

# KT&G

# TCFD Alignment and Plan

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

August 2023



# CONTENTS

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## Introduction

|                                                 |    |
|-------------------------------------------------|----|
| Climate Change Response Status                  | 03 |
| KT&G Environmental Management Vision & Strategy | 04 |

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## TCFD Status

|                                                        |    |
|--------------------------------------------------------|----|
| 01. Governance                                         | 05 |
| 02. Strategy                                           | 06 |
| (1) Climate Change Scenario Analysis Process           |    |
| (2) KT&G Climate Change Scenarios                      |    |
| (3) Climate Scenario and Associated Risks              |    |
| (4-1) Mitigation/Adaptation Strategy: Transition Risks |    |
| (4-2) Mitigation/Adaptation Strategy: Physical Risks   |    |
| (5) Opportunities                                      |    |
| (6) Financial Impact Estimates                         |    |
| 03. Risk Management                                    | 13 |
| 04. Targets & Metrics                                  | 14 |
| (1) Roadmap (Scope 1+2+3)                              |    |
| (2) Roadmap (Scope 1+2)                                |    |
| (3) Greenhouse Gas (GHG) Emissions                     |    |
| (4) Monitoring of Metrics                              |    |

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## Next Step

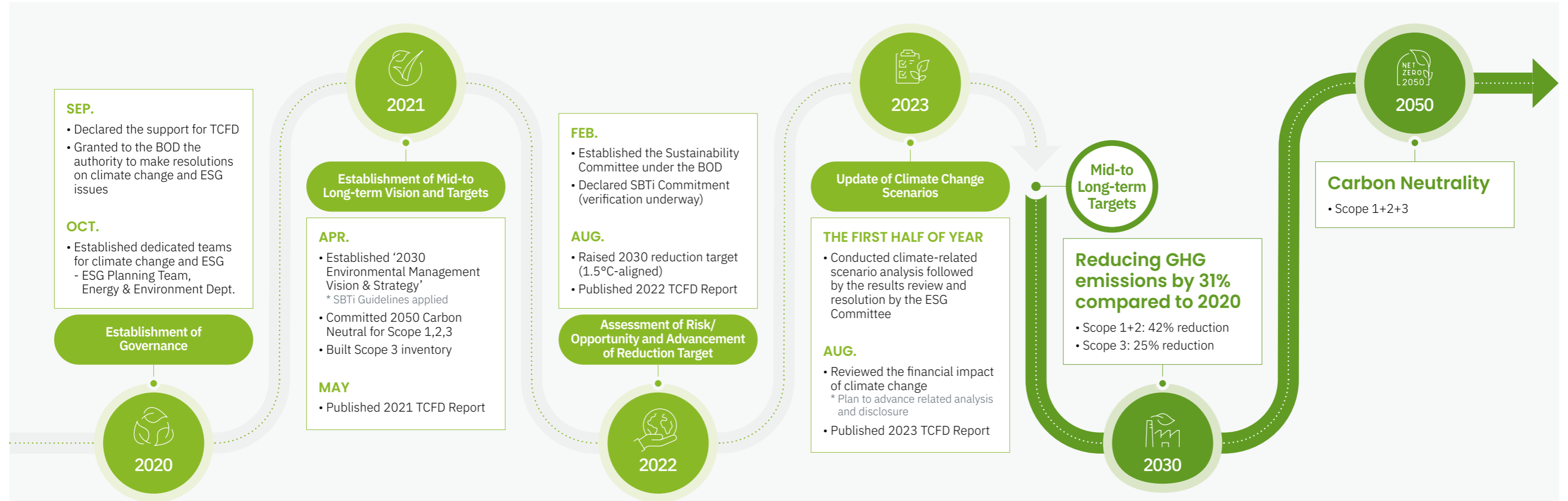
|                                                |    |
|------------------------------------------------|----|
| Policy and Stakeholder Engagement & Next Steps | 18 |
|------------------------------------------------|----|

### Disclaimer

This document contains forecast information on risk analysis and financial impact of the operation of our business with uncertainty, which is the result of analysis on the premise of possible future changes in our internal and external business environment that may occur in the future. In addition, this document has been prepared based on past data or reliable data, and we do not guarantee the accuracy or completeness of this document and the contents. It should be noted that this document cannot be used as evidence of legal responsibility for the investor's investment results under any circumstances.

# Climate Change Response Status

Following its declaration of supporting TCFD in 2020, KT&G analyzed actual/potential financial impact of climate change, set reduction goals to respond to climate change, and is identifying various means to implement reductions. TCFD is an organization launched by the international Financial Stability Board (FSB) and has companies identify climate change-related risks and opportunities and disclose the resulting financial impact. KT&G will actively take part in responding to climate change in accordance with demands of the international community and expand information disclosure that is in line with TCFD recommendations to strengthen internal and external stakeholder communication.



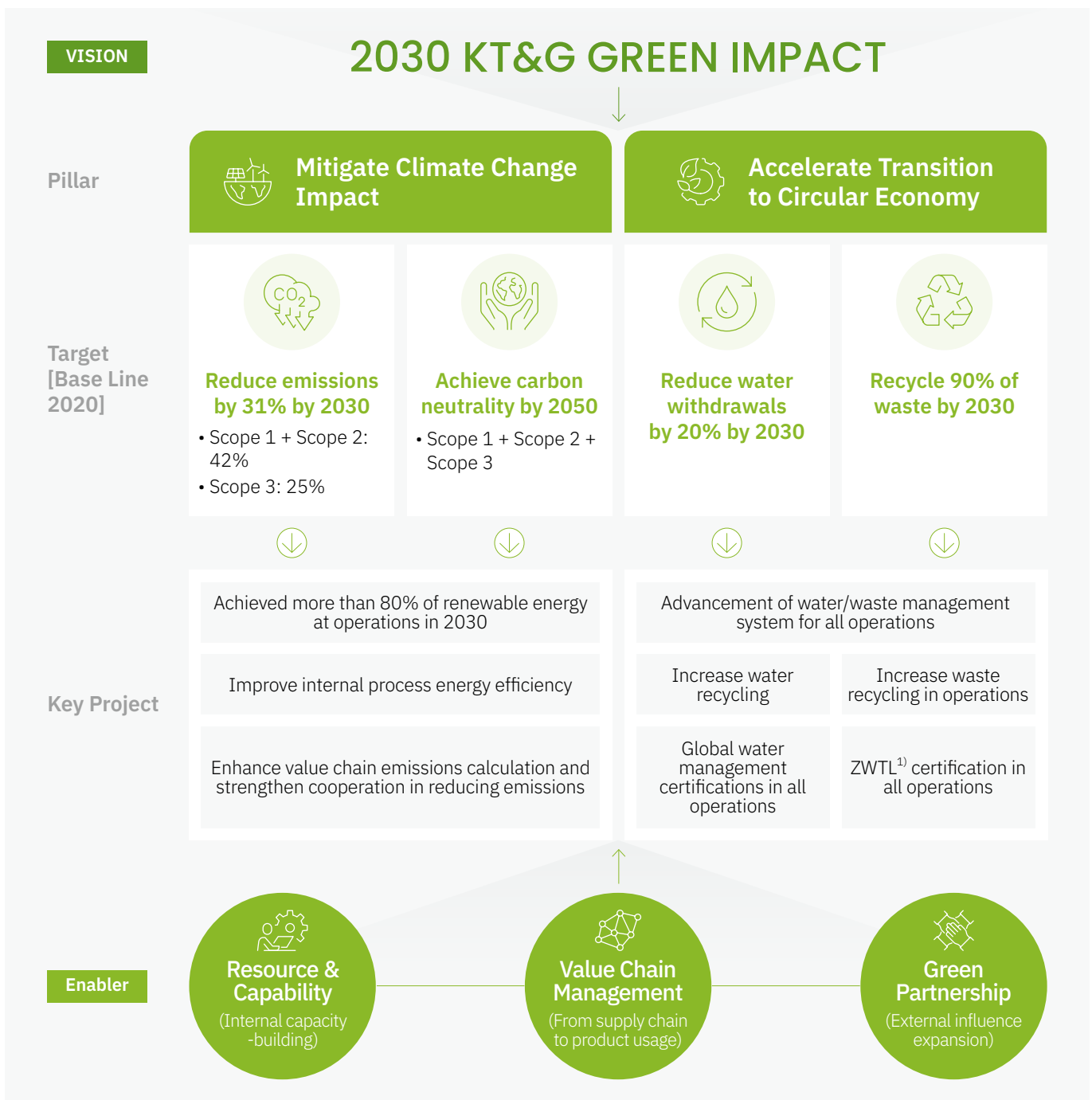
## Four Core Elements of TCFD Recommendations



# KT&G Environmental Management Vision & Strategy

In 2021, KT&G set the direction to implement its mid- to long-term environmental management strategy, aimed at climate change response and transition to a circular economy, and established the 2030 Environmental Management Vision reflecting its commitment to promote “Green Impact”. We also set company-wide targets and key projects regarding GHG emissions, water and waste management in order to strengthen the execution of environmental management based on specific mid- to long-term goals. We plan to effectively implement key projects to meet targets by means of internal capacity-building, value chain management, and expansion of our external influence.

