



Access Map



MINAMI INCINERATION PLANT

Environmental & Economic Affairs Bureau (Waste Disposal Facilities Administration)

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Tel: 042-754-1111

Minami Incineration Plant

1524-1 Asamizodai, Minami, Sagamihara, Kanagawa 252-0328 Japan

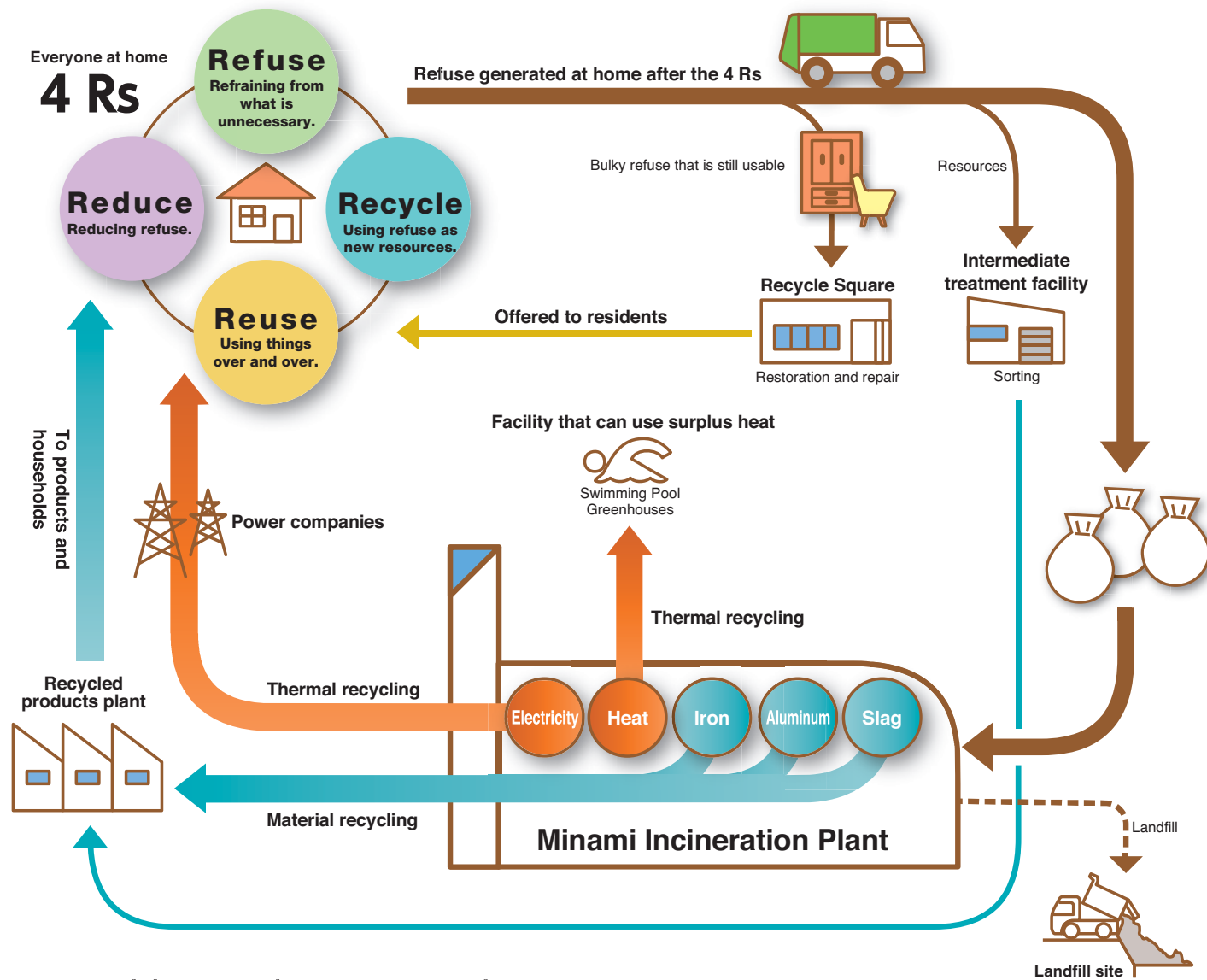
Tel: 042-748-1133



Environment-Friendly at the Minami Incineration Plant



How the Minami Incineration Plant Fits into a Sound Material-Cycle Society



Facility Highlights

Helping to Develop a "Sound Material-Cycle Society"

