

# Energy Conservation Strategy

By Hara Eiji

Total energy consumption in Japan showed a high annual growth rate of 12.4% during the years 1960 to 1970, when the economy grew at an unprecedentedly high rate of 10% per year. The annual increase in total energy consumption, however, declined to 0.4% during the seven years (fiscal 1979 to

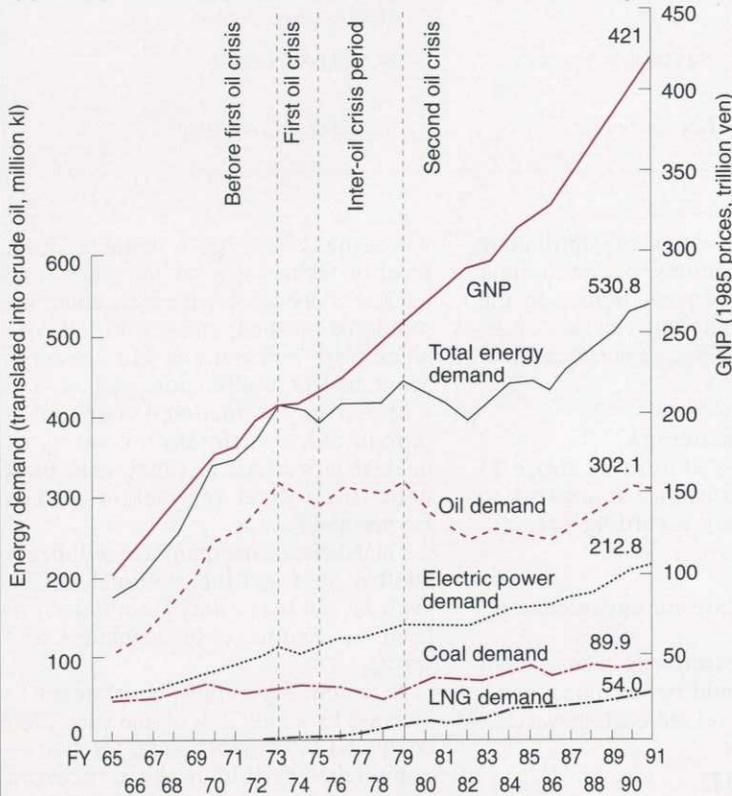
fiscal 1986) following the second oil crisis, reflecting a more efficient use of energy and the industrial structural transformations which followed the two oil crises.

From fiscal 1987 to fiscal 1990, due to a booming economy, domestic demand and relatively low energy

prices, energy consumption increased and recorded an average growth of 4.4% during these four years. Thereafter, the increase in energy consumption declined to 2.6% in fiscal 1991 and 0.5% in fiscal 1992 due to a slowing economy that then lapsed into a recession.

## Change in Energy Demand and GNP

### (1) Change in Energy Demand



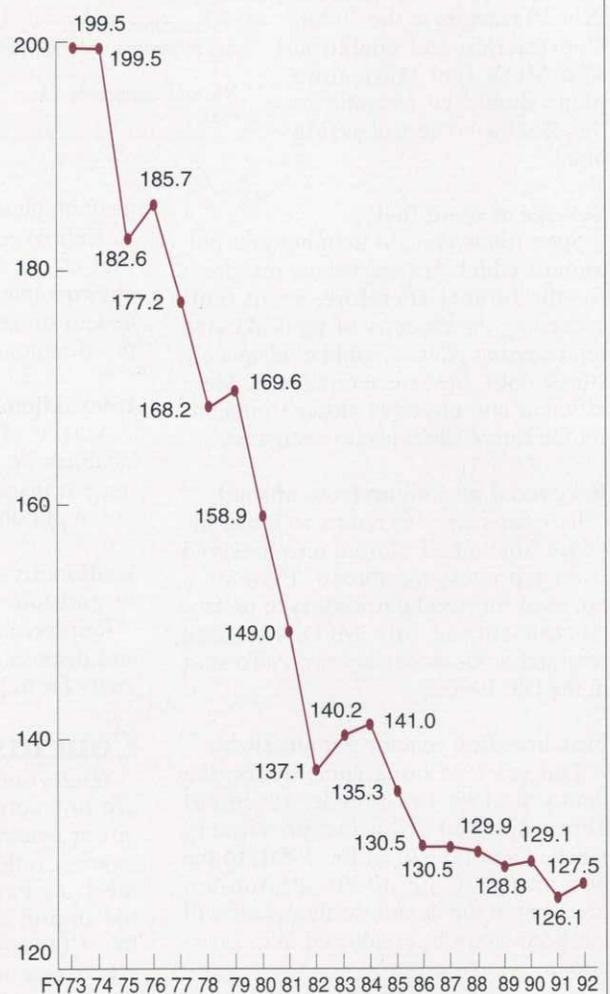
### (2) Change in GNP Elasticity of Energy Demand