## 2030 Environmental Management Vision & Strategy



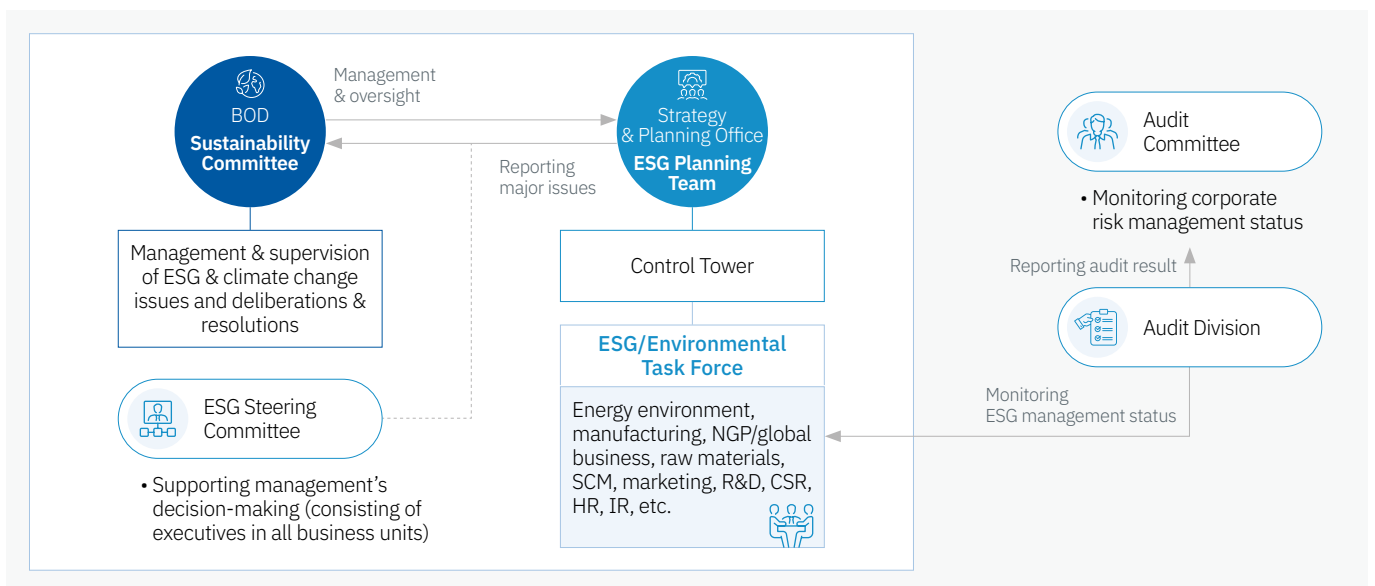
<sup>1)</sup> Zero Waste to Landfill








# Governance

KT&G has strengthened its governance system by establishing the Sustainability Committee under the BOD to responsibly cope with climate change. The Sustainability Committee supervises ESG and climate-related issues and risks, reviews the corporate strategies and policies in response to ESG and climate change, and monitors the related performance and progress.

## BOD-level Oversight of Climate Change & Roles of Management



|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sustainability Committee</b> |  <p>Since September 2020, KT&amp;G has discussed the ESG issues at the Board of Directors (BOD). For more in-depth discussion, KT&amp;G established the Sustainability Committee in the BOD in February 2022. The committee examines the mid- to long-term climate change response strategy every year in line with the corporate ESG strategies and manages and supervises the approval and implementation of major tasks.</p> |
| <b>ESG Steering Committee</b>   |  <p>The ESG Steering Committee, comprised of executives from all business divisions, serves as a top management decision-support body to reinforce climate change response and continuously discuss on related issues. Based on the discussions held in the committee, the top management makes decisions on ESG issues from holistic perspective across the company.</p>                                                       |
| <b>ESG Planning Team</b>        |  <p>As the ESG control tower under the CFO/COO, the ESG Planning Team is responsible for establishing an ESG and environmental management system that meets global standards.</p>                                                                                                                                                                                                                                               |
| <b>Company-wide Task Force</b>  |  <p>As a working-level consultative body encompassing all business divisions, it holds meetings by major issue, where detailed action plans are established for each ESG target, and the implementation status and future plans are discussed.</p>                                                                                                                                                                              |
| <b>Audit Committee</b>          |  <p>KT&amp;G inspects the company-wide risk management status through the Audit Committee, which consists of outside directors only. In 2022, the Audit Division, an independent organization under the Audit Committee, monitored the progress of ESG management including climate change issues, and reported the result to the Audit Committee.</p>                                                                          |

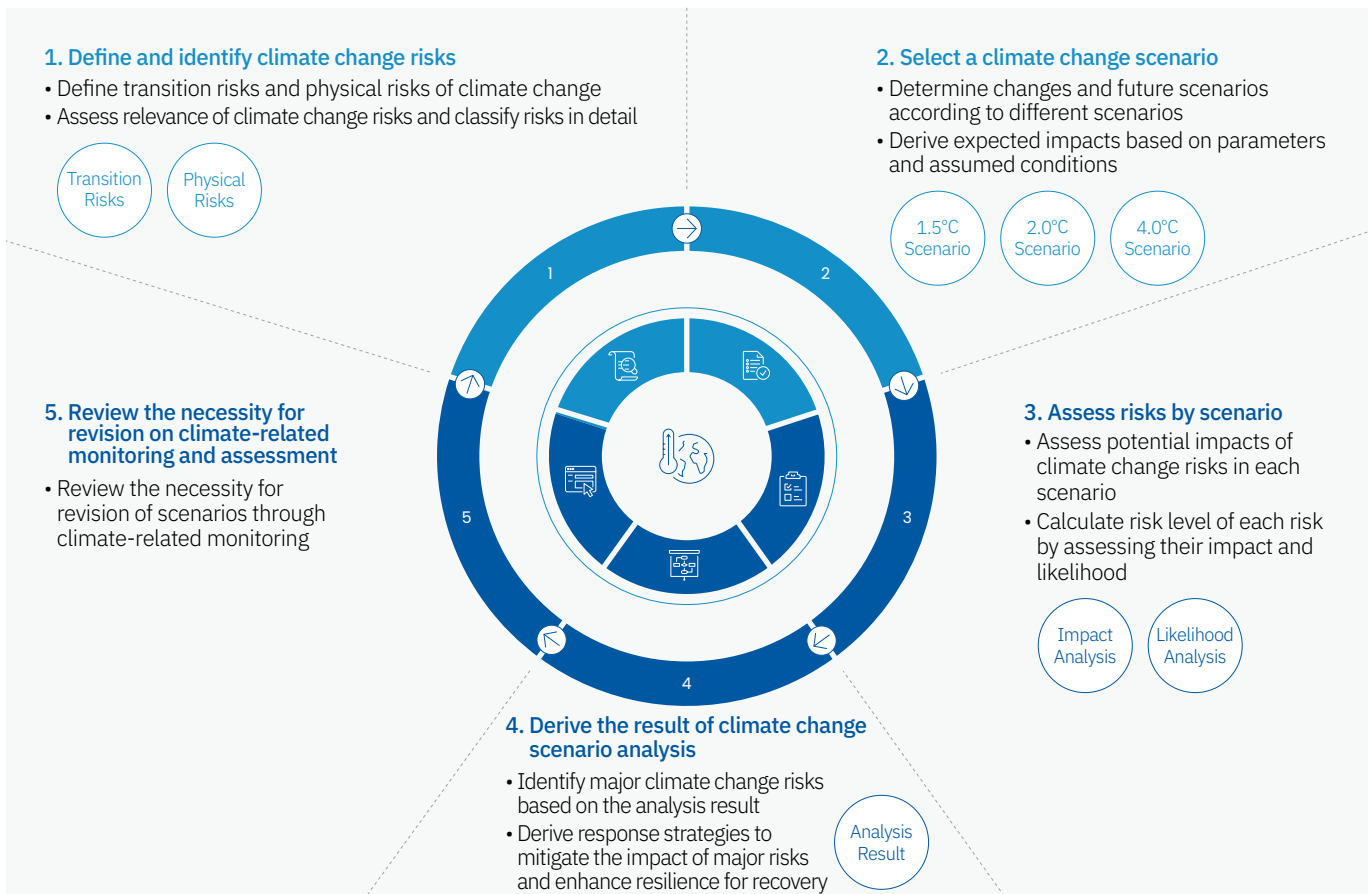
(1) Climate Change Scenario Analysis Process

# Strategy



Climate change scenario analysis provides a clearer understanding of the potential impacts of climate change on the company in uncertain future conditions and enables the development of resilience to respond to various scenarios. KT&G conducted the climate change scenario analysis based on publicly available climate change scenarios presented by organizations like the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA). These scenarios incorporate plausible contexts, including physical climate environment changes, policy shifts, socio-economic changes, market and technological developments.





