

# Initiatives for Reducing CO<sub>2</sub> Emission

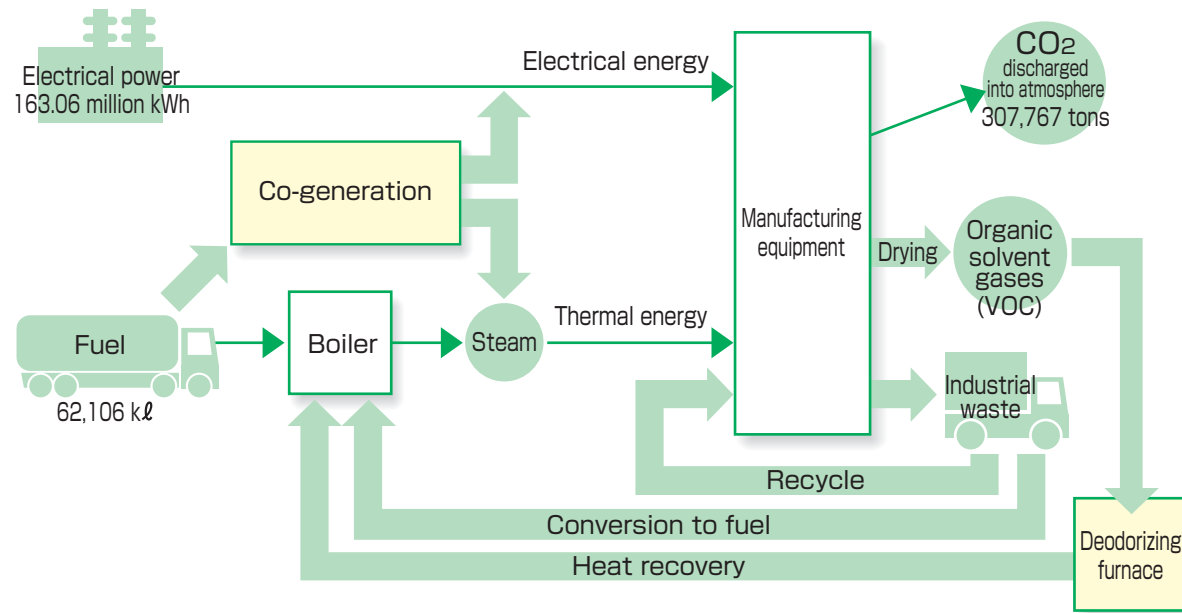
## Saving energy by co-generation

Co-generation (recovering heat in the form of steam produced when generating own power) is an effective means of controlling emission of carbon dioxide (CO<sub>2</sub>) and saving energy. The first co-generation unit was installed at the Toyohashi plant in 1999 and the second in 2000. The units have reduced emission of CO<sub>2</sub> and have im-

proved consumption of energy per product unit.

\*The conversion factor of the Japan Report (1994) based on "UN Convention on Climatic Change" published by the Government of Japan in 2001 is used for quantity of CO<sub>2</sub> resulting from consumption of electric power and fuel. Quantity of CO<sub>2</sub> emitted from deodorizing and incineration furnaces is calculated from analysis data.

## Energy flow

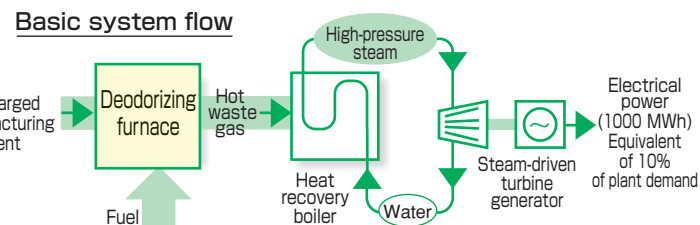


## New equipment at Toyohashi plant eligible for NEDO support

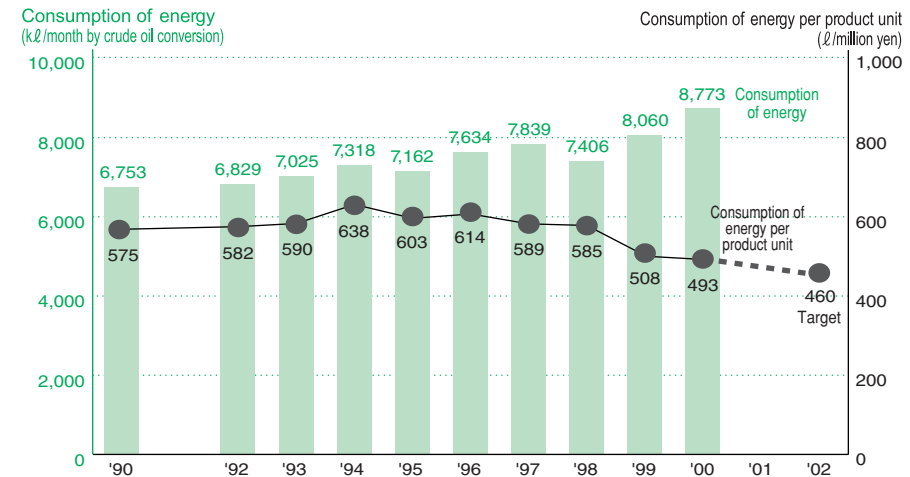
The turbine generator powered by a boiler heated by recycled heat from the deodorizing furnace was introduced with technical assistance of NEDO (New Energy and Industrial Technology Development Organization). The system converts surplus steam from a boiler heated by waste heat into electricity by means of a steam-driven turbine. The system effectively saves energy when demand fluctuates and can also adapt to fluctuation of heat to power ratio. Used in combination with co-generation, the system can cover 75% of the company's energy needs, and is able to save 245 kiloliters per month by crude oil conversion.



