# Environmental data 2021

Kansai Electric Power

power with heart

# Reporting Coverage

## ■Reporting coverage of Kansai Electric Power and its 86 consolidated subsidiaries (as of the end of March 2021)

（1）Specific data of environmental impact including electricity consumption in an office is grasped and reported in this report

⇒ **97.5%**

<Explanation>

It represents the ration of companies that are performing Eco-Action among 86 consolidated subsidiaries (ratio of sales).

・<Calculation Method>

$$\frac{\text{(Sales of Kansai Electric Power in FY 2020) + (Sales of 38 consolidated subsidiaries in FY 2020 that are performing Eco-Action as of the end of March 2021)}}{\text{(Sales of Kansai Electric Power in FY 2020 ) + (sales of 86 consolidated subsidiaries in FY 2020)}}$$

＊Eco-Action

It is the environmental action plan including the reducing office electricity consumption and office water consumption

# ＜Data＞

As of July 12th, 2021

# Status overview of our business activities and environmental load

## INPUT

| Fuels for power generation | | |
|---|---|---|
| Fuels for thermal power generation | Coal | 3,254,000t |
| | Heavy oil | 210,000kL |
| | Crude oil | 218,000kL |
| | LNG (liquefied natural gas) | 6,814,000t |
| | Wood pellets | 4,000kL |
| | Other | 298,000kL |
| Fuels for nuclear power generation | | 77tU |

| Water for power generation | |
|---|---|
| Industrial water | 2.73 million m3 |
| Clean water | 1.13 million m3 |
| River water, groundwater, etc. | 0.37 million m3 |
| Seawater (desalinated) | 2.80 million m3 |

| Resources | |
|---|---|
| Limestone | 56,000t |
| Ammonia | 8,000 t |

| Office | | |
|---|---|---|
| Office electricity | | Calculating |
| Office water | | 0.39 million m3 |
| Copy paper | | 662 t |
| Vehicle fuels | Gasoline | 1,500kL |
| | Diesel oil | 400kL |

## Business activities

**Power generation**

| Nuclear power generation* | Thermal power generation* |
|---|---|
| 15.3 TWh | 61.4 TWh |
| **Hydropower generation*** | **Renewable energies*** |
| 12.8 TWh (0.06 TWh from small-scale hydropower generation) | 0.03 TWh |

＊Excludes amounts of power for inside power plants

Purchased from other companies
19.6 TWh
(of which solar, wind, biomass, and waste-derived power 5.4 TWh)

Pumped-storage hydropower
−2.2 TWh

Power transmission and distribution

| SF6 gas recovery rate | (upon inspection) 99.6% |
|---|---|

Losses in transmission and distribution including electricity consumed within transformer substations
−4.2 TWh

## OUTPUT

| Released into atmosphere | |
|---|---|
| CO2 (carbon dioxide) | Calculating |
| N2O (nitrous oxide) | Calculating |
| SF6 (sulfur hexafluoride) | Calculating |
| SOx (sulfur oxides) | 2,098t |
| NOx (nitrogen oxides) | 4,551t |

| Released into water areas | |
|---|---|
| COD emissions | 23 t |
| Total effluents | 3.75 million m3 |

| Radioactive waste | |
|---|---|
| Low-level radioactive waste generated* | 2,034drums |

＊Net generation (generated amount − reduced amount)

| Industrial waste, etc. | | |
|---|---|---|
| Total emissions | | 567,000t |
| Processing classification | Recycling | 545,000t |
| | Reduction in intermediate treatment | 20,500t |
| | Final disposal | 900t |
| Recycling rate | | 99.8% |

| CO2 emissions resulting from office activities | | |
|---|---|---|
| Total emissions | | Calculating |
| Emissions breakdown | Office electricity | Calculating |
| | Office water (0.23 kg-CO2/m3) | 89t-CO2 |
| | Vehicle fuels (Gasoline: 2.322 kg-CO2/L) (Diesel oil: 2.585 kg-CO2/L) | 4,382t-CO2 |

●Figures in parentheses are CO2 emission factors.

| Customers | |
|---|---|
| Electric power sold | 102.3 TWh |

Note1:This table contains non-consolidated figures for Kansai Electric Power Co., Inc only.
Note2:Totals may not sum due to rounding.
Note3:Thermal power generation figures do not include biomass power generation.