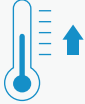
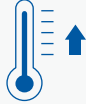








Climate change scenario analysis takes a comprehensive approach which involves identifying and defining climate change risks, conducting relevance assessment, and selecting a climate change scenario. Additionally, implications from external expert panels composed of investment analysts, professors, consultants, as well as evaluation from internal employees are reflected in the analysis, making it further sophisticated. Through this process, the likelihood and potential impacts of climate change risks are measured for each scenario. Based on this, KT&G identifies major climate change risks and establishes response strategies to mitigate their impact and enhance resilience. The company monitors key parameters such as policy implementation, emission trends, and carbon prices. In the event of significant changes or deviations in these indicators, the climate change scenario analysis is updated. Currently, due to high uncertainty in emissions reduction, there is a high chance of physical risks intensifying. Accordingly, KT&G has updated its climate change scenario analysis, including analysis on the high-risk 4.0°C scenario.



# Strategy

## (2) KT&G Climate Change Scenarios

KT&G establishes a climate action plan and strengthens its management system for risks and opportunities based on the results of the climate change scenario analysis as a way to identify the potential impact of climate change on the company.

|                                                                                                                                                                | 1<br>1.5°C<br>Scenario                                                                                                                                                                                | 2<br>2.0°C<br>Scenario                                                                                                                                                                                                         | 3<br>4.0°C<br>Scenario                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Overview</b><br><br>                                                       | <p>A global transition to a carbon-neutral economy begins immediately, and the global temperature rise is controlled below 1.5°C in line with the Paris Agreement thanks to global measures.</p>      | <p>Despite policy measures in operation for achieving the declared national targets for emissions reduction, more advanced policies are not executed, leading to a temperature rise of over 2.0°C.</p>                         | <p>As it only considers the effects of the current policies and measures in operation, with a relatively limited level of policy implementation, resulting in a temperature rise of over 4.0°C.</p>     |
| <b>Main Assumptions</b><br><br>                                             | <p>The entire world collaborates for carbon neutrality, and various efforts and essential measures for emissions reduction are carried out.</p>                                                       | <p>Policies are implemented in a relatively gradual and continuous way and the frequency and impact of physical risks also appear somewhat distinct.</p>                                                                       | <p>While transition risks are relatively low due to lack of policy measures, physical risks of climate change occur more frequently and in extreme phenomena.</p>                                       |
| <b>Temperature Rise by 2100 (compared to pre-industrial levels)</b><br><br> | <br>Temperature rise below 1.5°C                                                                                   | <br>Temperature rise over 2.0°C                                                                                                            | <br>Temperature rise over 4.0°C                                                                                    |
| <b>Risk-taking Tendency</b><br><br>                                         | <br><br>Higher transition risks | <br><br>Medium-level transition risks and physical risks | <br><br>Higher physical risks |
| <b>Scenario Models</b><br><br>                                              | <b>Transition Risks</b><br>IEA Net Zero Emissions by 2050 Scenario (NZE)                                                                                                                              | <b>Transition Risks</b><br>IEA Announced Pledges Scenario (APS)                                                                                                                                                                | <b>Transition Risks</b><br>IEA Stated Policies Scenario (STEPS)                                                                                                                                         |
|                                                                                                                                                                | <b>Physical Risks</b><br>IPCC WG2 AR5 CMIP5 mean model – RCP 2.6                                                                                                                                      | <b>Physical Risks</b><br>IPCC WG2 AR5 CMIP5 mean model – RCP 4.5                                                                                                                                                               | <b>Physical Risks</b><br>IPCC WG2 AR5 CMIP5 mean model – RCP 8.5                                                                                                                                        |

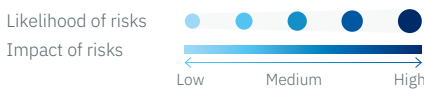
# Strategy

## (3) Climate Scenario and Associated Risks

As the carbon-dependent economy moves toward a low-carbon economy, various changes are accompanied in the areas of policy, technology, market, and reputation, and the resulting changes in the business environment can lead to various transition risks for KT&G. In addition, climate change-driven physical risks may bring capital loss and productivity decline for KT&G’s production facilities and various infrastructures, as well as risks in the procurement stage, associated with raw material price and supply chain.

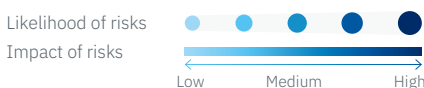
### Transition Risks

| Categories          | Risks                                                                      | 1.5°C Scenario |      |      | 2.0°C Scenario |      |      | 4.0°C Scenario |      |      |
|---------------------|----------------------------------------------------------------------------|----------------|------|------|----------------|------|------|----------------|------|------|
|                     |                                                                            | 2025           | 2030 | 2050 | 2025           | 2030 | 2050 | 2025           | 2030 | 2050 |
| Policy & Legal Risk | Carbon pricing                                                             | ●              | ●●   | ●    | ●              | ●    | ●    | ●              | ●    | ●    |
|                     | Enhanced emissions reporting obligations                                   | ●              | ●●   | ●    | ●              | ●    | ●    | ●              | ●    | ●    |
|                     | Mandates on and regulation of existing products and services               | ●              | ●●   | ●    | ●              | ●    | ●    | ●              | ●    | ●    |
|                     | Exposure to litigation                                                     | ●              | ●●   | ●    | ●              | ●    | ●    | ●              | ●    | ●    |
| Technology Risk     | Substitution of existing products and services with lower emission options | ●              | ●●   | ●    | ●              | ●    | ●    | ●              | ●    | ●    |
|                     | Unsuccessful investment in new technologies                                | ●              | ●    | ●    | ●              | ●    | ●    | ●              | ●    | ●    |
| Market Risk         | Costs to transition to low-carbon technologies                             | ●              | ●●   | ●    | ●              | ●    | ●    | ●              | ●    | ●    |
|                     | Changing consumer behavior                                                 | ●              | ●●   | ●    | ●              | ●    | ●    | ●              | ●    | ●    |
|                     | Uncertainty in market signals                                              | ●              | ●    | ●    | ●              | ●    | ●    | ●              | ●    | ●    |
| Reputation Risk     | Increased cost of raw materials                                            | ●              | ●●   | ●    | ●●             | ●●   | ●    | ●              | ●    | ●    |
|                     | Shifts in consumer preferences                                             | ●              | ●●   | ●    | ●              | ●    | ●    | ●              | ●    | ●    |
|                     | Stigmatization of sector                                                   | ●              | ●●   | ●    | ●              | ●    | ●    | ●              | ●    | ●    |
|                     | Increased stakeholder concern or negative stakeholder feedback             | ●              | ●●   | ●    | ●              | ●    | ●    | ●              | ●    | ●    |



### Physical Risks

| Categories | Risks                    | 1.5°C Scenario |      |      | 2.0°C Scenario |      |      | 4.0°C Scenario |      |      |
|------------|--------------------------|----------------|------|------|----------------|------|------|----------------|------|------|
|            |                          | 2025           | 2030 | 2050 | 2025           | 2030 | 2050 | 2025           | 2030 | 2050 |
| Acute      | Typhoons & hurricanes    | ●              | ●    | ●    | ●              | ●    | ●    | ●              | ●    | ●●   |
|            | Heavy rainfalls & floods | ●              | ●    | ●    | ●              | ●    | ●●   | ●              | ●●   | ●●   |
|            | Wildfires                | ●              | ●    | ●    | ●              | ●    | ●    | ●              | ●    | ●●   |
|            | Heat waves               | ●              | ●    | ●    | ●              | ●    | ●●   | ●              | ●    | ●●   |
| Chronic    | Change in rainfall       | ●              | ●    | ●    | ●              | ●    | ●    | ●              | ●    | ●●   |
|            | Change in temperature    | ●              | ●    | ●    | ●              | ●    | ●●   | ●              | ●    | ●●   |
|            | Water scarcity           | ●              | ●    | ●    | ●              | ●    | ●●   | ●              | ●    | ●●   |
|            | Sea level rise           | ●              | ●    | ●    | ●              | ●    | ●    | ●              | ●    | ●●   |





