

Initiatives for Reducing Environmental Impact -1



We use significant amounts of electricity and fossil fuels in the manufacturing process and emit soot and smoke. For this reason, we are actively working on energy-saving measures and to reduce the environmental impact on the atmosphere and water.

Curbing global warming and energy conservation measures

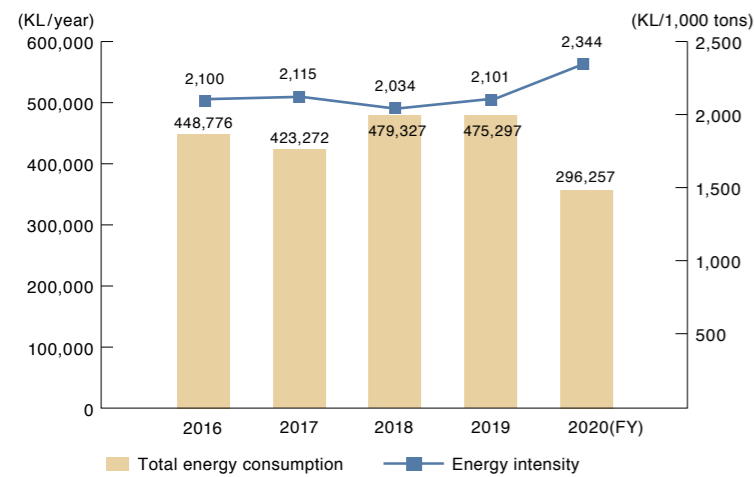
We are engaged in efforts to use energy more efficiently, including using hot electric furnace exhaust gas in our nickel ore drying process to reduce the amount of heavy oil and LNG we use in our production process.

Although our total amount of energy used and CO₂ emissions fell in FY2020 in conjunction with reduced production volumes, the amount of energy used per production volume (energy source units) increased by 12%.

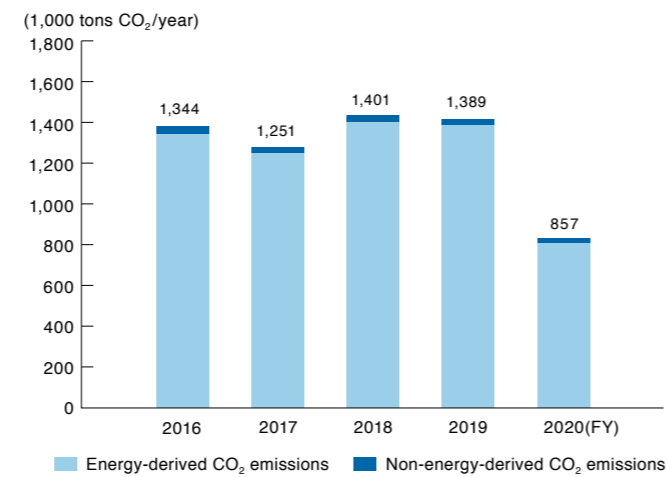


Private power generation equipment

Total energy consumption



CO₂ emissions



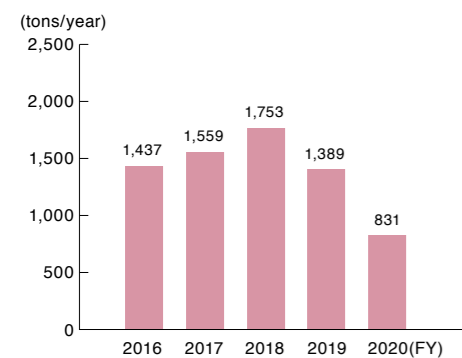
Air pollution control measures

To suppress the soot and smoke generated by production processes and private power generation equipment, we have taken new measures such as constant monitoring using telemeters and upgraded non-gas continuous measuring devices, and have implemented internal circulation of the management status of self-managed values as well as training in legal and regulatory compliance to raise employee awareness. We also prevent the scatter of dust by running watering and dust collecting devices in front of furnaces 24-hours a day in mines and on-premises road surfaces, etc. In FY2020, SO_x, NO_x, and dust emissions fell significantly compared to the previous year due to decreased production and furnace repairs.

