

Management summary: climate change

Transition plans related to climate change

The Kirin Group has been continuously performing scenario analysis since 2017, and we have found that climate change will cause significant declines in agricultural products that are important raw materials for the Kirin Group, water stress and water risk, and an increase in energy costs. Wherever we emit GHG, they result in global warming. Accordingly, this is a global environmental issue, and we must all take responsibility. In order to respond to this crisis, the Kirin Group has formulated a roadmap for mitigating climate change, which we began implementing in January 2022, following deliberations and a resolution by the Group Executive Committee. When executing this roadmap, we will aim to balance economic and environmental considerations, as we aim to achieve our Science-based 1.5°C target with profit and loss neutrality by 2030, across the Group as a whole. We have incorporated climate change adaptation measures such as sustainable agricultural production and measures to address water stress into our management plans as non-financial targets. The transition plan we present here is a summary of this roadmap. For more information on disclosure based on the TCFD recommendations, please refer to (→P.72), and for a report on our activities, please refer to (→P.25).

Target

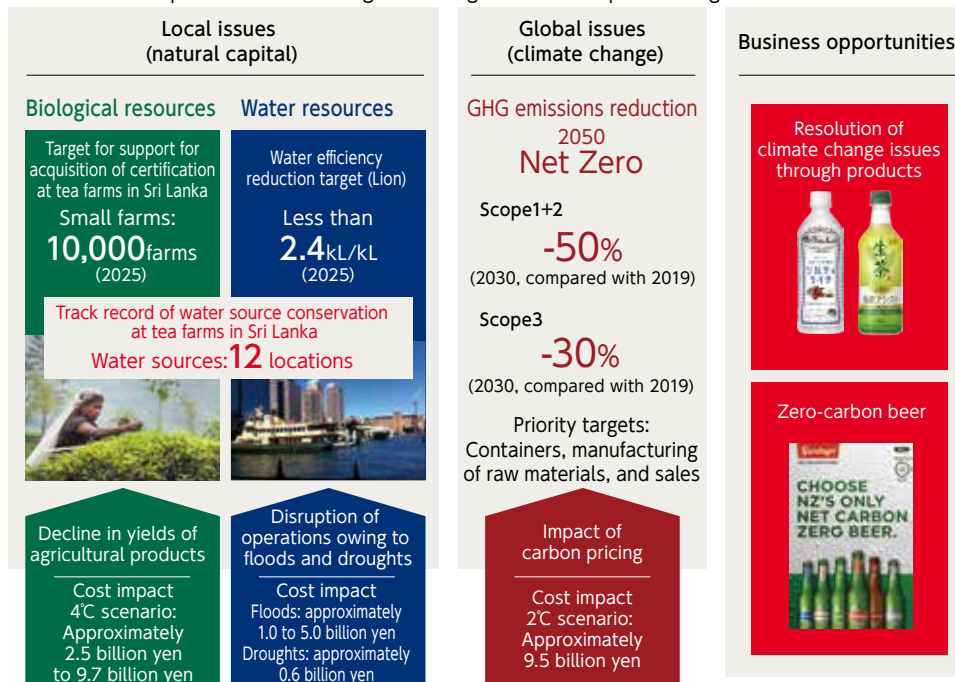
The Kirin Group's long-term climate target is to "achieve net zero GHG emissions across the entire value chain by 2050," which we set in the "Kirin Group's Environmental Vision 2050," as deliberated and resolved by the Board. As medium-term targets to achieve this long-term target, we commit to reduce the total of Scope 1 and 2 GHG emissions 50% and Scope 3 GHG emissions 30% compared with 2019 by 2030. The SBTi, an international initiative, has approved these targets as science-based net-zero and 1.5°C targets respectively. By 2040, we have committed to use renewable energy for 100% of our electric power usage upon joining RE100. We have set detailed targets related to agricultural products and water resources for each group company.

We have also incorporated these indicators for target setting into executive officers' performance evaluations. In addition to financial indicators, we have a system in place where we consider matters related to climate change when determining the level of achievement for performance-linked remuneration.