# Strategy

(4-1) Mitigation/Adaptation Strategy: Transition Risks

## Major Climate Change Risks & Response Strategies

### 1. Transition Risks

Based on the IEA’s scenarios, KT&G conducted a scenario analysis of climate change transition risks using key parameters including policies, carbon prices, and energy mix. In the 1.5°C scenario, where policies for a low-carbon transition are substantially realized, risks regarding rising carbon prices, new regulations, market and reputation are more likely to occur. Risks related to rising raw material costs, in particular, are also observed at a somewhat high level in the 2.0°C scenario. Technology and litigation risks have been identified to have relatively low likelihood while their impact is at a certain level if occurring. To mitigate the impact of these transition risks, KT&G is focusing on securing supply chain stability through strategic partnerships along with an optimized raw material supply plan based on mid- to long-term market forecasts and analysis. We are also preparing for future risks related to GHGs regulations and rising carbon prices by advancing mid-to long-term emissions reduction targets in 2022, implementing an internal carbon pricing system, and actively investing in renewable energy facilities. In addition, we are working on developing sustainable products and packaging by establishing a product-level environmental performance management system.

#### Impact of Major Transition Risks

##### Carbon Pricing

A spike in the price of carbon or the implementation of strict and reinforced carbon pricing regulations can be a significant risk as operating costs increase in line with GHG emissions. We may also experience indirect increases in carbon costs throughout our value chain, including our suppliers, supply chains and distribution chains. This could lead to financial impacts such as reduced price competitiveness of products and lower operating margins.

##### Increased Cost of Raw Materials

Climate change is associated with changes in weather patterns and crop growing seasons, which can affect the production and costs of agricultural raw materials such as tobacco leaf. Raw materials costs may increase further if the quality of tobacco leaf is deteriorated or production decreases, resulting in increased competition for resources. If the supply of raw materials become unstable with these factors all combined, the product price may rise, adversely affecting KT&G’s profit margins and overall financial performance.

##### Increased Stakeholder Concern or Negative Stakeholder Feedback

As public concerns regarding climate change increase, stakeholders such as investors, regulatory bodies, customers, and employees may demand proactive actions against climate change issues, which could come in the form of requests for more sustainable product packaging and tobacco cultivation practices or a clear report about emissions reduction. Failure to respond to these demands could lead to negative feedback from stakeholders, affecting the company’s brand image, market share, profitability, and growth prospect in the end.

#### Mitigation/Adaptation Strategies

##### Reduction of Scope 1, 2, 3 Emissions

Through our emissions reduction strategies, including energy efficiency improvement and renewable energy promotion, we can reduce potential carbon costs and exert opportunities to save energy costs additionally. We also continue to engage suppliers within our supply chain in various discussions on emissions reduction.

##### Internal Carbon Pricing

We preemptively manage the financial impact by incorporating potential carbon prices in our long-term business planning and financial risk assessment.

##### Sustainable Agriculture

KT&G works closely with tobacco farms and suppliers to promote sustainable agricultural practices, such as soil conservation and water efficiency improvement. Through these sustainable raw material sourcing strategies, we aim to secure a stable raw material supply chain.

##### Supply Chain Diversification

By diversifying our supply chain, we can mitigate the dependence on a single source of raw materials and reduce cost volatility, in response to local climate impacts and potential supply chain risks.

##### Transparent and Active Communication

In participation of various climate initiatives such as TCFD and SBTi, we transparently disclose our efforts to address climate change. Through a clear and appropriate communication with stakeholders, we can better understand their concerns and demonstrate our commitment to environmental responsibility.

##### Sustainable Products and Packaging

KT&G will continue to review and execute strategies for more sustainable products and packaging by applying recyclable packaging materials and developing low carbon non-plastic filters. Such changes will be clearly communicated to stakeholders to demonstrate KT&G’s commitment to sustainability.

# Strategy

(4-2) Mitigation/Adaptation Strategy: Physical Risks

## 2. Physical Risks

To assess climate change-driven physical risks, KT&G has assessed the impact of acute risks including typhoons, hurricanes, heavy rainfalls, and wildfires, as well as chronic risks such as changes in rainfall and temperature, and sea level rise. Unlike transition risks, physical risks were analyzed to carry a higher level of risk in the 2.0°C+ scenarios, and the resulting impacts were expected to be realized sooner than in the 1.5°C scenario. In addition, in the more extreme 4.0°C scenario, physical risks increase dramatically, with both the magnitude and likelihood of impact on operations, supply chains, and business continuity rated high. In the 1.5°C scenario, physical risks are still observed to have a certain level of impact, albeit reduced compared to the more extreme scenarios.

To respond to these risks, KT&G is operating a standard manual for disaster management, which provides guidelines for recovery in the event of natural disasters. We also conduct regular risk assessments to identify, assess, and mitigate risk factors at each business site to prevent major disasters in terms of safety and health management. In recognition of the need to strengthen our responsiveness and resilience under extreme conditions like 4.0°C scenario, we have established a contingency plan at each business site. In this way, we strive to ensure rapid damage recovery and continuous business operations even in situations where the frequency and intensity of severe climate change disasters are increasing.

**Impact of Major Physical Risks**

### Heavy Rainfalls & Floods

Heavy rainfalls and floods can cause damage to business sites and production facilities as well as washouts of roads, which can disrupt the company’s manufacturing operations and logistics systems, adversely affecting its business continuity. Severe floods can also pose a direct risk to safety of employees, and the damage to tobacco crops and farmlands can negatively impact the supply of raw materials.

### Changes in Temperature

Changes in temperature can affect the cultivation of tobacco, potentially leading to reduced yields or shifts of cultivation location, which can lead to difficulties in sourcing high-quality raw materials. In addition to impacts on agriculture, temperature changes can increase the energy consumption for heating and cooling of facilities, resulting in rising operating costs. Higher temperatures can also pose a risk to outdoor workers in terms of health and productivity. Extreme weather events associated with temperature changes, such as heat waves, can also cause disruptions to transportation and logistics.

### Water Scarcity

Water is a resource used for many processes within a manufacturing facility, such as cooling and cleaning, and is also a key ingredient in some products. If water availability deteriorates, these processes can be disrupted, slowing or stopping production. In addition to business operations, water scarcity can also hinder growth of crop, which can adversely affect raw material quality and reduce yields.

**Mitigation/Adaptation Strategies**

### Contingency Plan & Facility Resilience Reinforcement

We invest in flood prevention facilities to protect manufacturing facilities in the event of heavy rainfalls and floods near our business sites. This may include activities such as adopting flood protection designs, building water walls, and reinforcing drainage systems. Moreover, we ensure the safety of employees and business continuity by establishing emergency plans which include rapid evacuation, production substitute plan, and emergency response training.

### Climate-related Monitoring System

Water scarcity and changes in temperature are categorized as chronic risks as they occur over a long period of time. In response to such risks, it is necessary to accurately identify and measure the potential impact through a continuous periodic climate-related monitoring strategy. The monitoring strategy includes careful observation of changes in water stress levels and energy consumption patterns due to temperature changes at major business sites. In this way, KT&G aims to identify the potential impact on energy use and supply chain stability and preemptively take strategic actions.

### Participation in Sustainability Initiatives


KT&G pursues sustainability over the medium to long term by participating in major initiatives that promote a virtuous cycle of sustainable practices, continuous monitoring, and improvement activities. By participating in initiatives aimed at sustainable water management, in particular, such as the Alliance for Water Stewardship (AWS), we plan to effectively measure, monitor and improve the water use efficiency across all operations as well as the impact on local communities, thus mitigating the long-term impact of water scarcity.

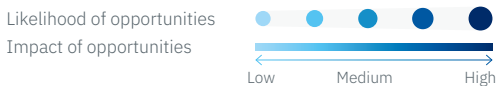
# Strategy

(5) Opportunities

Climate change may be a risk factor, but it can also provide opportunities that can be utilized strategically. Climate change opportunities normally have a greater impact in the 1.5°C scenario as they mainly arise in the event of transition to a low-carbon economy. Resilience has been identified as a key factor also in the 4.0°C scenario, as it is an important factor to have in place to address physical risks as well as transition risks.