Category	FY	1965~73	1974~75	1976~79	1980~82	1983~91
GNP growth		9.1%	1.9%	4.9%	3.3%	4.5%
Average annual growth in energy demand		11.1%	-2.5%	2.9%	-3.8%	3.4%
GNP elasticity of energy demand		1.2	—	0.6	—	0.8

Source: Energy Balances in Japan, Annual Report on National Account, Summary on Electric Demand and Supply

### Change in Unit Energy Consumption Relative to GNP

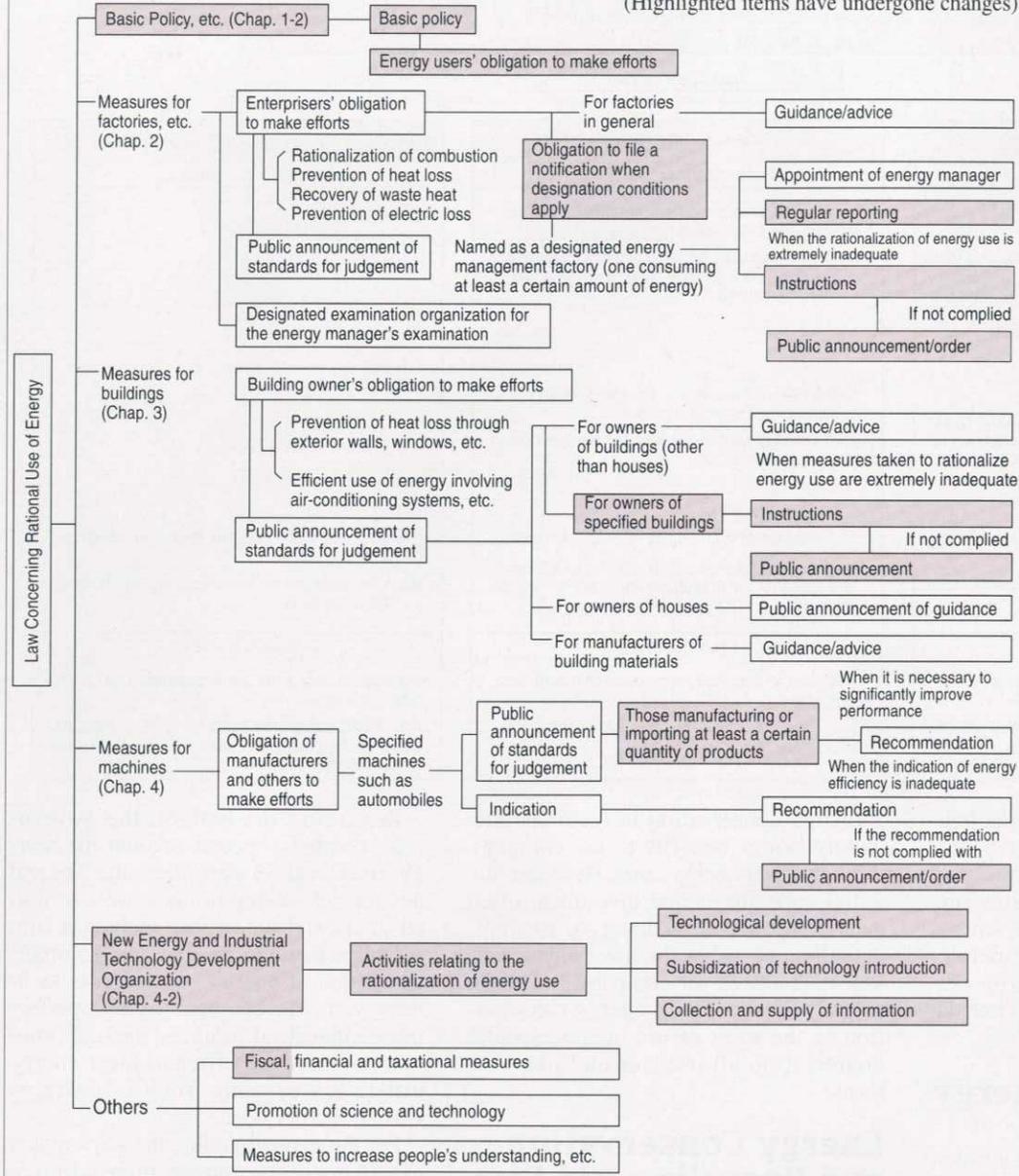
(kl/¥100 million)