The "iron" and "aluminum" mixed in with refuse are recovered as resources, and the refuse is melted into "slag" that can be used as road material. **(Material recycling)**
 Moreover, power is generated using the thermal energy produced in the refuse treatment process. This power drives plant equipment and any surplus is supplied to power companies. This heat is also used for plant heating/cooling and hot water, and is supplied to a swimming pool and greenhouses nearby. **(Thermal recycling)**



Environment-Friendly Features

Helping in the Actions Against Climate Change and Pollution

In addition to energy on waste combustion, the plant has introduced the natural energy of sunlight, wind and other resources, and energy-saving technologies such as power-saving and water-saving. By making effective use of available energy sources, the plant is helping to reduce emissions of carbon dioxide, a main contributor to climate change.



Moreover, high-tech exhaust gas treatment systems have been built to minimize emissions of dioxins and other hazardous substances, and prevent pollution.

Promoting Environmental Education and Learning

The plant lends itself to educating the young, who will shoulder the next generation, as well as local residents about the environment.

Harmonious with the Surrounding Environment

Facilities were deliberately designed to be a good match with the surrounding landscape and environment, as can be seen by the way the curved roof with the Tanzawa Mountains and nearby grassy playground.



Sustainable Development Goals (SDGs)



The SDGs are 17 goals created under the 2030 Agenda for Sustainable Development. The 17 goals encompass 169 individual objectives for a sustainable world under the pledge, "no one will be left behind." The SDGs represent a universal effort involving all stakeholders including developed and developing countries. For its part, Japan is also engaged in active initiatives to support the SDGs.

In July 2020, the city of Sagami-hara was selected under the Japanese government's "Future City" initiative, which is supportive of the SDGs.

SDGs Addressed by the Minami Waste to Energy & Recovery Plant

At the Minami Waste to Energy & Recovery Plant, we are focused on supporting the following SDGs by contributing to the emergence of a society committed to recycling and introducing environment-friendly facilities.



7.2
 By 2030, increase substantially the share of renewable energy in the global energy mix.



11.6
 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.



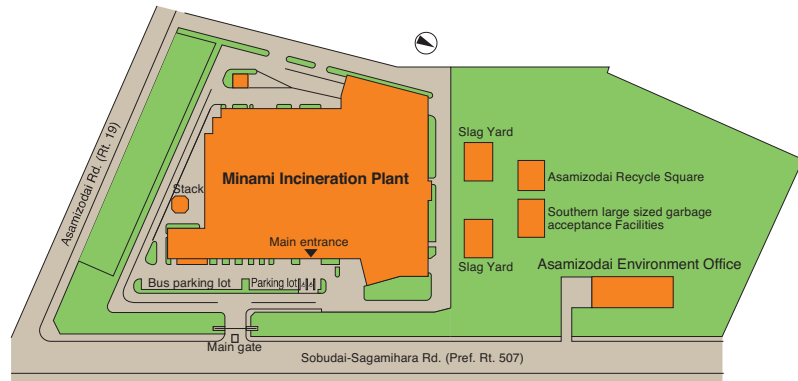
12.5
 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