## Major Climate Change Risks & Response Strategies

| Categories                                                                                                        | Opportunities                                                                                               | 2025  |       |       | 2030  |       |       | 2050  |       |       |
|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                                                                                                   |                                                                                                             | 1.5°C | 2.0°C | 4.0°C | 1.5°C | 2.0°C | 4.0°C | 1.5°C | 2.0°C | 4.0°C |
| <br>Climate Change Opportunities | Products & Services<br>Increased profits from increased sales of eco-friendly low-carbon products           | ●     | ●     | ●     | ●     | ●     | ●     | ●     | ●     | ●     |
|                                                                                                                   | Resilience<br>Securing core competitiveness by enhancing response capacity to climate change risks          | ●     | ●     | ●     | ●     | ●     | ●     | ●     | ●     | ●     |
|                                                                                                                   | Resource Efficiency<br>Reduced operating costs from expansion of low-carbon and renewable energy facilities | ●     | ●     | ●     | ●     | ●     | ●     | ●     | ●     | ●     |



 Opportunities

 KT&G's Plan for Realizing Opportunities

**Products and Services (O1)**

KT&G anticipates to preemptively respond to consumer demands for eco-friendly products and contribute to improving resource circulation throughout the value chain, by expanding sales of eco-friendly low-carbon products and conducting waste reduction activities.

**Resilience (O2)**

By participating in global initiatives related to climate change and renewable energy, we can establish mid-to long-term measures to respond to risks and enhance related capacity.

**Resource Efficiency (O3)**

By improving the production facility performance and energy efficiency as well as establishing renewable energy facilities, we can save purchasing costs of high-priced renewable energy and secure competitiveness in the low-carbon industrial structure.

We are strengthening activities that enhance the environmental capability of products that meets the needs of local communities and consumers by expanding the application of recyclable packaging materials and establishing an electronic tobacco waste device recycling system. In addition, by executing Zero Waste to Landfill verification, we are striving to minimize the environmental load throughout the entire process.

We are strengthening the level of risk management and response capabilities in the environment sector (e.g. GHGs reduction, water management), by responding to various global initiatives and external assessments, such as CDP Climate Change and CDP Water Security.

We aim to reduce GHG emissions and energy consumption by improving energy efficiency of worksite facilities and transitioning to electric vehicles, and to expand the use of renewable energy by installing our own solar power facilities.



# Strategy

(6) Financial Impact Estimates

The assessment of financial impact of climate change risks and opportunities is an effective method to identify the potential climate change impact on a company's business operations, profits and growth prospects. Going forward, KT&G will enhance its resilience by advancing the depth and scope of potential financial impact assessment.

CASE

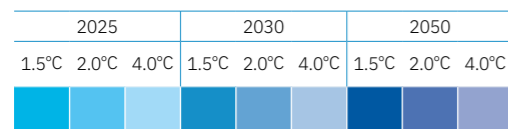


## Financial Impact of Carbon Pricing

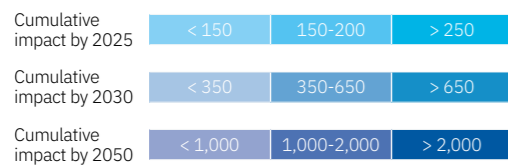
As a participant in the Korea Emissions Trading Scheme (K-ETS), KT&G is obligated to calculate its annual emissions. Under the K-ETS, companies are allocated emission allowances free of charge, and if their emissions exceed the allocated quota, they are required to cover the deficit by purchasing allowances. As the price of allowances in Korea fluctuated from a low of KRW 12,050 per ton to a high of KRW 32,700 per ton in 2022, a high uncertainty has been observed in the price forecast. In addition, considering the recent trend of global emission regulations, the total allowances and free allocations may be reduced, indicating that the allowance price is highly likely to rise in the medium to long term. Accordingly, KT&G has selected carbon costs associated with carbon pricing system as a potential risk factor and conducted financial impact analyses under two climate change scenarios.

➡ The risks induced from the carbon pricing are assessed to be relatively high under the 1.5°C scenario. The level of risk is forecasted to peak in 2030. In the long term, they are expected to be mitigated by the increased use of renewable energy and emissions reduction.

Financial Impact by Climate Change Scenario<sup>1)</sup>



(Unit: KRW 100 million)



<sup>1)</sup> The calculation is based on KT&G's emissions reduction target and the global carbon price suggested by the scenarios, in order to control a wide range of assumptions in recognition of the uncertainty from various variables affecting the carbon price.

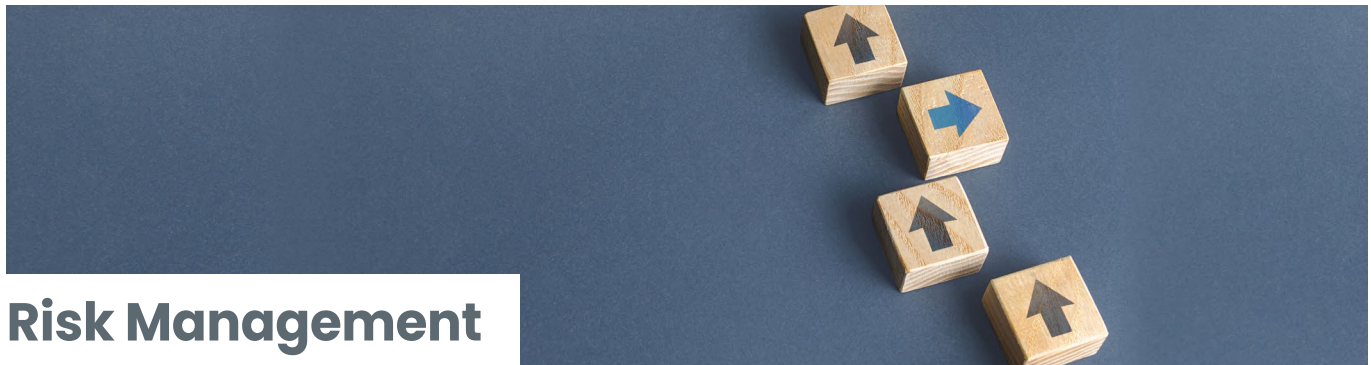
## Financial Impact of Risks

| Categories       | Risks                                                     | Definition                                                                                                                                | Impact                                                                                                                                   | Financial Impact (KRW billion) | Response Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Transition Risks | Policy & Regulation<br>Direct Operation<br>Carbon Pricing | Strengthening of carbon-related regulations such as the carbon credit price and carbon border tax, and an increase of carbon credit price | Increases in indirect carbon-related costs due to the rise in carbon prices and response to the carbon tax                               | Max 67.5<br>Min 33.7           | Carbon cost calculation based on the transition risk scenario model <sup>1)</sup> set for up to the year 2030<br><br>• To reduce greenhouse gas emissions and mitigate costs that could be incurred through carbon credit prices, invest in areas such as improving energy efficiency and expanding the use of renewable energy.                                                                                                                                                                                                                                                                                                                                                                                 |
|                  | Market<br>Upstream<br>Price Increases of Raw Materials    | Increased raw material procurement costs due to fluctuations in raw material quality and production volume                                | Increases in production costs and weaker price competitiveness due to disruption in the availability and supply of quality raw materials | Max 140.4<br>Min 21.1          | Annual financial impact level depending on fluctuations in raw material prices (3%-20%) and the increasing volatility of the annual average raw material purchase amount<br><br>• Through close collaboration with farmers and suppliers, expand sustainable management practices such as improving equipment efficiency of procurement, reducing carbon footprints, and enhancing water efficiency.<br>• Utilize the partnership system with core material suppliers and the Sustainable Tobacco Program (STP) for farmers.                                                                                                                                                                                     |
| Physical Risks   | Acute<br>Direct Operation<br>Heavy Rainfalls & Floods     | Increased levels and frequency of damage, such as flooding damage, damage to facilities, and business locations                           | Revenue decrease due to production capacity loss of damaged facilities and business locations                                            | Max 59.3<br>Min 11.9           | Production loss cost estimated by using the damage rate of business facility equipment and the number of business interruption days, based on the physical risk scenario model <sup>2)</sup><br>* Based on domestic business sites in related businesses, assuming a maximum of 15 days of business interruption<br><br>• Invest in flood prevention facilities to protect production facilities in the event of heavy rain and flooding near business locations.<br>• Ensure the safety of employees and the continuity of business operations through an emergency action plan that includes rapid evacuation plans, alternative production plans, and emergency response training in the event of a disaster. |
|                  | Chronic<br>Upstream<br>Changes in Temperature             | Rise in maximum and average temperatures in the business location and major raw material procurement areas                                | Increase in procurement costs due to shifts in crop cultivation areas and productivity fluctuation                                       | Max 91.3<br>Min 9.1            | Annual additional costs for tobacco leaf purchase that may be weighted according to the fluctuation (3%-30%) pattern of the procurement cost of tobacco leaves by unit, based on the physical risk scenario model <sup>2)</sup><br><br>• Prepare for local climate impacts and potential supply chain risks by diversifying the supply chain, thus reducing dependency on a single source and minimizing cost volatility.                                                                                                                                                                                                                                                                                        |