Steam turbine that produces electricity



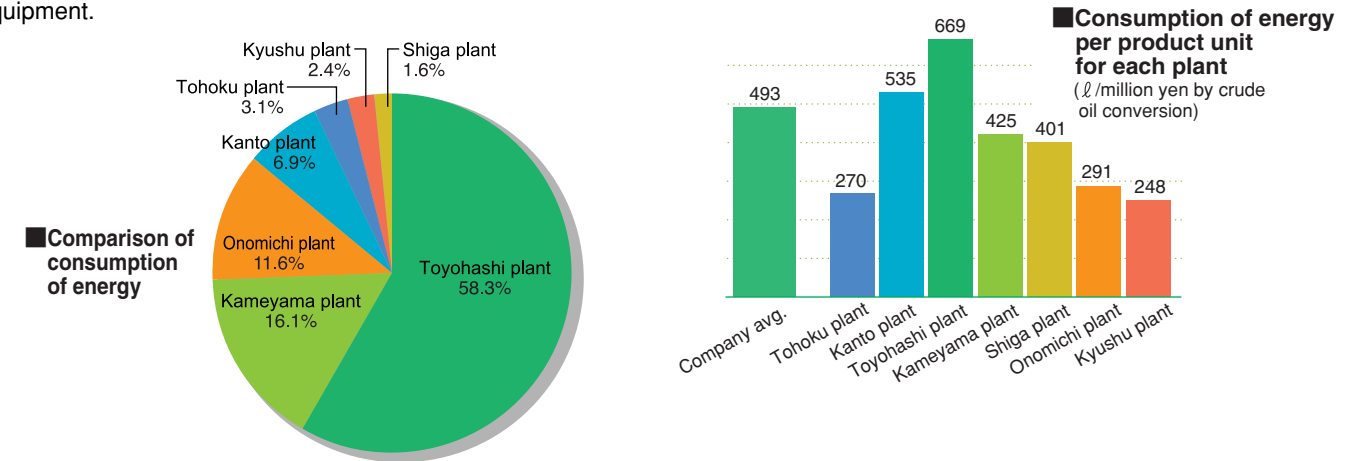
## Consumption of energy and Consumption of energy per product unit



In addition to the second co-generation unit at the Toyohashi plant beginning to operate, consumption of energy per product unit production of transdermal therapeutic patches at the Tohoku plant and other high value-added products at various plants. Now that the turbine generator powered by a boiler heated by recycled heat from the deodorizing furnace has begun operating, it appears the targets for fiscal 2002 will be achieved.

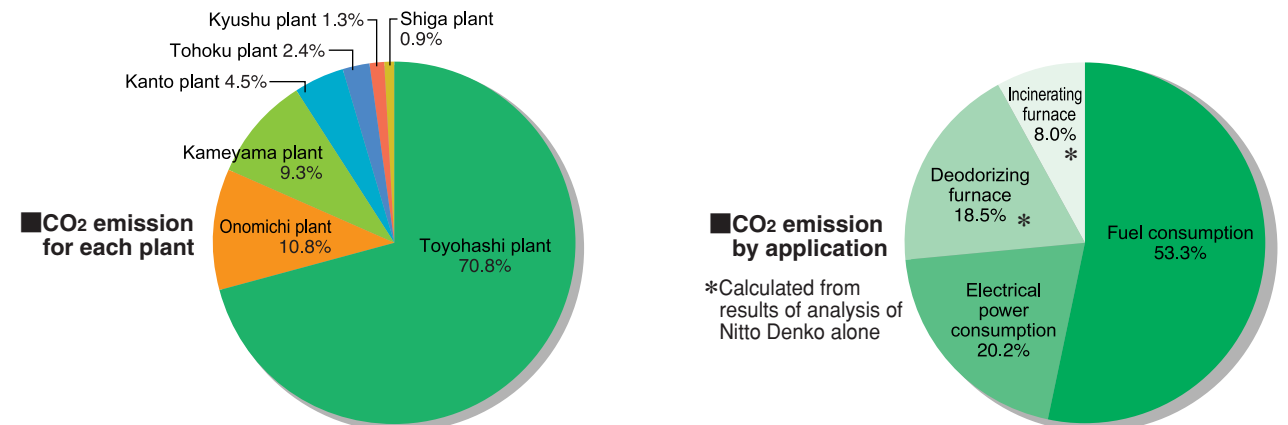
## Comparison of plants (fiscal 2000)

The Tohoku, Kanto and Kameyama plants are now considering following the Toyohashi plant by introducing co-generation equipment.



## Consumption of energy and CO<sub>2</sub> emission (fiscal 2000)

The ratio of CO<sub>2</sub> emission has decreased by about 19% together with a decrease in power consumption, compared with the previous year by application, but increased by 15% due to fuel consumption. This is primarily due to introduction of co-generation.



CO<sub>2</sub> emission by application

\*Calculated from results of analysis of Nitto Denko alone