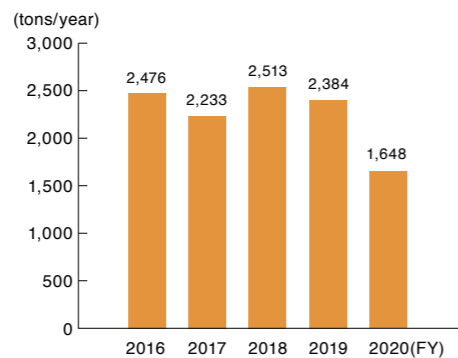


Water Sprinkler Truck

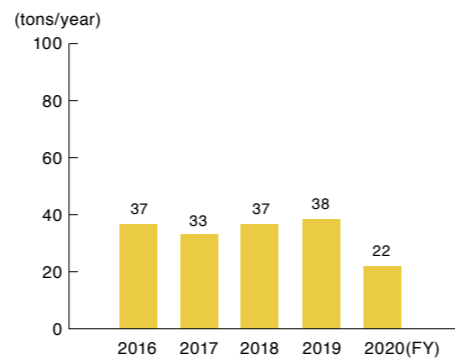
SO_x emissions



NO_x emissions



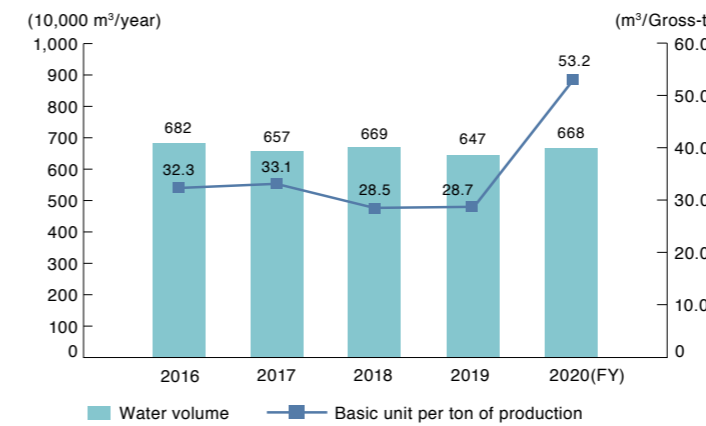
Dust emission



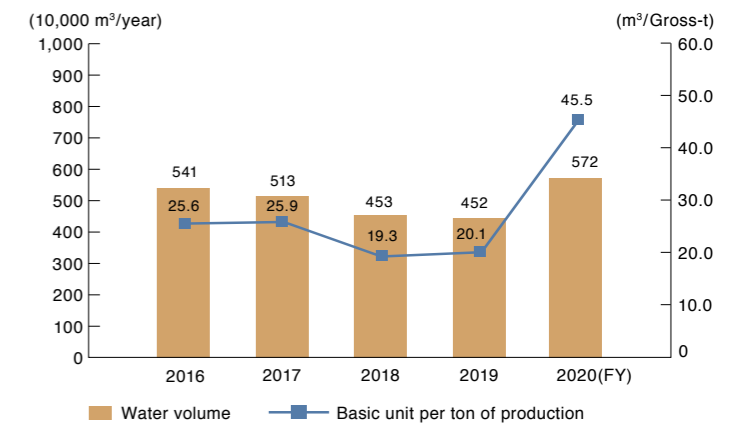
Water pollution control measures

We are making efforts to reduce the amount of water we use by using circulating water to cool electric furnaces and ferronickel slag. In addition to inspecting wastewater regularly, we manage it thoroughly on a daily basis through real-time monitoring using continuous surveillance monitors and employee patrols, etc. Furthermore, at our wastewater terminal treatment facilities, in addition to performing appropriate controls such as adjusting treatment water levels when turbidity concentrations rise during rainfall, we change the filtering media in the filters on a regular basis. Our wastewater terminal treatment facilities ran properly again in FY2020, and there were no values that exceeded the wastewater agreement value. There were no significant changes in the amounts of supplied water or wastewater, however, due to decreased production volumes, source units per production volume increased.

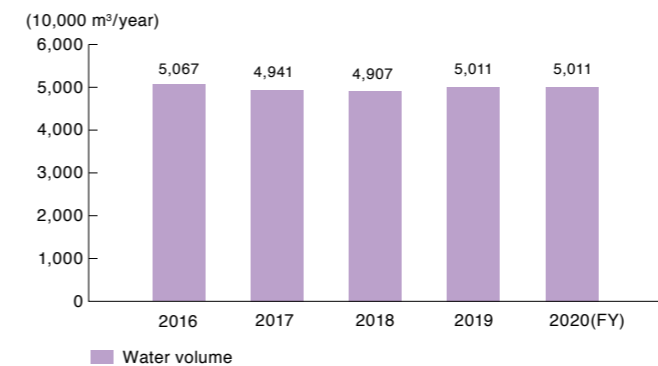
Water supply amount



Total drain water volume



Recycled water volume



Wastewater terminal treatment facilities

Green procurement initiatives

We have formed a policy of prioritizing procurement of products and services from suppliers that are working to reduce their environmental loads, and are striving to procure environmentally friendly products and services that must;

- Use reduced amounts of hazardous substances.
- Conserve resources and energy.
- Be available over the long term.
- Be reusable or recyclable.
- Use recycled materials and components. (products, containers, packaging materials)
- Be ease to disassemble and treat when discarded.