Equipment and Systems

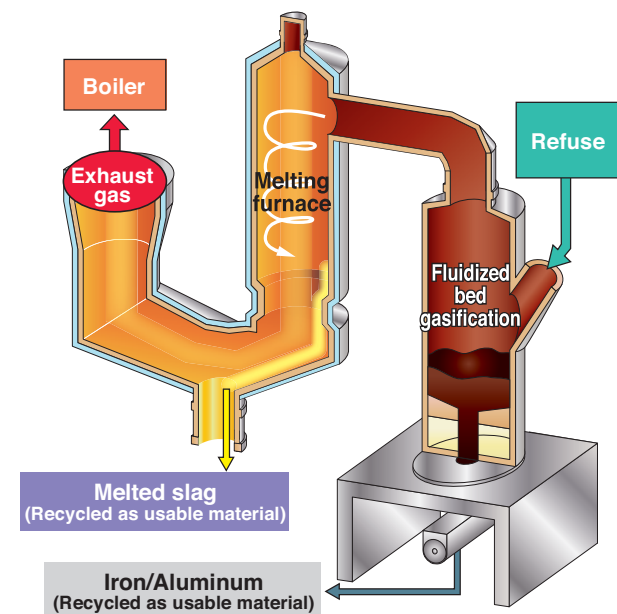
Facility Profile

- Name** Minami Incineration Plant
- Address** 1524-1 Asamizodai, Minami, Sagami-hara
- Site area** 47,119.1m²
- Completed** March 2010
- Processing capacity** 525 t/day (175 t/day × 3 furnaces)
- Furnace type** Fluidized bed gasification and swirling-flow melting furnace
- Power generation source** Steam turbine generator (Max. 10,000 kW)
- Building footprint** Approx. 9,700 m²
- Total floor area** Approx. 24,000 m²
- Building construction** Steel and reinforced concrete (6 floors aboveground, 1 floor belowground, 100 m stack)
- Main equipment**
 - Refuse leading: Refuse cranes, ash crane
 - Gas cooling: Refuse heat boiler
 - Exhaust gas treatment: Bag filter, scrubber, denitration reactor
 - Waste heat utilization: Within facility, supply to demand outside of facility (Greenhouse in Kanagawa prefectural Sagami-hara park, Civic Recreation and Culture Center)
- Design and construction** Kobelco Eco-Solutions Co., Ltd.

Site Map



Furnace



Refuse Incineration Area



6 Boiler

Steam is generated using the heat from burning refuse.



5 Melting Furnace

Ash is melted into slag at temperatures of about 1,200°C.

4 Fluidized Bed Gasification

Refuse is mixed with hot sand to decomposed into unburned gases, char and ash.

Slag discharge



Refuse Loading Area



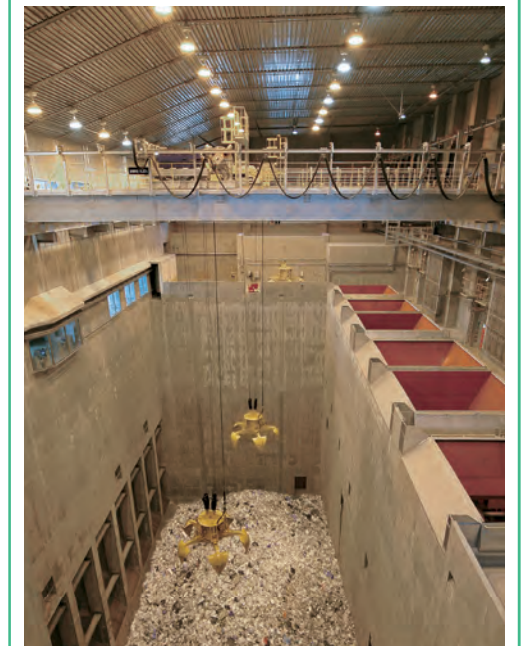
1 Weigh Machine

Transported refuse is weighed here.



2 Refuse Dumping Stage

After weighing, refuse is dumped into the refuse bunker.



3 Refuse Bunker and Refuse Cranes

Refuse in the bunker is stirred by cranes and then loaded into the refuse charging hoppers.

Exhaust Gas Treatment Area



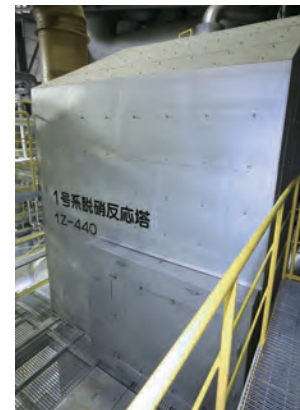
7 Bag Filter

Dust and dioxins contained in exhaust gas are removed.