# Environment-related data

## ○Environmental Management

| Eco Action-related | | Unit | FY2018 | FY2019 | FY2020 |
|---|---|---|---|---|---|
| **SF6 gas emissions※1** | | t | 0.2 | 0.1 | 0.1 |
| | ・Upon inspection | t | 0.2 | 0.1 | 0.0 |
| | ・Upon removal | t | 0.1 | 0.0 | 0.1 |
| **Transmission and distribution loss rate※2※3** | | % | 5.1 | 4.8 | 5.1 |

※1 Numerical values represent those of Kansai Electric Power Co., Inc. and KansaiTransmission and Distribution, Inc.

※2 Transmission and distribution loss rates = (area transmission-end power – area consumption power (end use) – substation power) / area transmission-end power × 100 [%]
"Area" in this case refers to the entire supply area of Kansai Transmission and Distribution, Inc.

※3 Data of Kansai Transmission and Distribution, Inc. only

## ○Climate Change

| GHG emissions | Unit | FY2018 | FY2019 | FY2020 |
|---|---|---|---|---|
| **Direct greenhouse gas emissions (Scope 1)※1※2※3** | 10,000 t-CO2 | 2,865.7 | 2,663.2 | 2,857.0 |
| **Electricity indirect greenhouse gas emissions (Scope 2)※1※2※4** | 10,000 t-CO2 | 0.6 | 0.5 | 0.6 |

※1 The amount of greenhouse gases emitted in our entire supply chain is calculated in accordance with the Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain (ver. 2.3) issued by the Ministry of the Environment and the Ministry of Economy, Trade and Industry.

※2 Numerical values represent those of Kansai Electric Power Co., Inc. and KansaiTransmission and Distribution, Inc.

※3 Direct GHG emissions (Scope 1) refer to emissions (energy-derived CO2, SF6 and N2O emissions) reported by electric companies in line with the Law Concerning the Promotion of the Measures to Cope with Global Warming along with CO2 emissions from transportation fuel use, which are excluded from the reporting obligations. SF6 emissions are based on the calendar year.

※4 Electricity indirect GHG emissions (Scope 2) include CO2 emissions originating from electricity and heat purchased from external corporations, which should be reported by electric operators in line with the Law Concerning the Promotion of the Measures to Cope with Global Warming. For electricity, adjusted factor was used.

## ○Pollution Prevention

| Atmospheric emissions | Unit | FY2018 | FY2019 | FY2020 |
|---|---|---|---|---|
| **SOx emissions※1※3** | t | 2,351 | 2,138 | 2,098 |
| **NOx emissions※2※3** | t | 4,686 | 4,414 | 4,551 |

*1 This is calculated from amounts of sulfur in fuel as well as SOx concentrations in gas emissions (measured values) and gas emission volumes.
(Some previous fiscal year amounts were calculated from the amount removed by desulfurization equipment.)

*2 This is calculated from SOx concentrations in gas emissions (measured values) and gas emission volumes.

*3 Numerical values represent those of Kansai Electric Power Co., Inc. and KansaiTransmission and Distribution, Inc.

| Dust Emissions* | Unit | FY2018 | FY2019 | FY2020 |
|---|---|---|---|---|
| **Dust Emissions** | t | 171 | 156 | 270 |