Management

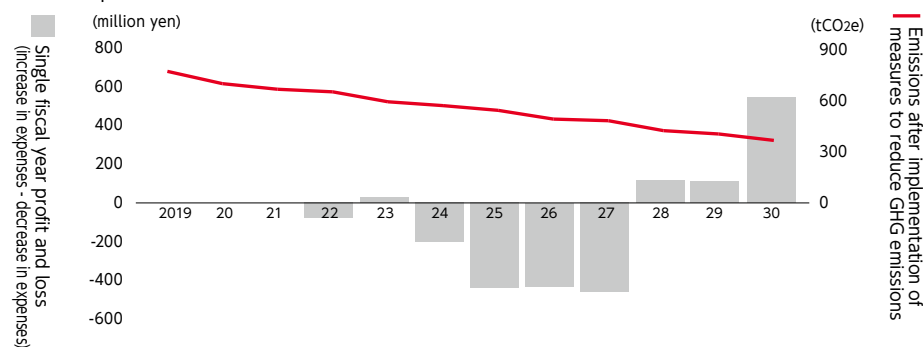
Kirin Holdings has delegated corporate functions related to activities aimed at reducing GHG emissions across the Group as whole to the Technology Development Department of Kirin Brewery, which provides technical support to each company to help them achieve their targets and coordinates efforts within the Group to achieve targets for the Group. We have broken down targets for the Group into targets for each company, and we will aim to achieve group-wide targets through each company working autonomously to achieve their targets. We have set these targets as performance indicators in each company's CSV Commitment, a non-financial KPI, thus reflecting them in the management plans of each company. We added up data for each group company to create our plans through 2024, and we think the possibility of achieving these plans is high. We will achieve our SBT for 1.5°C on a profit and loss neutral basis by using cost savings from energy conservation to offset renewable energy procurement costs and depreciation. We have formulated our roadmap such that it will allow us to achieve on a profit and loss neutral basis without taking into consideration ICP (Internal Carbon Pricing: a method where a company sets its own carbon prices and utilizes them for strategies and decision-making as an organization). As of February 2022, we use

Main financial impact of climate change and mitigation and adaptation targets



* We estimated the "decline in yields of agricultural products" and "carbon pricing" in 2050

Plans for profit and loss neutral reduction of GHG emissions



63 US dollars/tCO_{2e}, or 7,000 yen/tCO_{2e}). If, however, we take ICP into consideration, we expect to accelerate our progress. Under our current roadmap, approximately 70% of the reduction of overall GHG emissions will come from the procurement of renewable energy. Accordingly, in the future, we will increase our energy-conservation measures and thereby enhance economic efficiency as we look to achieve our target. We reflect investment and expenses required to achieve our targets in the management plans of each company, and the Finance Department and Technology Development Department work together to assess economic efficiency whether these plans will be profit and loss neutral over the long term. We will monitor the implementation of measures at group companies and rates of decline in GHG emissions after implementation, etc., and update our roadmap as appropriate.

Reduction of Scope 1 and Scope 2 emissions

The Kirin Group takes three approaches to reducing direct GHG emissions: (1) promotion of energy conservation, (2) expansion of renewable energy, and (3) energy transition.

We will focus mainly on the promotion of energy conservation and the expansion of renewable energy until 2030. From 2030 onward, in order to achieve our net zero emissions target in 2050, we must also promote energy transition, i.e., converting combustion fuels used in steam brewing and manufacturing processes from fossil fuels to hydrogen and other fuels that do not emit GHG. We expect that converting to energy that is free from GHG will require some time for technical development, infrastructure development, etc. Accordingly, we are preparing to take various measures at our facilities and solve technical issues. When selecting renewable energy, we will prioritize "additionality," i.e., the contribution to the decarbonization of society through the addition and increase of new renewable energy power sources, and "ethicality," i.e., the responsible expansion of the use of energy, from the perspective of the environmental impact and human rights.

