

## Environmental Load Accompanying Kyushu Electric Power's Business Operations

### Calculation Methods and Supplementary Explanations (see p. 7)

The following are the calculation methods and supplementary explanations used to calculate expected reductions in environmental load accompanying in business operations, as detailed on p.7.

#### Calculation methods for expected reductions in environmental loads accompanying business operations

##### CO<sub>2</sub> Emission Reductions

###### Power Generated and Purchased

- Calculated using CO<sub>2</sub> emissions (post-adjustment) per electricity sales volume for Kyushu Electric Power in FY2017 and compared against a baseline which assumes all power is produced via renewable energy (excluding pumping for hydroelectric).
- Facilities efficiency improvement: Calculated using thermal efficiency and power transmission and distribution loss rate for FY2013 as a baseline.
- Starting in FY2016, the calculation factor for CO<sub>2</sub> emission reduction volume due to nuclear power generation was changed from the thermal power CO<sub>2</sub> emissions factor (excluding internal combustion power) to the total power supply average CO<sub>2</sub> emissions factor (changed to the calculation approach used by the Federation of Electric Power Companies of Japan).

###### Introduction of Low Pollutant Company Vehicles

- Calculated using a baseline which assumes electric vehicles (including plug-in hybrids), hybrid vehicles, and fuel-efficient vehicles are not introduced.

##### SF<sub>6</sub> Recovery Amount

- Calculated using a baseline which assumes SF<sub>6</sub> is not recovered from machinery into which it is injected during inspection and removal.

##### SO<sub>x</sub> Reduction Amount

- Calculated using a baseline which assumes no desulfurization is performed and no low-sulfur fuels are used at power stations.

##### NO<sub>x</sub> Reduction Amount

- Calculated using a baseline which assumes no denitrification is performed at power stations.

#### Supplementary Explanation

- The input amount for "fuel for nuclear power generation" is the amount of uranium and plutonium required (converted from calorific value).
- The input quantity for "water for power generation" does not include seawater used for water for non-power-related use or cooling water, or water circulating in the power station.
- "Purchased, etc." in corporate operations includes FIT purchased power and power used for sending and receiving interchange power to or from other companies.
- For corporate operations, a baseline is used which assumes an environmental load level resulting from the use of no environmental load mitigation measures, and the numerical difference between this and the actual environmental load level is calculated.
- For corporate operations, the CO<sub>2</sub> emissions reduction from the introduction of low pollutant company vehicles and amount of in-house power consumed of the greenhouse gas emissions in our environmental impact reductions is calculated using CO<sub>2</sub> emissions (post-adjustment) per electricity sales volume for Kyushu Electric Power in FY2016.
- For corporate operations, the reduction in volume of low-level radioactive waste achieved by incinerating, compressing or otherwise disposing of the low-level radioactive waste generated is converted into an equivalent number of 200-liter drums.
- For ozone-depleting substance emissions, the individual fluorocarbon ozone depletion factors were used to convert into the equivalent CFC-11 weight.
- For air pollutant emission environmental load, "total exhaust gas multiplied by concentration in exhaust gas" for each thermal power station (including internal combustion power) was converted into a weight value and combined for the total value.
- For discharged water environmental load, concentrations and discharged water volumes were used to calculate the load for each water pollutant contained in the discharged water treated by the discharged water treatment equipment at thermal (including geothermal) and nuclear power generation plants, and these loads were multiplied by Kyushu Electric Power's own weighting factors, converted into COD (chemical oxygen demand) weight equivalents and totaled.
- For COD emission environmental load, the figure is a sum total of COD (chemical oxygen demand) contained in discharged water treated by the discharged water treatment equipment at both thermal (including geothermal) and nuclear power generation plants.
- The net volume of low-level radioactive waste in the environmental load generated is the volume reduction subtracted from the actual volume generated, converted into an equivalent number of 200-liter drums.