*Data of Kansai Electric Power Co., Inc. only

# Environment-related data

## ○Resource Circulation

| Waste-related※1※2 | Unit | FY2018 | FY2019 | FY2020 |
|---|---|---|---|---|
| **Amount of industrial waste and other emissions** | 1,000 t | 580.0 | 621.3 | 566.7 |
| ·Soot particles (heavy/crude oil ash, coal ash, etc.) | | 387.0 | 384.7 | 381.2 |
| ·Sludge (desulfogypsum, waste water processing sludge, etc.) | | 107.9 | 129.7 | 91.3 |
| ·Cinders | | 25.3 | 45.8 | 30.8 |
| ·Demolition debris (waste concrete utility poles, etc.) | | 18.2 | 18.1 | 17.1 |
| ·Metal scraps | | 23.9 | 25.5 | 26.6 |
| ·Glass/ceramic scraps (thermal insulation scraps, insulator scraps, etc.) | | 1.3 | 2.4 | 2.1 |
| ·Waste oil | | 3.0 | 4.1 | 4.5 |
| ·Waste plastic | | 0.9 | 1.4 | 1.1 |
| ·(Repeated) Ash and gypsum | | 515.7 | 553.2 | 498.6 |
| ·Other | | 12.6 | 9.6 | 12.0 |
| (Repeated) Special controlled industrial waste | | 8.3 | 7.1 | 11.2 |
| **Amount of industrial waste for landfill disposal** | 1,000 t | 0.9 | 1.1 | 0.9 |
| ·Glass/ceramic scraps (thermal insulation scraps, insulator scraps, etc.) | | 0.09 | 0.19 | 0.15 |
| ·Sludge (wastewater processing sludge, etc.) | | 0.48 | 0.41 | 0.03 |
| ·Demolition debris | | 0.03 | 0.00 | 0.00 |
| ·Cinders | | 0.00 | 0.00 | 0.00 |
| ·Waste plastic | | 0.10 | 0.27 | 0.08 |
| ·Metal scraps | | 0.05 | 0.03 | 0.02 |
| ·Other | | 0.14 | 0.20 | 0.67 |
| ·(Repeated) Amount except for special controlled industrial waste | | 0.77 | 0.95 | 0.32 |

※1 The totals may not match up due to rounding.

※2 Numerical values represent those of Kansai Electric Power Co., Inc. and KansaiTransmission and Distribution, Inc.

## ○Water Resources

| Water consumption※1 | Unit | FY2018 | FY2019 | FY2020 |
|---|---|---|---|---|
| **Total net fresh water consumption※2** | million m3 | 5.19 | 3.97 | 4.23 |
| River water | | 0.40 | 0.41 | 0.37 |
| Groundwater | | 0.00 | 0.00 | 0.00 |
| **Total municipal water supplies** | | 4.79 | 3.56 | 3.86 |
| Amount of industrial water used (for power generation) | | 3.70 | 2.64 | 2.73 |
| Amount of service water used (for power generation) | | 1.09 | 0.92 | 1.13 |
| **Seawater (desalinated)※3** | | 2.74 | 2.92 | 2.80 |

※1 Numerical values represent those of Kansai Electric Power Co., Inc. and KansaiTransmission and Distribution, Inc.