Note: GNP based on FY85 prices

## Schematic Representation of the Law Concerning Rational Use of Energy

(Highlighted items have undergone changes)



Unit energy consumption relative to GNP improved by 37% from fiscal 1973, the year of the first oil crisis, to fiscal 1991. In particular, efficiency in industrial energy consumption substantially improved and in four industries—iron and steel, cement, paper & pulp, and petrochemical—accounting for 45% of total industrial energy con-

sumption in Japan, unit energy consumption declined 20% to 40% after fiscal 1973.

Triggered by the two oil crises, the importance of energy conservation is keenly felt in Japan and the government has implemented various measures, which can be divided into the following three areas: explicit guidelines based on

the Energy Conservation Law; supportive measures through budget, taxes, and financing; and public relations activities to encourage energy savings.

Amid a recent surge in concern over the greenhouse effect, which led to increased demand for further energy conservation, the government decided to expand its policy in 1993.

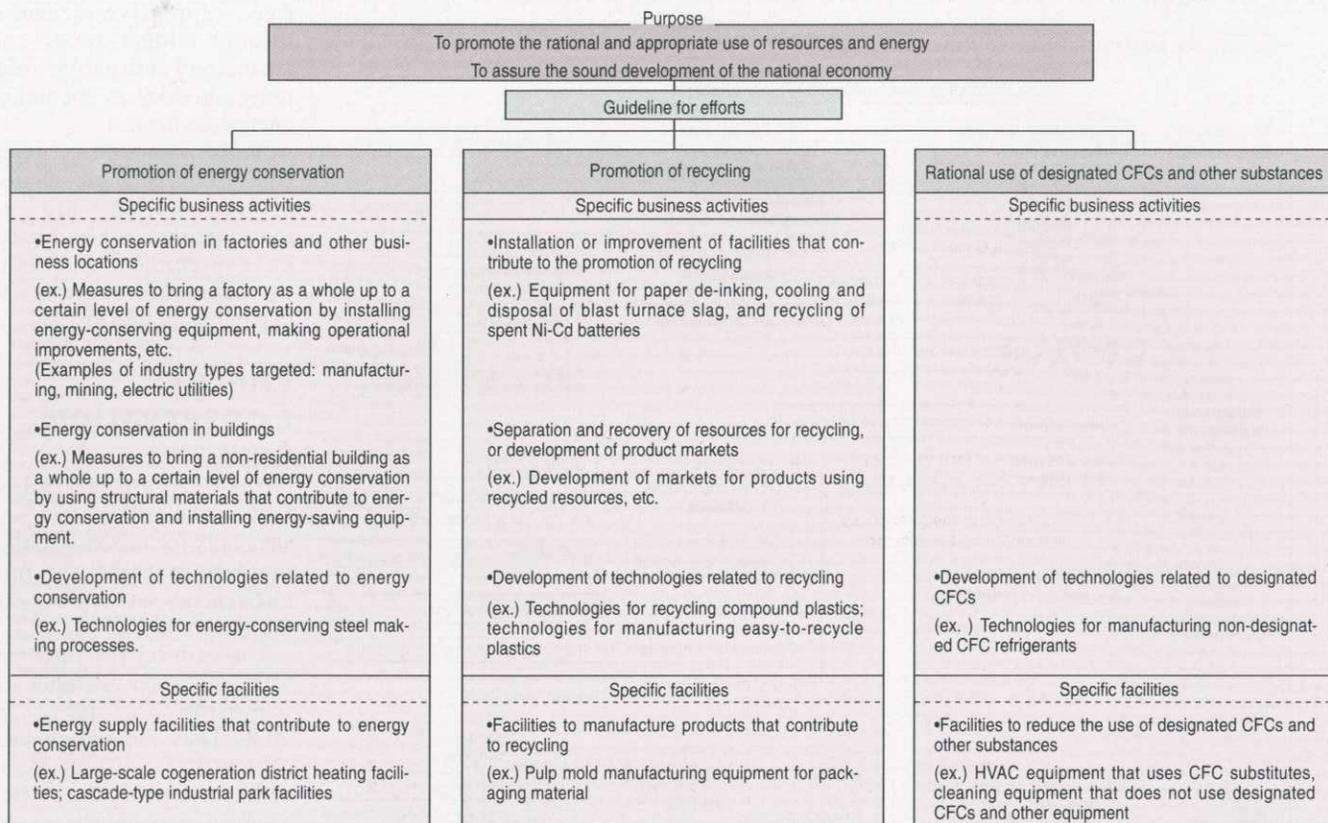
## Energy Conservation Law

The Energy Conservation Law, introduced in 1979, sets standards for factories, buildings and machinery to promote energy saving efforts by the owners.

The criteria for factories were published just after the inauguration of the law in 1979. They include numerical targets for efficiency and other requirements (for example, periodic checks and maintenance) in the fields of rationalization of fuel combustion, prevention of thermal loss, and recycling of disposed heat. Moreover, there are additional special provisions for plants with high energy consumption, including a mandate for managers to be trained in energy management.

For buildings, criteria have been published for houses and commercial buildings. And for machinery, the government designated that certain items be held to the criteria based on their diffusion. Just after the inauguration of the law in 1979, air conditioners, refrigerators and gasoline cars were so designated. Later, refrigerators were excluded as their energy efficiency improved. In April of this year, fluorescent lights, television sets and copying machines were newly designated in rela-

