

# Addressing Climate Change

## Introduction

Our Group sets targets related to ESG and are making efforts toward achieving them not only for sustainable growth in our Company through the safe and steady supply of energy that considers the global environment, but also for the contribution for the sustainable development of society by solving global social issues.

On the environmental front, our goal is to build a viable business foundation that can contribute to the sustainable development of society by analyzing the risks and opportunities brought about by climate change while reflecting them in our management plan and policy, which are all targeted toward realizing a zero-carbon society.

### Support for the TCFD Recommendations

In May 2019, our Company declared our support for the recommendations of the Task Force on Climate-related Financial Disclosures or TCFD\*.

Recognizing the size of the impacts that our Group business activities have on the global environment, we declare our support for the TCFD Recommendations to “analyze and disclose business risks and opportunities originating in climate change over the medium and long terms in order to reduce risks of financial market destabilization.”

\* TCFD was established by the Financial Stability Board, which is an international agency that has central banks, financial regulatory authorities and other organizations from major countries as members. In total, 2271 organizations around the world, including financial institutions, businesses and governments, declared their support for the TCFD Recommendations as of June 25, 2021.

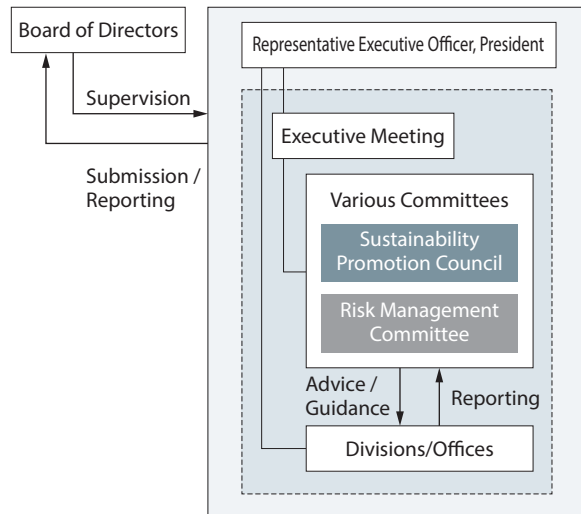


## Governance

With climate change as a key business challenge, the Sustainability Promotion Council (chaired by the President) and the Risk Management Committee (chaired by the Vice President) shall jointly assess and address climate change issues (climate change strategies, materiality, risks and opportunities, etc.) while providing each operating division with advice and guidance as needed.

Meanwhile, the results of assessment and management conducted by the council and the committee are reported to the Board of Directors for approval and, at the same time, reflected in the Group’s plans and policies.

Climate change governance system



## Strategies

Our Group is engaged in analytical work based on data such as those published by the IEA, etc. on future demographics and electricity demand, focusing on three scenarios developed for the domestic electric power business based on two axes: the pace of technological development in CCUS\*, etc. and zero carbon policies. With these three scenarios in mind, we address climate change risks and opportunities while reflecting these factors in our business strategies.

\* CCUS (Carbon dioxide Capture, Utilization and Storage) is a technology where carbon dioxide is separated and recovered from emissions from thermal power plants, etc. for use in other industrial processes or for storage underground.

### Three scenarios toward 2050

2°C technology advancement	Thermal power generation accounts for a certain proportion of the power generation mix, as technologies such as CCUS continue to advance.
2°C technology delay	Thermal power generation is heavily regulated, with technological innovation not progressing.
4°C	The average temperature rises 4°C compared to pre-industrial times.

Note: These three scenarios are not forecasts, but assumptions based on events expected to take place in the future.