※2 Excluding desalinated seawater

※3 Desalinated seawater

# Environmental protection records at thermal power plants ①

| Item | | | | Sakaiko Power Station | Nanko Power Station | Miyazu Energy Research Center | Kansai International Airport Energy Center | Maizuru Power Station |
|---|---|---|---|---|---|---|---|---|
| Main fuel | | | | L | L | Heavy/crude oil | Kerosene | Coal |
| Air quality related | Sulfur oxide | Amount emitted hourly (m3N/h) | Air Pollution Control Law (total amount regulation) | 84 | 98 | 306※1 | 13 | 515※1 |
| | | | Agreed value | – | – | 112 | – | 255 |
| | | | Actual value | – | – | Stopped | – | 187 |
| | | Amount emitted daily (t/d) | Agreed value | 10.1 | – | – | – | – |
| | | | Actual value | – | – | – | – | – |
| | | Amount emitted annually (t/y) | Agreed value | 940 | – | $492\times10^3m^3N$ | – | $1,523\times10^3m^3N$ |
| | | | Actual value | – | – | Stopped | – | $688\times10^3m^3N$ |
| | Nitrogen oxide | Amount emitted hourly (m3N/h) | Air Pollution Control Law (total amount regulation) | 625 | 255 | – | – | – |
| | | | Agreed value | – | – | 58 | – | 244 |
| | | | Actual value | 50.2 | 34 | Stopped | – | 215 |
| | | Amount emitted daily (t/d) | Agreed value | 7.7 | 1.8 | – | – | – |
| | | | Actual value | 2.1 | 1.5 | – | – | – |
| | | Amount emitted annually (t/y) | Agreed value | 1,420 | 400 | $244\times10^3m^3N$ | – | $1,457\times10^3m^3N$ |
| | | | Actual value | 558 | 169 | Stopped | – | $1,137\times10^3m^3N$ |
| | Soot particles | Emission concentration (g/m3N) | Air Pollution Control Law | 0.04 | 0.03 | 0.05 | 0.05 | 0.1 |
| | | | Agreed value | 0.02 | Not emitted | 0.014 | – | 0.009 |
| | | | Actual value | <0.002 | – | Stopped | <0.002 | 0.008 |
| Water quality related | Hydrogen ion concentration index | | Water pollution laws and regulations | 5.8~8.6 | 5.0~9.0※2 | 5.0~9.0 | – | 5.0~9.0 |
| | | | Agreed value | – | – | 5.8~8.6 | – | 5.8~8.6 |
| | | | Actual value | 7.9 | 7.3 | 6.0~7.6 | – | 6.3~7.7 |
| | Chemical oxygen demand | Highest concentration (mg/L) | Water pollution laws and regulations | 12 | – | 160 | – | 160 |
| | | | Agreed value | – | – | 15 | – | 15 |
| | | | Actual value | 1.8 | – | 7.7 | – | 7.4 |
| | | Pollution load amount (kg/d) | Water pollution laws and regulations | 209.2 | – | – | – | – |
| | | | Agreed value | – | – | 20.8 | – | 22 |
| | | | Actual value | 5.99 | – | 0.2 | – | 5.54 |
| | Amount of suspended solids | Highest concentration (mg/L) | Water pollution laws and regulations | 50 | 600※2 | 200 | – | 200 |
| | | | Agreed value | – | – | 20 | – | 15 |
| | | | Actual value | <5 | 5 | 4 | – | 2 |
| | Amount of inclusion of normal hexane extractable substances | Highest concentration (mg/L) | Water pollution laws and regulations | 2 | 4※2 | 5 | – | 5 |
| | | | Agreed value | – | – | 1 | – | 1 |
| | | | Actual value | <1 | <1.0 | <0.6 | – | <1.0 |

※1 Regulation in rules for the execution of ordinances to protect and nurture the environment of Kyoto Prefecture
※2 Regulated value of Osaka City sewer ordinance execution rules

# Environmental protection records at thermal power plants ②

| Item | | | | Gobo Power Station | Himeji No.1 Power Station 5,6U & GT1,2U | Himeji No.2 Power Station | Aioi Power Station | Ako Power Station |
|---|---|---|---|---|---|---|---|---|
| Main fuel | | | | Heavy/crude oil | LNG | LNG | LNG | Heavy/crude oil |
| Air quality related | Sulfur oxide | Amount emitted hourly (m3N/h) | Air Pollution Control Law (total amount regulation) | 6,510※3 | 129 | 582 | 2,757※3 | 2,158※3 |
| | | | Agreed value | 184 | – | – | 165 | 180 |
| | | | Actual value | 88 | – | – | 3 | 79 |
| | | Amount emitted daily (t/d) | Agreed value | – | – | – | – | – |
| | | | Actual value | – | – | – | – | – |
| | | Amount emitted annually (t/y) | Agreed value | 970×10³m³N | – | – | 885×10³m³N | 650×10³m³N |
| | | | Actual value | 23.551×10³m³N | – | – | 0.256×10³m³N | 22.7×10³m³N |
| | Nitrogen oxide | Amount emitted hourly (m3N/h) | Air Pollution Control Law (total amount regulation) | – | – | – | – | – |
| | | | Agreed value | 110 | 123.5 | 463 | 85 | 94 |
| | | | Actual value | 51 | 64 | 93 | 45 | 73 |
| | | Amount emitted daily (t/d) | Agreed value | – | – | – | – | – |
| | | | Actual value | – | – | – | – | – |
| | | Amount emitted annually (t/y) | Agreed value | 560×10³m³N | 701×10³m³N | 2,263×10³m³N | 390×10³m³N | 340×10³m³N |
| | | | Actual value | 20.459×10³m³N | 207.837×10³m³N | 393×10³m³N | 51.4×10³m³N | 53.5×10³m³N |
| | Soot particles | Emission concentration (g/m3N) | Air Pollution Control Law | 0.07 | 0.05 | 0.05 | 0.07 | 0.05 |
| | | | Agreed value | 0.01 | – | – | 0.015 | 0.015 |
| | | | Actual value | 0.014 | – | <0.002 | 0 | 0.001 |
| Water quality related | Hydrogen ion concentration index | | Water pollution laws and regulations | – | 5.0～9.0 | 5.0～9.0 | 5.0～9.0 | 5.0～9.0 |
| | | | Agreed value | 5.8～8.6 | 5.8～8.6 | 5.8～8.6 | 5.8～8.6 | 5.8～8.6 |
| | | | Actual value | 6.4～8.0 | 6.7～8.0 | 7.2～7.8 | 6.7～7.4 | 6.5～7.7 |
| | Chemical oxygen demand | Highest concentration (mg/L) | Water pollution laws and regulations | – | 70 | 70 | 70 | 70 |
| | | | Agreed value | 10 | 15 | 15 | 15 | 15 |
| | | | Actual value | 5.6 | 6.0 | 4.6 | 3 | 2.6 |
| | | Pollution load amount (kg/d) | Water pollution laws and regulations | – | 38.8 | 49.71 | 67.8 | 85.5 |
| | | | Agreed value | 36.8 | 15.2 | 35 | 18 | 22.4 |
| | | | Actual value | 10 | 6.0 | 12.2 | 2.25 | 3.9 |
| | Amount of suspended solids | Highest concentration (mg/L) | Water pollution laws and regulations | – | 90 | 90 | 90 | 90 |
| | | | Agreed value | 20 | 20 | 20 | 20 | 20 |
| | | | Actual value | 1.7 | 7 | <5 | 1 | <1 |
| | Amount of inclusion of normal hexane extractable substances | Highest concentration (mg/L) | Water pollution laws and regulations | – | 5 | 5 | 5 | 5 |
| | | | Agreed value | 1 | 1 | 1 | 1 | 1 |
| | | | Actual value | 0.3 | 0.2 | <1 | 0.1 | <0.5 |