## Financial Impact of Opportunities

| Categories    | Risks                                                                        | Definition                                                                                       | Impact                                                                                                                                                                  | Financial Impact (KRW billion) | Response Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Opportunities | Energy Source<br>Direct Operation<br>Use of lower-emission sources of energy | Utilization of various policies and support to accelerate the transition to a low-carbon economy | Cost savings for low-carbon energy procurement through participation in national policies and incentive programs that accelerate the transition to a low-carbon economy | Max 44.4<br>Min 36.5           | Financial benefits estimated by using reduced energy usage and cost savings from the purchase of carbon credits through expansion of renewable energy based on the transition risk scenario model <sup>1)</sup> set for up to the year 2030<br><br>• Expand the procurement of renewable energy through various methods, such as increasing solar power generation facilities within business premises, concluding Power Purchase Agreement (PPA) contracts, and purchasing renewable energy certificates. |

<sup>1)</sup> IEA NZE / APS / STEPS Scenario    <sup>2)</sup> RCP 2.6 / 4.5 / 8.5 Scenario



# Risk Management

KT&G has established a climate change risk management process to preemptively respond to climate change, integrating it into the company-wide risk management system to advance the risk management process.

## Climate Change Risk Management Process



KT&G uses its risk identification system which meets the TCFD recommendations to analyze the likelihood of physical and transition risks for each climate scenario, and assesses their impacts considering the time period in the short, medium and long term. Potential risks and opportunities are identified by the quantitative assessment of materiality based on likelihood and impact.

We manage the identified risks by setting response measures suitable for each risk type, as their likelihood and impact may vary. The response measure is determined as acceptance, avoidance, or reduction, depending on the characteristics of each risk. We address the impact of risks by setting detailed action plans in line with response measures.

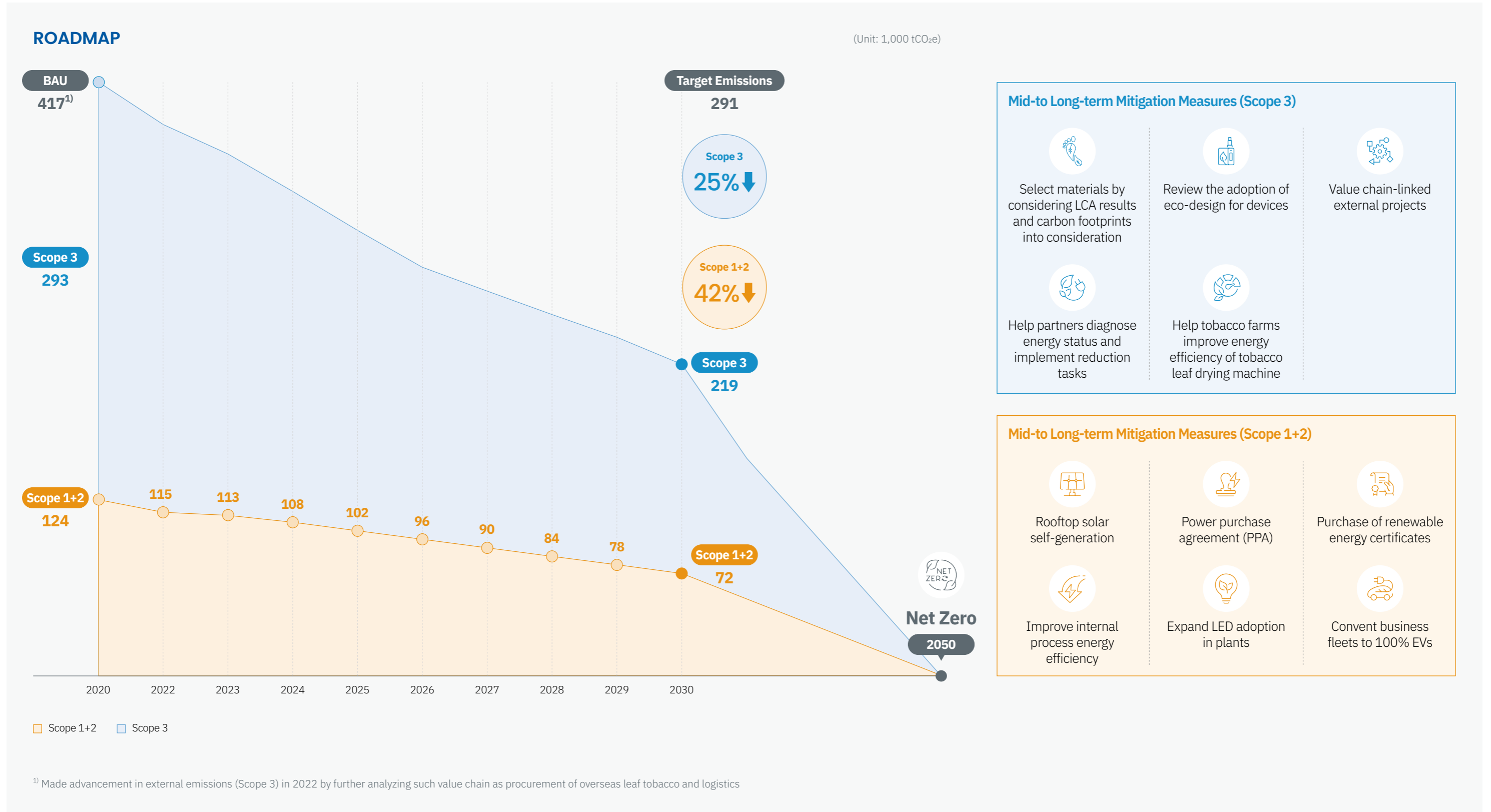
We monitor the progress of response activities and evaluate performance to assess the progress against targets and derive improvements.

By referring to climate-related research, policy monitoring data, response activities of peer companies, and feedback within the operations, we update the management list and materiality assessment of climate change risks and opportunities, which are then reported to the Sustainability Committee.

# Targets & Metrics

(1) Roadmap (Scope 1+2+3)

In accordance with SBT (Science-based Target) guidelines, KT&G has set the targets of reducing emissions by 31% compared to 2020 level by 2030 (Scope 1+2: 42%, Scope 3: 25%) and achieving carbon neutrality by 2050. To achieve these targets, KT&G is reviewing various reduction measures, focusing on expansion of renewable energy. Also, KT&G will continuously monitor the emissions by scope and disclose the progress transparently.



