards scope 3 emissions for selected categories, including 6 categories, which are 1) Downstream Transportation and Distribution 2) Employee Commuting 3) Business Travel by Airplane 4) Downstream Leased Assets 5) Purchase good and service (Water consumption) and 6) Waste Generated in Operations. The GHG inventories are developed in alignment with the recommendations of the GHG Protocol.

## 1. THE METRICS USED FOR GREENHOUSE GAS EMISSIONS ASSESSMENT

Key Metrics	TCFD Recommendation
<b>Direct GHG Emissions</b> (Scope 1 - MtCO <sub>2</sub> equivalent)	1. IPCC Guidelines for National Greenhouse Gas Inventories, 2006
<b>Market-based energy indirect</b> (Scope 2) GHG emission (MtCO <sub>2</sub> equivalent)	2. ISO 14064-1
<b>Location based energy indirect</b> (Scope 2) GHG emission (MtCO <sub>2</sub> equivalent)	3. Thailand Greenhouse Gas Management Organization: The National Guideline Carbon Footprint for organization
<b>Other relevant indirect GHG emission</b> (Scope 3)* (MtCO <sub>2</sub> equivalent)	4. The Greenhouse Gas Protocol: Technical Guidance for Calculating Scope 3 Emissions (Version 1.0)
	5. The Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard

Remark: GHG Scope 3 includes 6 categories, which are 1) Downstream Transportation and Distribution 2) Employee Commuting 3) Business Travel by Airplane 4) Downstream Leased Assets 5) purchase good and service (Water consumption) and 6) Waste Generated in Operations

# 2. GREENHOUSE GAS EMISSIONS AND CLIMATE TARGETS

The Company has adjusted its data collection methodology in 2022 to be aligned with recommendations of the GHG Protocol and has established 2022 as the base year for tracking its progress against achieving its climate target within 2030. The Company is determined to further improve its data collection methodology to become more comprehensive, accurate, and consistent in coverage for future years.

The Company has announced a group-wide target to reduce greenhouse gas emissions (scope 1 & 2) by 30% within 2030 compared to FY 2022 as the baseline year. Last but not least, the Company is committed to achieve group-wide Net Zero Emissions (scope 1 & 2) by 2050.

<b>Direct Target</b>	<b>Reduce greenhouse gas scope 1 and 2 emissions by 30% by 2030</b>	<b>Achieve net-zero target for scope 1 and 2 emissions by 2050</b>
<b>Indirect Targets</b>	<b>Promote eco-friendly packaging by 100% by 2030</b>	<b>Reduce food loss and wastes by 30% by 2030</b>

<b>Greenhouse Gas Emissions</b>	<b>FY 2023</b>
Scope 1 (tCO2e)	56,695
Scope 2 (tCO2e)	441,511
<b>Total Scope 1 &amp; 2 (tCO2e)</b>	<b>498,206</b>
Scope 3* (tCO2e)	556,514



\*Scope 3 includes 6 categories, which are 1) Downstream Transportation and Distribution 2) Employee Commuting 3) Business Travel by Airplane 4) Downstream Leased Assets 5) purchase good and service (Water consumption) and 6) Waste Generated in Operations

# TCFD CONTENT INDEX

	TCFD Recommendation	Public Disclosure
Governance	a. Describe the board’s oversight of climate-related risks and opportunities.	Pages 4-5 <ul style="list-style-type: none"> <li>• <a href="https://www.centralretail.com/storage/document/cg-charter/crc-corporate-governance-and-sustainable-development-committee-en.pdf">https://www.centralretail.com/storage/document/cg-charter/crc-corporate-governance-and-sustainable-development-committee-en.pdf</a></li> <li>• <a href="https://www.centralretail.com/storage/document/cg-charter/crc-charter-risk-committee-en.pdf">https://www.centralretail.com/storage/document/cg-charter/crc-charter-risk-committee-en.pdf</a></li> </ul>
	b. Describe management’s role in assessing and managing climate-related risks and opportunities.	
Strategy	a. Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	Pages 8-18
	b. Describe the impact of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning.	
	c. Describe the resilience of the organization’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	
Risk Management	a. Describe the organization’s processes for identifying and assessing climate-related risks.	Pages 6-7 <ul style="list-style-type: none"> <li>• <a href="https://hub.optiwise.io/storage/13/annual-report/2023/ebook/th/index.html">https://hub.optiwise.io/storage/13/annual-report/2023/ebook/th/index.html</a> Page 172-173, 185-186</li> </ul>
	b. Describe the organization’s processes for managing climate-related risks.	
	c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization’s overall risk management.	
Metrics & Targets	a. Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	Pages 19-20
	b. Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.	Pages 19-20 <ul style="list-style-type: none"> <li>• <a href="https://www.centralretail.com/en/document/viewer/flipbook/770/sustainability-report-2023">https://www.centralretail.com/en/document/viewer/flipbook/770/sustainability-report-2023</a> Page 55, 64-65, 73</li> </ul>
	c. Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	Pages 19-20 <ul style="list-style-type: none"> <li>• <a href="https://www.centralretail.com/en/document/viewer/flipbook/770/sustainability-report-2023">https://www.centralretail.com/en/document/viewer/flipbook/770/sustainability-report-2023</a> Page 30-31, 66</li> </ul>



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