Reduction of Scope 3 emissions

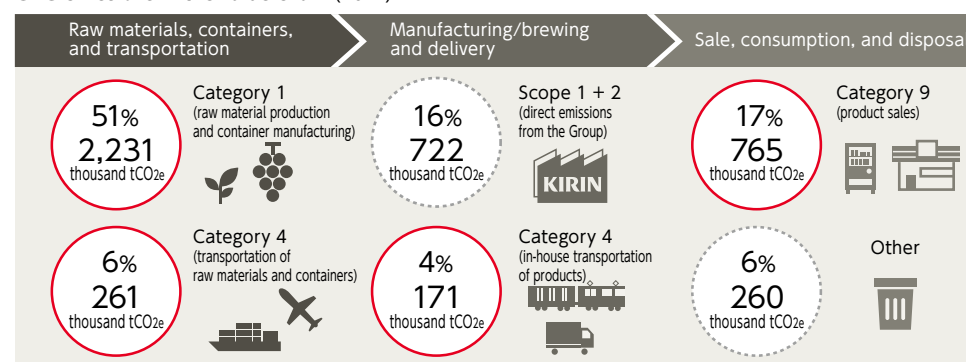
Approximately 80% of GHG emissions from the Kirin Group's value chain are Scope 3 emissions, and we must work with many stakeholders outside the Kirin Group to reduce such emissions. We think this is an opportunity for both the Kirin Group and our stakeholders to create economic and social value, and we thus intend to lead the creation of a decarbonized society. Of the 15 categories defined in the "GHG Protocol," the largest proportion of Kirin Group Scope 3 emissions, at approximately 60%, are category 1, i.e., associated with the production of ingredients and materials. Category 4 (emissions associated with transportation) and category 9 (emissions associated with sales) also each account for a significant proportion of the total. Accordingly, we will define these three categories as priority categories when implementing related initiatives. We will achieve our target for the reduction of Scope 3 emissions by implementing two approaches in parallel: "reduction of our own independent emissions" and "encouragement of reduction at business partners."

Even when "encouraging reduction at business partners," we will emphasize positive impact and additionality, and will prioritize engagement with suppliers over the suspension of transactions. We have already held briefings to share information on the Kirin Group's policies, and we are currently working to confirm emissions reduction plans at each company and the status of progress in both quantitative and qualitative terms through questionnaires for major suppliers. Going forward, we will consider initiatives aimed at the procurement of low-carbon ingredients and materials based on data that we have identified. We will also engage in regular communication on the theme of climate change.

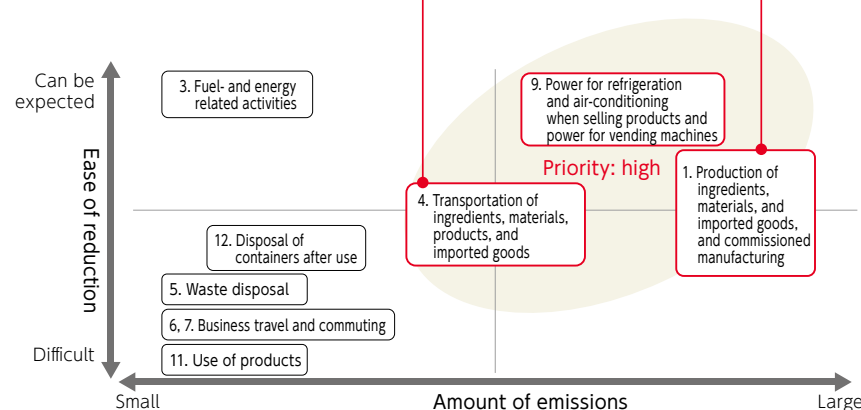
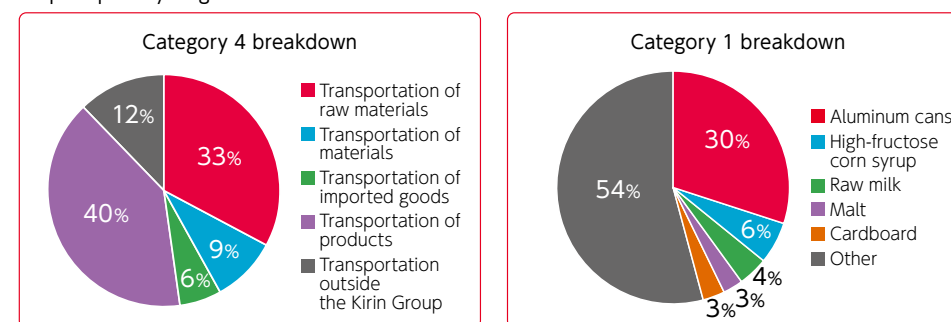
The reduction of Scope 3 emissions is an issue not just for the Kirin Group, but across society as a whole. Accordingly, we intend to share issues with industry peers, various industry organizations, and other bodies, and clarify the domains where we can cooperate. In order to accurately reflect our initiatives to reduce emissions in the calculation of Scope 3 emissions, we will change the database we use for these calculations to IDEA.* We will also consider utilizing external platforms in order to gather accurate data. Containers and packaging will be a key theme in the "reduction of our own independent emissions." We will work to make containers and packaging lighter utilizing our strength – the fact that we have a globally unmatched research institute where we conduct in-house container and packaging development – while also expanding the use of "sustainable containers and packaging," which we will create by recycling used containers. In this way, we reduce GHG emissions associated with the manufacture of ingredients and materials. With regard to transportation, we will operate both production and logistics in an integrated manner that takes into consideration the risk that we will be "unable to transport" products owing to truck driver shortages and other factors. At the same time, we will also continue joint deliveries and our modal shift. In sales, we will take on new challenges, such as zero-carbon products.