8 Scrubber

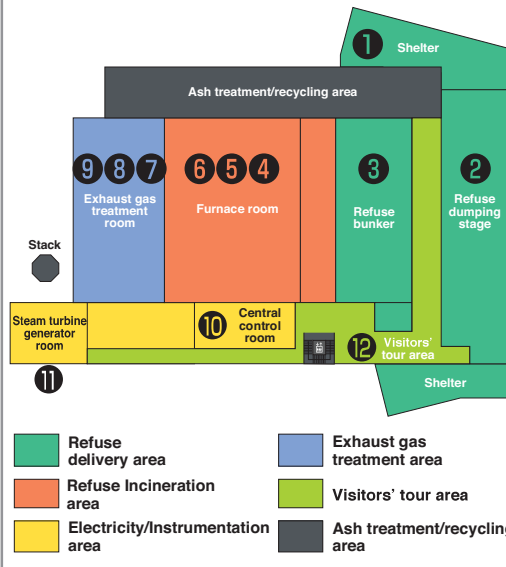
Exhaust gas is scrubbed to remove hydrogen chloride and sulfur oxides.



9 Denitration Reactor

Nitrogen oxides are broken down and dioxins and other harmful substances are removed by chemical reaction.

Internal Layout



Electricity/Instrumentation Area



10 Central Control Room

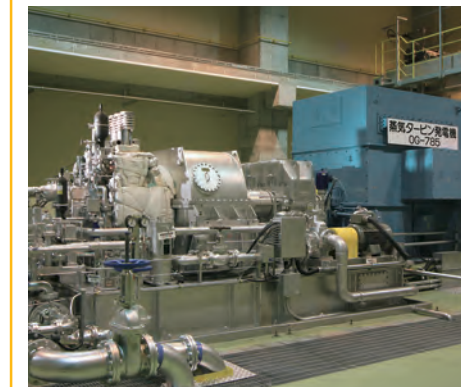
All the equipment and systems are monitored and controlled remotely.

Visitors' Tour Area



12 Visitors' Hall

Visitors' hall at the fifth floor has an actual size mural painting of a refuse crane so that visitors can realize the wide span of the crane.