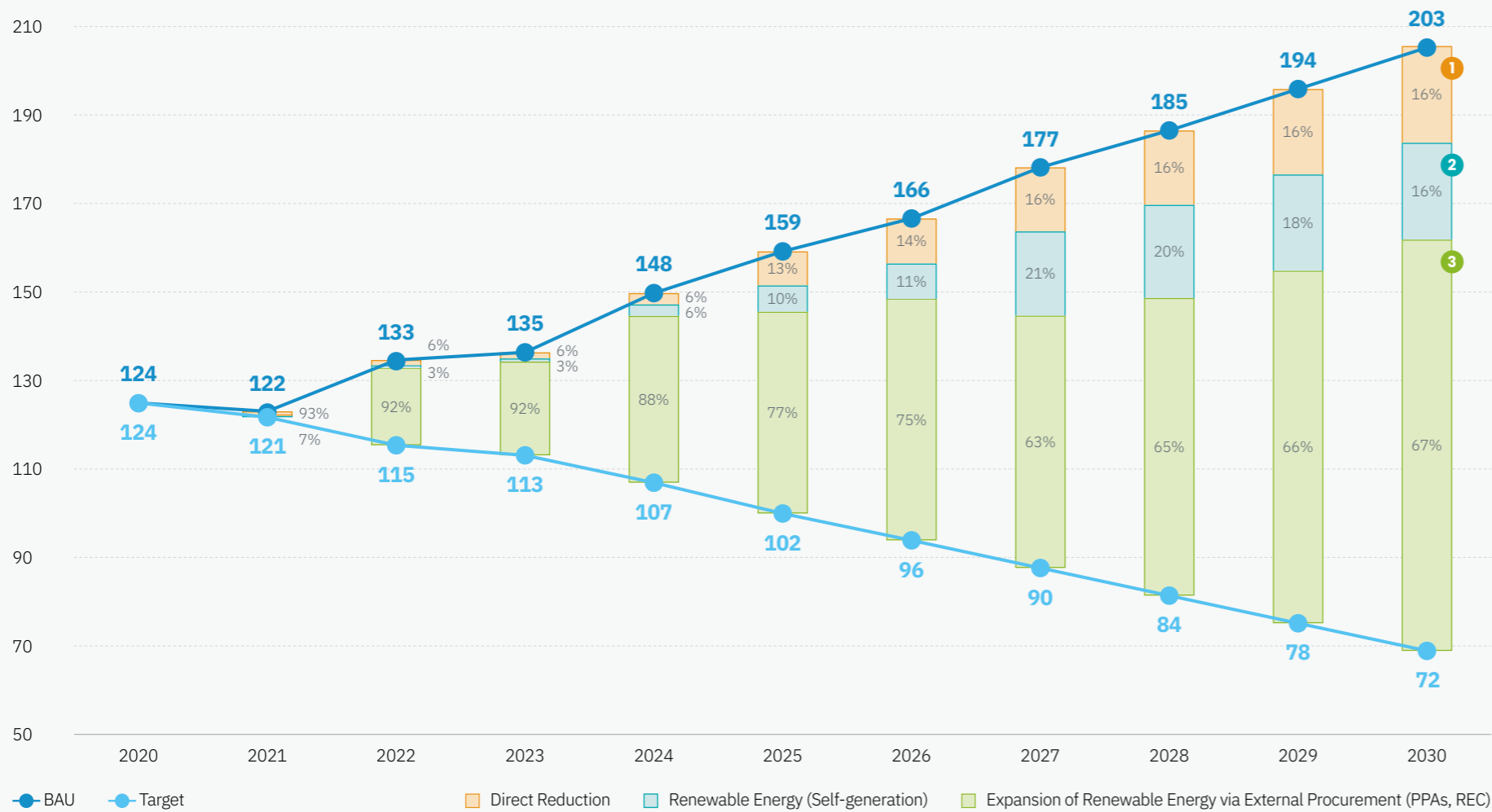
# Targets & Metrics

(2) Roadmap (Scope 1+2)

KT&G has been selecting and reviewing feasible ways to achieve 2030 reduction target by improving energy efficiency, increasing the use of renewable energy, and building various partnerships. Going forward, we will make continuous efforts to identify mitigation measures and advance the integrated roadmap through the cost-benefit analysis.

## Breakdown of Measures to Achieve 2030 Reduction Target

(Unit: 1,000 tCO<sub>2</sub>e)



- Improve Internal Process Energy Efficiency / Streamline Energy Use**
  - High efficiency of lighting (LED) and utility transition, reuse of heat, etc.
  - Optimal operation through the Energy Management System (FEMS)
- Replace Office Fleets with Electric Vehicles**
  - 100% transition to Green Vehicles by 2030
- Renewable Energy (Self-generation)**
  - Installation of rooftop solar self-generation with a total of more than 18Mwh in the factories
- Expansion of External Procurement of Renewable Energy**
  - Power Purchase Agreement, REC/iREC, etc.

## RENEWABLE ENERGY CONSUMPTION PERFORMANCE AND TARGET

| Category     | Performance |              | Target       |              |              |
|--------------|-------------|--------------|--------------|--------------|--------------|
|              | 2020        | 2022         | 2023         | 2025         | 2030         |
| Domestic     | 0.1%        | 8.9%         | 7.8%         | 29.7%        | 78.3%        |
| Overseas     | 0.0%        | 71.7%        | 100%         | 100%         | 100%         |
| <b>Total</b> | <b>0.1%</b> | <b>15.6%</b> | <b>18.9%</b> | <b>48.0%</b> | <b>87.0%</b> |

\* Scope: All domestic business sites (some 156), overseas business sites (3)

Target for renewable energy consumption at all domestic and overseas business sites by 2030

More than **80%**



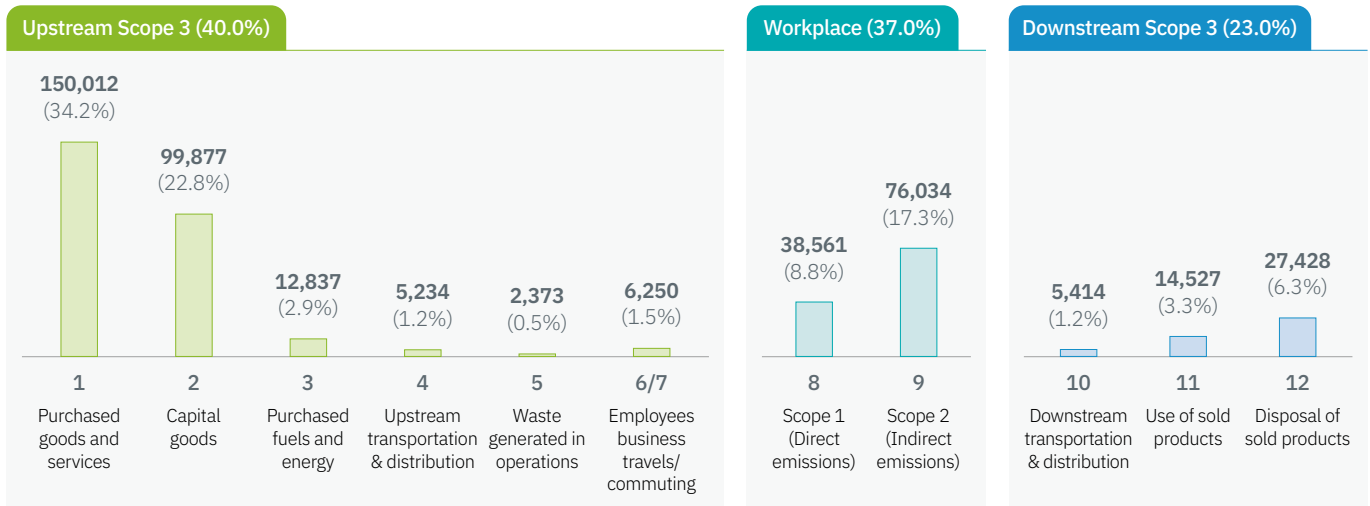
# Targets & Metrics

## (3) Greenhouse Gas (GHG) Emissions

KT&G's total GHG emissions in 2022 amounted to 438,547 tons, comprising 26% on-site (Scope 1, 2) and 74% off-site (Scope 3). To strengthen GHG emissions management, we upgraded the Scope 3 inventory and conducted third-party verification.

### Emissions in the Entire Value Chain\* (2022)

(Unit: tCO<sub>2</sub>e)

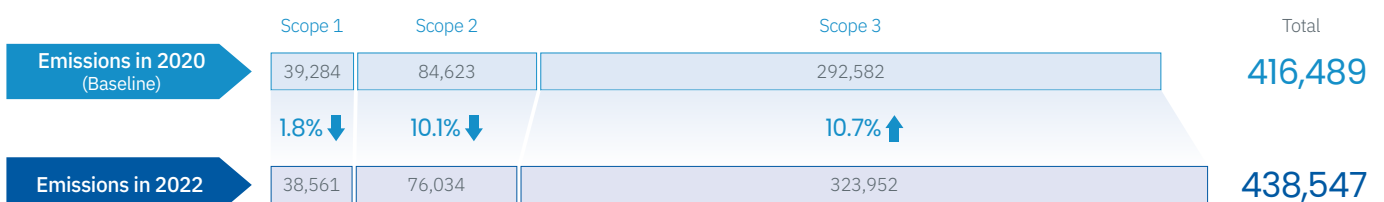


|                     |           |                                            |                                                                                                                                                                                                            |
|---------------------|-----------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scope 3: Upstream   | 1         | Purchased goods and services               | <ul style="list-style-type: none"> <li>Emissions from tobacco leaf cultivation/drying and tobacco sheet manufacturing</li> <li>Emissions from other raw materials and e-cigarette manufacturing</li> </ul> |
|                     | 2         | Capital goods                              | <ul style="list-style-type: none"> <li>Investment-related emissions, such as capital acquisitions</li> </ul>                                                                                               |
|                     | 3         | Purchased fuels and energy                 | <ul style="list-style-type: none"> <li>Emissions from the production of purchased fuels/energy</li> </ul>                                                                                                  |
|                     | 4         | Upstream transportation and distribution   | <ul style="list-style-type: none"> <li>Emissions from vehicle fuel combustion during the transportation and distribution of raw materials</li> </ul>                                                       |
|                     | 5         | Waste generated in operations              | <ul style="list-style-type: none"> <li>Emissions from recycling and non-recycling in business operations</li> </ul>                                                                                        |
|                     | 6/7       | Business travel & Employee commuting       | <ul style="list-style-type: none"> <li>Emissions from fuel combustion for overseas business travels and commuting of employees</li> </ul>                                                                  |
|                     | Scope 1+2 | 8                                          | Scope 1 (Direct emissions)                                                                                                                                                                                 |
| 9                   |           | Scope 2 (Indirect emissions)               | <ul style="list-style-type: none"> <li>Emissions from electricity/steam used in business operations and buildings</li> </ul>                                                                               |
| Scope 3: Downstream | 10        | Downstream transportation and distribution | <ul style="list-style-type: none"> <li>Emissions from vehicle fuel combustion during the transportation and distribution of finished and semi-finished products</li> </ul>                                 |
|                     | 11        | Use of sold products                       | <ul style="list-style-type: none"> <li>Emissions from electricity used to charge e-cigarette devices</li> </ul>                                                                                            |
|                     | 12        | Disposal of sold products                  | <ul style="list-style-type: none"> <li>Emissions from the disposal of e-cigarette devices and cigarette butts</li> </ul>                                                                                   |

\* Scope 3 emissions for 2022 have been verified by a third-party organization, DNV Business Assurance Korea, and may change further in the future due to inventory advancement, etc.