※3 Regulated K value

# Kansai Electric Power Group Environmental Policy

Based on the Kansai Electric Power Group Code of Conduct, we strive to be a corporate group that is trusted by society. To achieve this, through cooperation with our stakeholders, we seek to create an even better natural environment and actively contribute to the formation of a sustainable society.

1. Adhering to environmental laws, regulations and related rules

At the Kansai Electric Power Group, we adhere to laws, regulations and other rules related to the environment.

2. Responding to climate change

At the Kansai Electric Power Group, recognizing climate change as a key business challenge, we actively work to reduce greenhouse gas emissions. We pursue the goal of carbon neutrality throughout the entirety of our business activities and support our customers and society in achieving decarbonization by 2050.

In addition, we also work to adapt in preparation for the harmful impacts of climate change.

3. Promoting resource circulation

At the Kansai Electric Power Group, recognizing that natural resources are limited, we advance efforts toward resource circulation in society as a whole. Our efforts include reducing natural resource consumption in our business activities, proactively promoting 3R (reduce, reuse, recycle) practices, and providing products and services that contribute to resource circulation.

4. Protecting local community environments

At the Kansai Electric Power Group, we seek to prevent environmental pollution while working to strictly manage and reduce toxic chemicals in our business activities in order to promote the environmental protection of local communities.

5. Conserving biodiversity

At the Kansai Electric Power Group, we recognize the importance of biodiversity. We properly assess, analyze and evaluate the impacts of our business activities and work to preserve biodiversity.

6. Promoting environmental communication

At the Kansai Electric Power Group, we work proactively to raise environmental awareness and disclose information related to the environment.

7. Continuously improving our environmental management systems

At the Kansai Electric Power Group, we seek to continuously improve our environmental management systems in order to increase our environmental performance.

# Climate-related targets

We announced the following environmental targets in the Kansai Electric Power Group Medium-term Management Plan (2021-2025).

## Climate-related targets in the Kansai Electric Power Group Medium Management Plan (2021-2025)

・ We will seek to achieve 6 million kW of renewable installed capacity by 2030s, of which more than 2 million kW will be newly developed in Japan and abroad.

・We will keep the top spot for the amount of $CO_2$-free power generation in Japan, and halve $CO_2$ emissions associated with power generation in Japan in FY2025 (compared to in FY2013) .