### Schema of the Law on Temporary Measures to Promote Business Activities for the Rational Use of Energy and the Utilization of Recycled Resources



tion to recent intensification of the policy, which will be explained later. For these items, manufacturers are informed of medium- to long-term standards and, in an attempt to bring consumer choice and pressure on a widespread variety of energy saving products, an energy efficiency rating on each product is mandatory.

## Revision of the Energy Conservation Law

The Energy Conservation Law was revised in March 1993 to strengthen additional regulations in factories, buildings and machinery and to assign energy saving-related operations to the New Energy and Industrial Technology Developing Organization (NEDO). According to this recent revision, a basic policy was drawn up and criteria were revised for factories and buildings with new items covered, like fluorescent lights, TVs, and copying machines.

Energy conservation in factories ultimately brings benefits to the company through lower energy costs. However, the initial costs for capital investment often deter companies from doing so. To eliminate these obstacles the government provides incentives for companies to make capital investments in energy conservation in the form of tax breaks, special depreciation allowances and low cost loans.

## Energy Conservation and Recycling Aid Law

The Energy Conservation and Recycling Aid Law was passed in March 1993, with stronger supportive measures for energy conservation capital investment in factories and buildings. The new law provides stronger support, including loan guarantees and super low interest rate loans for capital investments that will achieve higher energy savings than specified in the criteria.

Regarding the budget, the government created a special account for energy conservation activities and several new energy saving projects were initiated in fiscal 1993. These include a subsidiary scheme to promote the commercialization of energy conservation technology, the development of high performance industrial furnaces, and a promotion to introduce efficient local energy utilization systems, such as utilizing wasted factory heat.

For the general public, the government provides energy conservation information. A national center for energy savings, the Energy Conservation Center, was established in 1978 and has been publicizing its message through television, the press, pamphlets and posters. ■

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