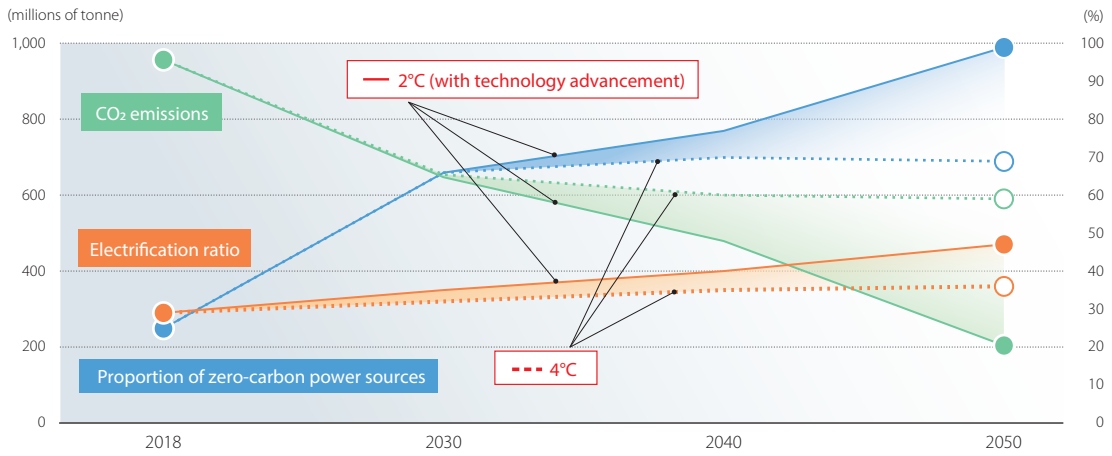
### Scenario analysis results

The results of the scenario analysis show that zero-carbon power sources account for almost all of the power generation mix in a 2°C world.

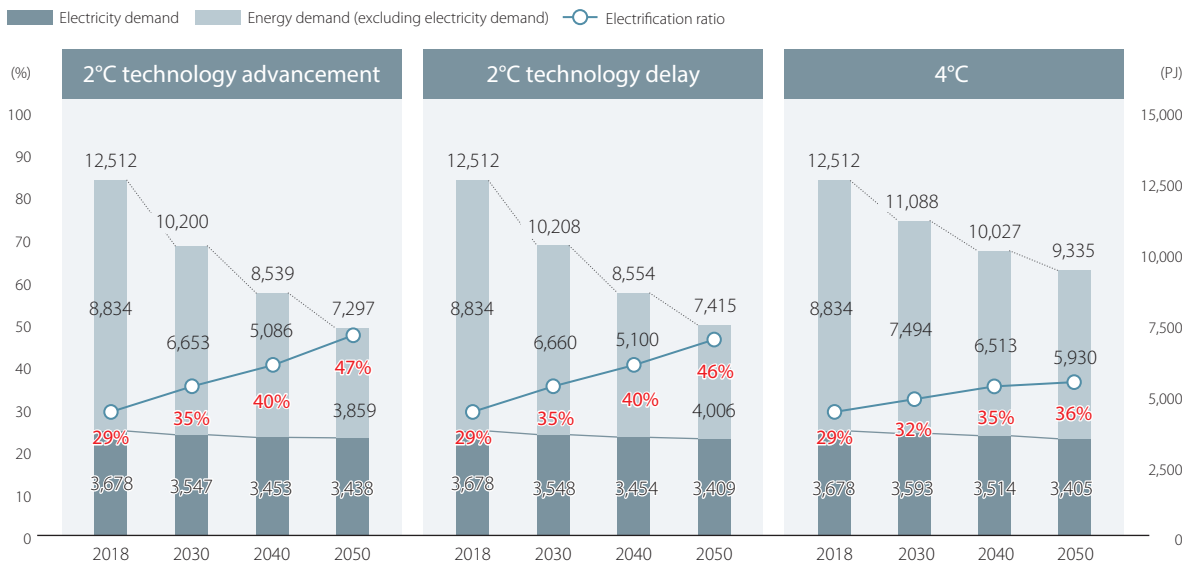
However, with innovation in technologies such as CCUS progressing, coal-fired thermal power generation, as a zero-carbon power source, accounts for a certain proportion of the power generation mix. While it is heavily regulated, should technological innovation not progress; this would virtually signify the termination of coal-fired thermal power generation.

Advancement in energy-saving technologies, etc., meanwhile, reduces the total energy demand in which the share of electricity demand increases.