Initiatives for Reducing Environmental Impact - 2

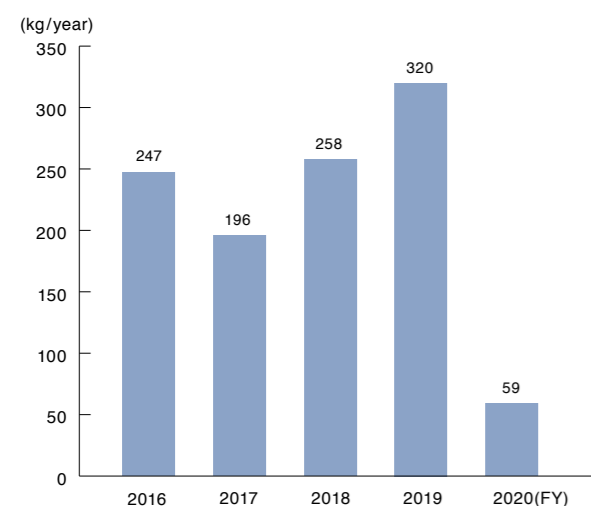


Proper management of chemical substances

Based on the PRTR system, we ascertain the amount of emissions from and movements of substances subject to notification and report them to the government every year. The four types of substances subject to PRTR notification in FY2020 are shown in the table below. We control the amounts of chemical substances we procure, use, and store, and are working to reduce the amounts of hazardous substances we use. Using a chemical control system procured in FY2019, we are controlling the chemicals used in testing more thoroughly than ever before.

Furthermore, since controlling the nickel compounds discharged from our ferronickel production process is one of our most important control items, we take various control measures, including 24-hour a day watering and cleaning with motorized sweepers.

■ Nickel compound emissions



Chemical management system

■ Substances subject to PRTR notification in FY2020

		Nickel compounds (kg/year)	Chromium and trivalent chromium compounds (kg/year)	Manganese and compounds thereof (kg/year)	Dioxins class compounds (mg/year)
Emission volumes	Atmospheric	44	14	8	0.004
	Waterways	14	0	0	0
	Soil	0	0	0	0
	Landfill	0	0	0	0
Transfer volumes	External waste	0	0	0	12

Observance of environmental laws and regulations

We regularly inspect business-use air conditioning, refrigerating, and freezing equipment in accordance with the Fluorocarbon Emissions Restraining Act. Inspection results revealed no leaks that needed to be reported. We also measured total mercury in exhaust gas from waste incinerators, which are classified as mercury discharge facilities under the Air Pollution Control Act, in accordance with the act and there were no mercury emissions that exceeded standards under the act.

We outsource the treatment of product waste that uses mercury (fluorescent lamps, etc.) appropriately in accordance with the Waste Disposal Act. With respect to PCB-containing equipment, we are eliminating the treatment of insulating oil containing trace amounts of PCBs in large transformers.

Initiatives for a recycling Society

In FY2020, we produced 98,000 tons of by-product ferronickel slag. Ferronickel slag is what remains after nickel and steel are extracted from ore, and its main components are silica and magnesia. Since it contains no hazardous Substances, it is effectively used as a soil covering material and earthwork material, etc.

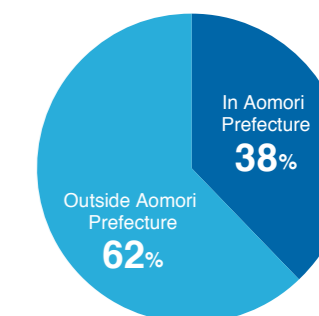
Furthermore, we recycle waste oil generated by our ferronickel production process and private power generation facilities in-house. Since we have all waste we cannot treat in-house recycled by subcontractor industrial waste treatment companies, we have achieved zero waste emissions.

We have participated in the “Aomori Eco Town” since 2007. We also contribute to local zero emissions efforts by effectively using waste as a resource, not alone, but together with multiple nearby companies.

■ Amount of industrial waste disposal subcontracted in FY2020

Type of Waste	Amount Disposed (t)	Type of Waste	Amount Disposed (t)
Dust (hazardous)	105.7	Waste plastics	56.4
Sludge	12.0	Waste plastic and metal scrap mixtures	0.0
Strong acid	2.9	Waste oil	0.9
Cinders (hazardous)	54.4	Wood scrap	18.2
Cinders	1.5	Asbestos	0.0
Waste alkali	13.9	Stable mixed waste	49.9
Waste alkali (hazardous)	0.1	Glass, concrete, and ceramic scrap	0.4
Flammable waste oil	0.2	Other waste	0.1
		Total	316.5

■ Percentage of slag processed products sold by region



Acquisition of environment-related technical qualifications

To enhance environmental awareness and strengthen our environmental control initiatives, we promote the acquisition of environment-related technical qualifications. Acquisition status is as shown below.

■ Number of environment-related technically qualified personnel

Name of qualification	Number of qualified personnel
Atmospheric pollution control manager - Type 1	17
Water quality pollution control manager - Type 1	13
Dioxin pollution control manager	8
Disposal courses relating to specially controlled industrial waste treatment businesses	1
Industrial waste incinerator technical manager	15
Industrial waste intermediate treatment facility technical manager	4
Garbage treatment facility technical manager	7
Crushing and recycling facility technical manager	2
Industrial waste final disposal site technical manager	1
Specially controlled industrial waste management supervisor	6

(As of March 31, 2021)