### Implementation Progress Compared to the Baseline

(Unit: tCO<sub>2</sub>e)





# Targets & Metrics

## (4) Monitoring of Metrics

KT&G manages the financial impact of climate change by making decisions in consideration of potential carbon costs through the operation of an internal carbon pricing system. In addition, we implement the corporate energy settlement system to strengthen monitoring of key metrics such as GHG emissions and water consumption.

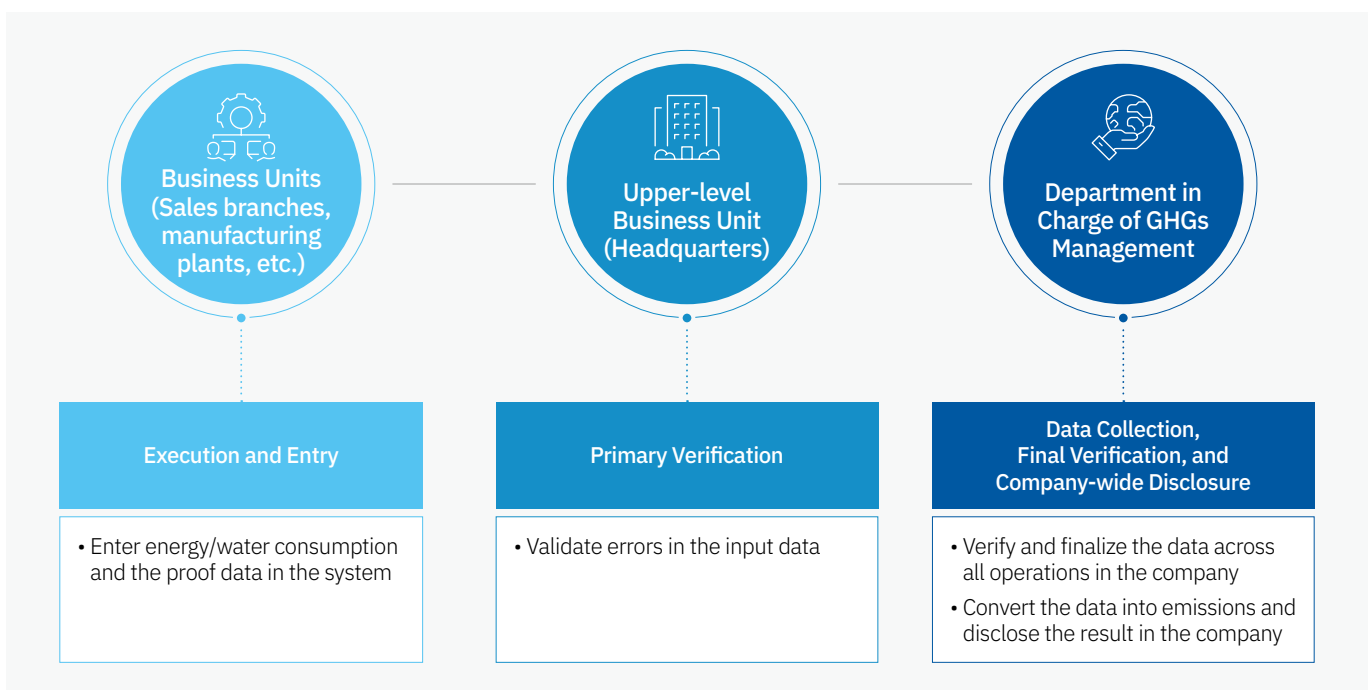
### Internal Carbon Pricing

KT&G has adopted an internal carbon pricing system to incorporate potential carbon costs into investment decisions and promote investment activities for climate change mitigation. The internal carbon pricing serves as a guideline for encouraging investment activities focused on climate change mitigation. It allows the carbon cost to be included in the reduction costs when conducting economic analysis for investment decisions, inducing the effect of shortening the payback period of climate change mitigation activities estimated internally when conducting economic analysis for investments. As a result, this approach has led to more positive decisions in internal investment policies and decision-making processes regarding various emission reduction activities. It has also become a crucial guideline for assessing the financial implications and prioritizing carbon reduction activities through the comparison of the expected reduction in emissions.

Currently, the internally set carbon price, based on our proprietary modeling, stands at KRW 50,000 per tCO<sub>2</sub>, exceeding the historical peak emission allowance price. We have implemented a process to readjust the internal carbon price when the emission allowance price surpasses the internal carbon price.

### Company-wide Energy Accounting System

KT&G is strengthening the monitoring of emissions, energy and water consumption across all business sites by implementing a company-wide energy accounting system as part of its efforts to achieve environmental vision of the “KT&G Green Impact”. This system involves the monthly input of energy and water consumption data based on proof documents (utility bills) from each business unit. The collected data is then validated and finalized by a responsible organization on a monthly basis. The finalized energy consumption data is immediately converted into GHG emissions and shared throughout the entire company. Each business site can verify the effectiveness of its reduction activities by monitoring the emissions. The department responsible for emissions reduction can track the progress towards the company’s targets and communicate the status down to the level of small-scale facilities. Furthermore, we take prompt actions to address any abnormal situations detected through cause analysis. The company-wide energy accounting system is not limited to domestic operations but has been expanded to cover overseas factories, with plans for further enhancement of the management system in the future. KT&G is committed to continuous and stable reduction of GHG emissions through these efforts.



# Policy and Stakeholder Engagement & Next Steps

KT&G will disclose its activities and implementation status in accordance with the TCFD recommendations in the KT&G Report and official website and continue to update them with related improvements, in order to communicate with the stakeholders more transparently.

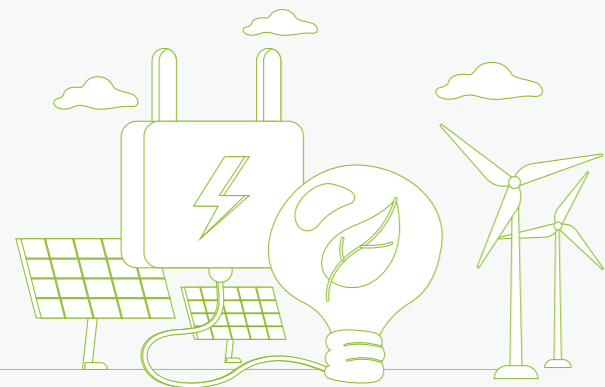
## Policy and Stakeholder Engagement

KT&G aims to achieve carbon neutrality by 2050 and will disclose its annual progress while actively engaging with stakeholders. Additionally, we strive to align with the Paris Agreement’s goal of maintaining global temperature rise significantly below 2°C and limiting it to 1.5°C or lower compared to pre-industrial levels. We will collaborate with the government and relevant organizations in order to contribute to GHG emissions reduction.

## Next Steps to Enhance the TCFD Response

### 02 Enhancing resilience through detailed review of mitigation/adaptation strategy

We will advance the climate-related risk management process and review our climate change response measures in detail in order to effectively manage and mitigate climate-related risks and identify new opportunities.



### 01 Advancing risk assessment tools

We will continuously improve monitoring methods of climate-related risks in line with updates and changes in the data available for climate change scenario analysis to minimize uncertainty caused by mid- to long-term climate change risks.



### 04 Advancing climate-related disclosures

We will promote an environmental management system that meets stakeholders’ expectations by transparently disclosing the progress of the mid- to long-term emissions reduction target every year.



### 03 Expanding value chain collaboration and engagement strategy

We will actively cooperate with our business partners in the supply chain and strive for effective reduction of value chain emissions (Scope 3) in order to manage the expanded responsibility for GHG emissions from KT&G’s business activities.

