Recycle Power Generation Technology

Capable of both refuse disposal and resource conservation by burning domestic garbage and industrial wastes as fuel, recycle power generation plants are being introduced at various locations throughout Japan. The total output of these plants reached the 1,000,000 kW level in FY2002. For use to become more common, this technology needs to be further developed.

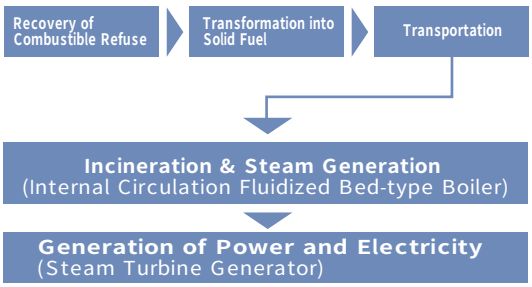
Kawasaki has been working on power generation plants that burn various types of refuse and industrial waste as fuel, addressing the challenges of recycle power generation. In FY2002, we made great achievements as evidenced by the installment of Japan's largest RDF power generation plant, and advances in our efforts to develop efficient woody biomass burning power generation plants.

●Control of dioxins by centralized refuse disposal, and RDF power generation

The RDF power generation generates electric power by burning a unique solid fuel (RDF) that is prepared by drying and reducing the volume of combustible refuses. One outstanding advantage of RDF power generation is that RDF is easy to transport and store compared to ordinary refuse. Another more important advantage is the capability of reliable dioxin control because smaller incinerators distributed in various municipalities, where dioxin control was very difficult, have been merged into a centralized large RDF power generation plant.

Currently, RDF power generation plants are operated at three locations in Japan, generating a total of 39,100 kW. Kawasaki has been conducting tion tests on an experimental basis, and have developed proprietary technology for a highly efficient Internal Circulation Fluidized Bed-type Boiler.

Thanks to this technology, the boiler of the Omuta Recycle Pow - duction capacity: 122 t/day) to the Omuta/Arao Sanitation Union.



※The Omuta Recycle Power Plant is run by the Omuta Recycle Power Co., Ltd., which was founded and is financed by Fukuoka Prefecture, Electric Power Development Co., Ltd., etc. and 28 associated local governments, including Omuta City, in Fukuoka and Kumamoto prefectures. A total of seven cooperatives serving these 28 municipalities in Fukuoka and Kumamoto prefectures take part in RDF processing. Each cooperative transforms refuse collected in its area into RDF and transports the obtained RDF to the Omuta Recycle Power Plant.

○RDF production

○Benefits of RDF

- RDF features a high density, because it is formed by compression, so it is conveniently stored and transported.
- RDF does not emit odor or putrefy, due to the drying and compression in the forming process and the addition of an antiseptic agent, and therefore it can be stored for an extended period.
- Uniform quality ensup_旨obtained by burning kerosene, then

non-combustible matters such as steel, aluminum and glass are removed from the refuse. These separated materials are recycled. Next, the refuse is further pulverized, an antiseptic agent is added, and it is formed into RDF.

ure corrosion of the heat
mperature in the heat ex-
sult, the steam obtained
eration plant was limited
wer-generation efficiency
pprox. 20%.
employed a fluidized-bed
ruction that can prevent
at high temperatures by
ea that is relatively free

●Recycle power generation by burning used paper and waste plastic materials as fuel

RPF, which is a solid fuel derived from used paper and waste plastic, can be used as an auxiliary fuel for waste power generation that burns paper sludge.

Waste power generation plant delivered in December 2002 burns RPF and paper sludge in the fluidized bed-type boiler and attains a power-generation efficiency of 25.7%. It generates 10,000 kW of electricity with steam generated at a rate of 50 t/h. Unlike conventional waste power generation plants, this plant burns paper sludge and RPF only rather than using fossil fuels, contributing to the reduction of CO_2 emission.