* Calculated retrospectively from 2019, the SBT base year, using IDEA (Inventory Database for Environmental Analysis). IDEA is an LCA database offered by the National Institute of Advanced Industrial Science and Technology (AIST). There are plans for regular renewal and the creation of overseas coefficients, and it is in the process of becoming used as standard in Japan.

GHG emissions in the value chain (2021)



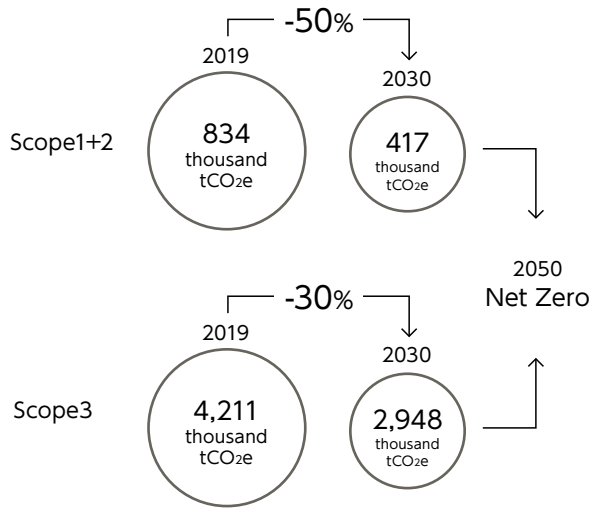
Scope 3 priority targets and emissions ratios



The future

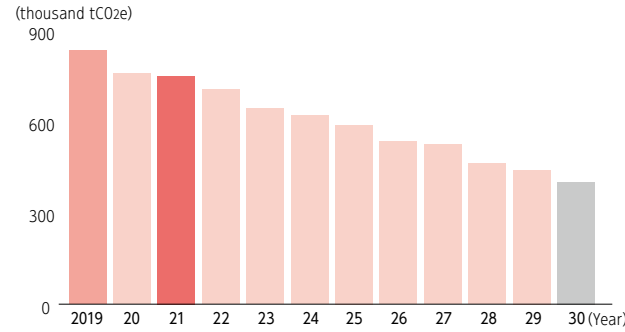
In our roadmap, which forms the core of our transition plan, we intend to update our plans every year to reflect the latest changes in the environment within and outside the Kirin Group, and thereby increase the accuracy of our plans. We intend to continuously implement initiatives to lead the creation of a decarbonized society and create value in both financial and non-financial terms, while also having a positive impact on society.

1.5°C targets

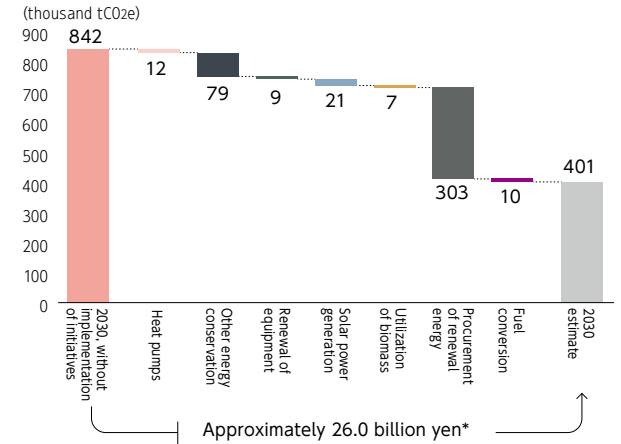


Plans through 2030 (Scope 1 + Scope 2)