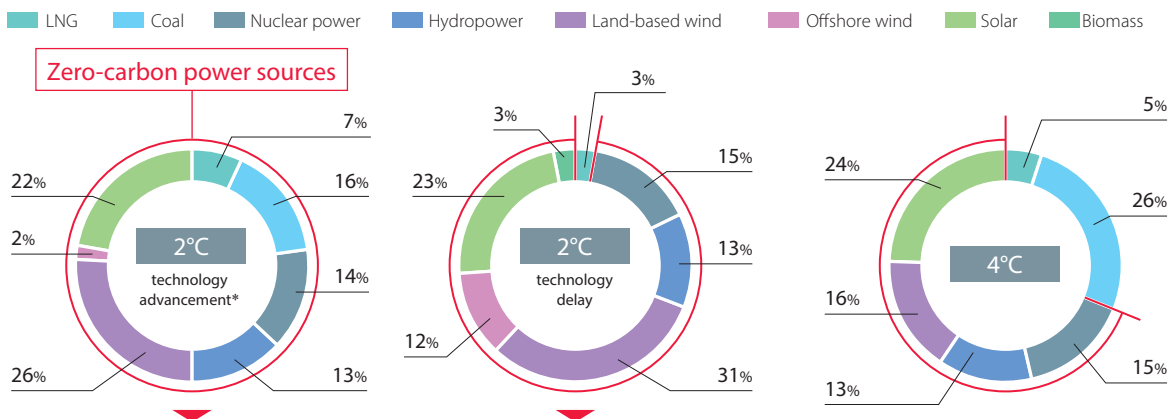
### Proportion of zero-carbon power sources and electrification ratio in Japan



### Trends in total energy demand and electricity demand in Japan



### Breakdown of 2050 output by power source in Japan



Almost all power sources are zero-carbon emissions in the 2°C world scenario.

Note: Percentages may not sum up to 100 due to rounding.  
\* Thermal power sources are considered as zero-carbon power sources in the 2°C scenario (with technology advancement) due in part to the introduction of CCUS.

## Addressing Climate Change

### Climate change risks and opportunities

The results of risk analysis on medium- to long-term climate change are reflected on the Kansai Electric Power Group’s management plans and policies. Specifically, these risks consist of the transition and physical risks listed below.

#### Identified climate change risks and opportunities

		Risks	Opportunities
Transition risks and opportunities	Policies	<ul style="list-style-type: none"> <li>● Thermal power generation loses competitiveness due to the introduction of carbon prices while regulations on carbon emissions boost the costs of abatement.</li> <li>● Other power sources lose competitiveness against renewable power sources.</li> </ul>	<ul style="list-style-type: none"> <li>● Nuclear power generation gains competitiveness.</li> </ul>
	Technologies	<ul style="list-style-type: none"> <li>● Demand decreases as renewable energy and energy-saving technologies make progress.</li> <li>● Investment increases as carbon emission reduction technologies become more widespread.</li> </ul>	<ul style="list-style-type: none"> <li>● The way electricity is used changes, driven by technological innovation.</li> </ul>
	Markets	<ul style="list-style-type: none"> <li>● Environmentally unfriendly products lose competitiveness.</li> <li>● Demand structure changes as EVs, storage batteries, etc. become more widespread.</li> </ul>	<ul style="list-style-type: none"> <li>● Opportunities for investment in renewable energy increase.</li> <li>● Earnings increase, with investment in ESG and carbon neutral gaining momentum.</li> <li>● Electrification advances, with carbon neutral gaining momentum.</li> </ul>
	Reputation	<ul style="list-style-type: none"> <li>● Nuclear power generation becomes less socially acceptable.</li> <li>● Increases in CO<sub>2</sub> emissions and coefficients result in a bad reputation among customers.</li> </ul>	<ul style="list-style-type: none"> <li>● Increased confidence of customers and society and the resulting business opportunities, all brought about by a resilient business foundation</li> </ul>
Physical risks and opportunities	<ul style="list-style-type: none"> <li>● The restoration and reinforcement costs of power generation, transmission and distribution facilities increase due to intensified climate change.</li> </ul>		

### Zero Carbon Vision 2050

The Kansai Electric Power Group set out the Zero Carbon Vision 2050 to help create a zero-carbon society, incorporating the results of scenario analyses, the government’s policies, etc.