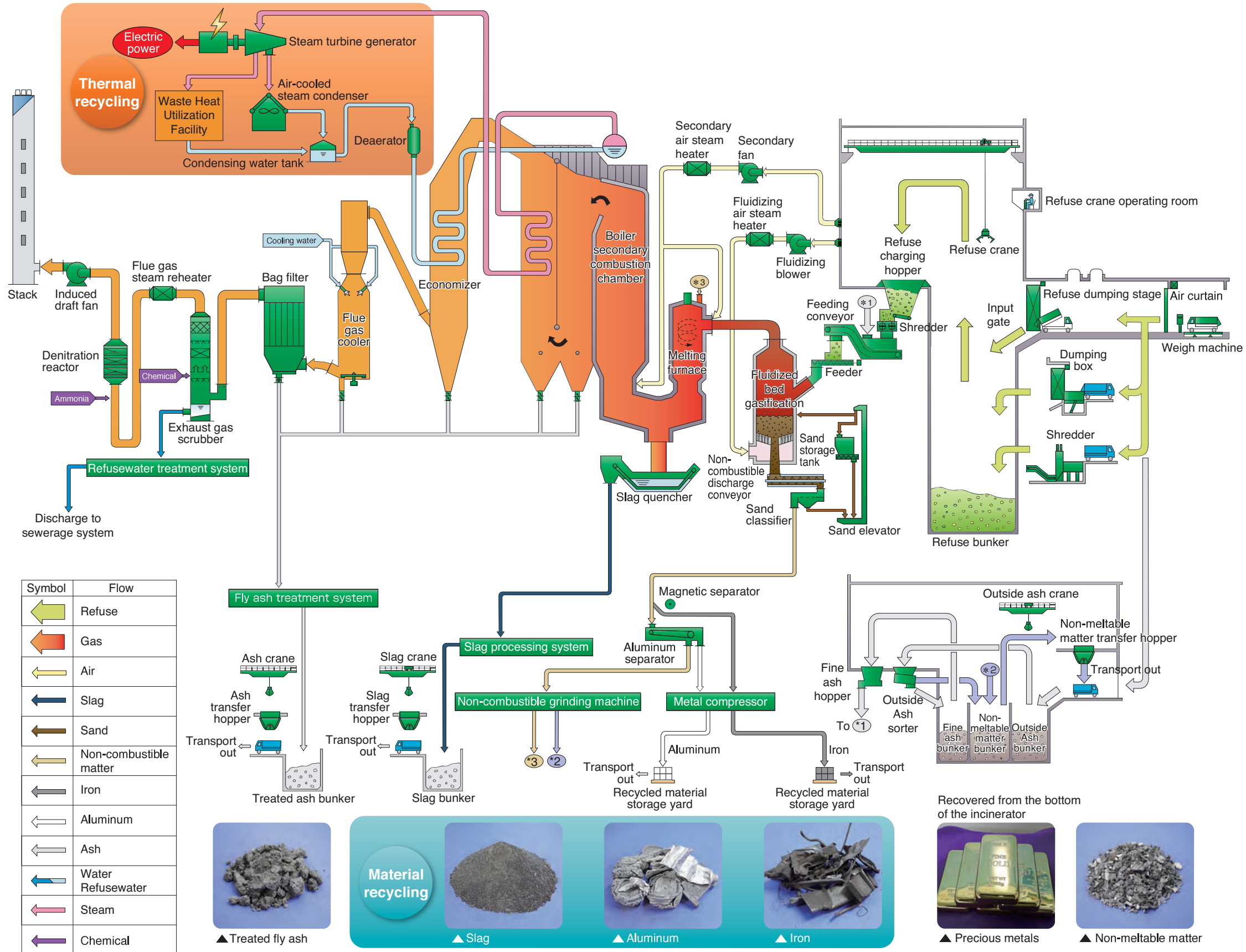


11 Steam Turbine Generator

A maximum 10,000 kW are generated using steam from the boiler.

Refuse Treatment Flow

In the process of treating refuse, the Minami Incineration Plant recovers slag, iron and aluminum (material recycling) and generates electricity and waste heat (thermal recycling).



Refuse Flow

Refuse brought to the plant is weighed and then dumped into the refuse bunker from the refuse dumping stage. In the refuse bunker, the refuse is stirred with the cranes and then dropped in the refuse charging hoppers. Next, the refuse is shredded by a shredder and fed into the fluidized bed gasification by a feeder. In the fluidized bed gasification, the refuse mixed with hot sand to be decomposed into combustible gases, char and ash. The combustible gases and char are fed into the melting furnace, and the ash is melted into slag at temperatures of about 1,200°C.

Exhaust Gas Flow

The hot exhaust gas resulting from complete combustion in the secondary combustion chamber is sent to the boiler where heat is recovered, and is then cooled to about 160°C by the flue gas cooler. It is then removed of dioxins and other harmful substances by a bag filter, scrubber and denitration reactor. After being cleaned, the exhaust gas is discharged into the atmosphere from the 100m tall stack.

Pollution Regulations

	Public regulation	Plant regulation
Nitrogen oxides ppm	Approx. 110 (16.06 m ³ N/hr)	30
Sulfur oxides ppm	Approx. 90 (13.4 m ³ N/hr)	10
Carbon monoxide ppm	100	30 (4 hr average)
Hydrogen chlorides ppm	430	10
Dust g/m ³ N	0.04	0.005
Dioxins ng-TEQ/m ³ N	0.1	0.05
Mercury mg/m ³ N	0.05	0.03

Thermal Recycling Flow

Steam is generated by the boiler using the heat from burning refuse. The steam drives a steam turbine generator to generate electric power. This power drives plant equipment and any surplus is supplied to power companies. The steam is also sent to greenhouses and a swimming pool where the waste heat can be utilized.

Material Recycling Flow

The slag from the melting furnace is quenched in a slag quencher, then treated and stored in a slag bunker. The slag is used as a road construction material. The metal mixed in with refuse is extracted from the bottom center of the fluidized bed gasification, non-meltable matters. The iron and aluminum are recovered and recycled as resources while sand and other are separated.