Scope 1 + 2 emissions after implementation of measures to reduce GHG emissions

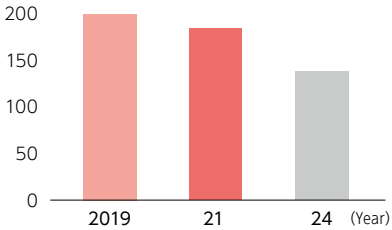


Breakdown of plans to reduce Scope 1 + 2 GHG emissions

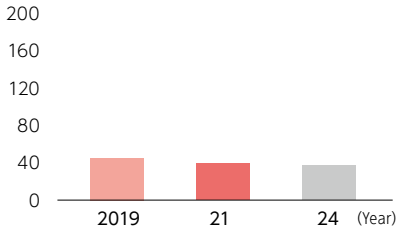


Plans through 2024 (Scope 1 + Scope 2)

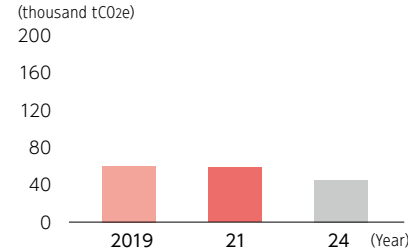
Kirin Brewery (thousand tCO₂e)



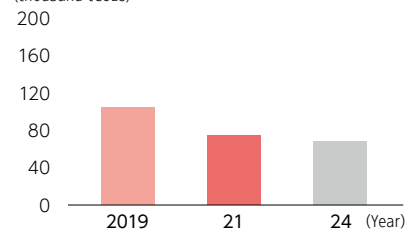
Kirin Beverage (thousand tCO₂e)



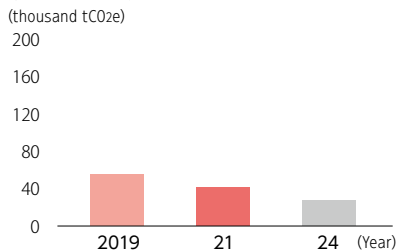
Mercian (thousand tCO₂e)



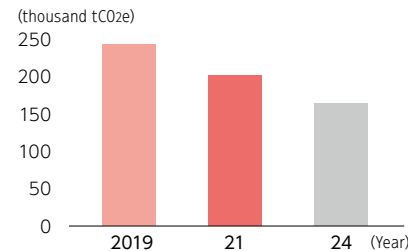
Lion (thousand tCO₂e)



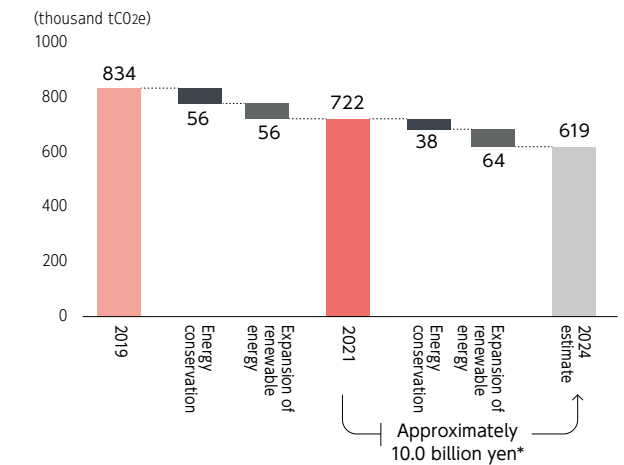
Kyowa Kirin (global) (thousand tCO₂e)



Kyowa Hakko Bio (global) (thousand tCO₂e)



Breakdown of GHG emissions reduction (2019 to 2024)



* "Environmental investment" is the total of capital investment and the increase in costs to procure renewable energy. Data from 2025 onward are expected amounts based on our current roadmap, and are subject to revisions as necessary.

More information on environmental investment to achieve our Science-based 1.5°C target (→P.76)