In an effort to create a sustainable society, our Group, as a leading company of zero-carbon energy, is aiming for carbon neutrality throughout the entirety of its business activities including power generation by 2050 in order to combat global warming, while striving to increase energy independence to secure energy supply, with priority given to safety.

Moreover, our Group will mobilize its resources to support

decarbonization not only in the economic activities of our customers, but also across society as a whole.

These efforts will be made through active cooperation with various parties, such as customers, business partners, the government, municipalities and research institutes.

In addition, the Zero Carbon Committee, chaired by the President, is in place to realize the Zero Carbon Vision 2050.

The committee is tasked with developing key principles and a roadmap to implement them while discussing specific approaches and the progress made to push forward with zero carbon initiatives.

### Three key approaches for Zero Carbon Vision 2050

#### ① Zero-carbon emissions on the demand side

With the enlarged role on the demand-side, our Group, as a zero-carbon solution provider, is pleased to provide customers with the best available solution toward zero-carbon emissions along with supporting its implementation across all sectors.

#### ② Zero-carbon emissions on the supply side

With priority given to safety, our Group will seek to achieve the best energy mix which can lead to full decarbonization, ensure secure stable supply with an increasing energy self-sufficiency ratio, and enhance economic efficiency.

Based on diversified social requests including promoting distributed energy resources and strengthening resilience, our Group is making best efforts to maximize the introduction of renewable energy as a

main power source, upgrade the power transmission and distribution system, and maximize nuclear power where power generation output stability and energy density are high with priority given to safety, as well as working to decarbonize thermal power generation which can flexibly adjust output to secure a stable supply despite the large-scale diffusion of renewable energy. Our Group will also look to contribute to decarbonization on an international level.

#### ③ Seeking to create a hydrogen-based society

As hydrogen is indispensable for a zero-carbon society, our Group, as a key player working toward realizing a hydrogen-based society, will tackle the challenges to produce, transport and supply zero-carbon hydrogen with non-fossil fuels, in addition to using hydrogen for power generation.

## Risk management

Risks associated with our business activities are to be managed autonomously by each operating division (including our group companies). We shall enhance risk management for risks considered to have cross-organizational importance including the supervision of departments with specialized expertise on said risks that can provide advice and guidance to various operating divisions.

As climate change poses significant risks to the Group's business activities, efforts are underway to properly control various risks caused by climate change.

Specifically, a system to control company-wide risks along with other risks excluding those related to climate change (e.g., financial risks) determines the significance of each risk in view of its possible impact and probability, the results of which are plotted on a risk map so as to enable an overview of the status of risk management.

Moreover, risk assessment results are presented to the Executive Meeting and the Sustainability Promotion Council, with necessary risk control measures reflected in the Group's plans and policies to ensure sustainable growth in the future.

For more information about risk management, refer to page 80.

## Indicators and objectives

Committed to realizing the Zero Carbon Vision 2050, the Kansai Electric Power Group is shifting to "zero-carbon power sources," which include nuclear, renewable energy and zero-carbon thermal power generation, for a sustainable society.

**Halve CO<sub>2</sub> emissions associated with power generation in Japan in FY 2025 (compared to FY 2013)**

**Keep the top spot for the amount of zero-carbon power generation in Japan**

**Achieve 6 million kW of installed capacity by 2030s (2 million kW or more new development in Japan and abroad)**

### Fiscal 2020 results

The Kansai Electric Power Group's CO<sub>2</sub> emissions in fiscal 2020 from its domestic power generation roughly amount to 30.4 million tonnes, about 40% less than those in fiscal 2013. Major contributors include the safe, stable operation of Takahama Units 3 and 4 and Ohi Units 3 and 4, development and introduction of renewable energy sources, and improved efficiencies at thermal power plants. These efforts have resulted in the Kansai Electric Power Group keeping the top spot for the amount of zero-carbon power generation in Japan.

Domestic renewable energy development and expanded overseas operations, moreover, increased our renewable energy capacity at facilities that have begun operation at home and abroad (including those completed construction), standing at 4.142 million kW.

#### Group's CO<sub>2</sub> emissions and CO<sub>2</sub> emission factors associated with power generation in Japan

