

Japan's Policies to Deal with Global Warming

(1) Guideline for measures to prevent global warming

On March 19, 2002, the meeting of “the Global Warming Prevention Headquarters” was held in Prime Minister's official residence, where the members agreed on “Guideline for Measures to Prevent Global Warming”. The guideline presents a broad picture of measures to realize Japan's targets set in the Kyoto protocol (6% reduction in relation to the 1990 level) and is made up of more than 100 measures and action plans. What needs to be stressed here is that the guideline sets a reduction goal for each greenhouse gas respectively. For instance, in terms of the CO₂ originating from the use of fossil fuels, the emission level should be reduced to exactly the same level as that of 1990. And the emission level of CO₂ from non-fossil fuels (e.g. waste incineration), methane and dinitrogen monoxide should be reduced by 0.5% in relation to the 1990 level. In terms of CFCs substitute, the emission level should be curtailed to the 1% increase compared with the base year (1995).

(2) Kyoto protocol target achievement plan

Since Japan ratified the Kyoto Protocol in June 2002, the country has been actively promoting the implementation of measures to reduce greenhouse gas emissions, including measures for energy conservation and new forms of energy, based on the Guideline for Measures to Prevent Global Warming. The government evaluated and reviewed the outline in FY2004, designated as the year for carrying out these tasks.

The Law Concerning the Promotion of Measures to Cope with Global Warming stipulates that a plan for reaching the target should be established when the Kyoto Protocol comes into effect. In response to the protocol coming into effect in February 2005, the Kyoto Protocol Target Achievement Plan was established, succeeding the Guideline for Measures to Prevent Global Warming as a result of its evaluation and review in FY2004 (Cabinet decision on April 28, 2005). The goals of this plan are to fulfill the commitment of 6% reduction and to further reduce greenhouse gas emissions globally and continuously over a long term. In addition, this plan contains the following items as its basic concepts: environmental conservation consistent with economic development, the promotion of technological innovation, the participation of all entities and partnership between them as well as the securing of transparency and the sharing of information to ensure the participation and partnership, the utilization of various policy tools, emphasis on the process of PDCA (plan-do-check-action), and international partnership for the implementation of measures to address global warming. The table below shows measures to change the country's energy supply-demand structure and structure a CO₂ reducing type of society.

Source) Prepared from “Materials 3-1 for the 27th Meeting of the Global Environment Subcommittee of the Industrial Structure Council”

Creation of CO₂ Reduction Type Society

Spatial or network measures

Creation of regional/urban structures and socio-economic systems of CO₂ reduction type

CO₂ reduction type of urban design

- Promotion of Spatial utilization of energy (District heating and cooling, etc.)
- Joint efforts between different entities (Joint energy management of integrated facilities or several buildings by utilizing IT)
- CO₂ reduction through improvement of the environment deterioration by heat by implementing measures against heat island effects, including the planting of trees

Designing of a CO₂ reduction type of transportation system

- Utilization of public transportation systems (Improvement in public transportation systems and convenience, and commuting transportation management, etc.)
- Use of eco-friendly automobiles (Dissemination of idling stop and eco-friendly driving, etc.)
- Establishment of a system to ensure smooth road traffic (Regulation of the demand for automobile traffic and the introduction of intelligent transportation systems)
- Realization of environmentally sustainable transportation (EST) (Trial in leading areas)

Formation of a CO₂ reduction type logistics system

- CO₂ reduction by joint efforts of cargo owners and transportation companies (Revision of the Energy Conservation Law, Green Transportation Partnership Conference)
- Furthering of more efficient transportation (Modal shift, more efficient truck transportation)

Spatial utilization of new energy and the accommodation of energy

- Establishment of networks for distributed new energy system
- Utilization of biomass
- Effective use of unused energy sources (Energy generated from temperature differences, energy of snow and ice, heat from waste incineration)
- Accommodation of energy between entities (Accommodation of waste heat generated in factories in an industrial complex)

Measures taken by a company or other individual entities

Efforts by manufacturers

- Steady implementation of individual action plans
- Thorough energy management in factories
- Efforts in the residential and transportation divisions in the industrial sector

Efforts by transportation

- Use of eco-friendly automobiles (described above)
- CO₂ reduction by joint efforts between cargo owners and transportation companies (described above)
- Furthering of more efficient transportation (described above)

CO₂ reduction in offices and stores

- Steady implementation of individual action plans
- Thorough energy management based on the Energy Conservation Law
- Improvement in the energy conservation performance of buildings
- Dissemination of BEMS (building energy management systems)

CO₂ reduction in households

- Improvement in the energy conservation performance of housing
- Dissemination of HEMS (Home energy management systems)

CO₂ reduction in the energy supply sectors

- Steady promotion of nuclear power generation
- Promotion of efficient use of oil and LP gas
- Lowering of CO₂ emissions intensity in the electric power field
- Shift to natural gas
- Promotion of introduction of new energy
- Realization of society using hydrogen

Individual measures

Measures for machinery

Measures by equipment in the industrial sector

- Introduction of machinery and equipment with high energy conservation performance
- Highly efficient industrial furnaces
- Next generation coke ovens

Measures for equipment in the transportation sector

- Dissemination of vehicles that meet the top runner standards
- Dissemination of fuel-efficient automobiles
- Dissemination of clean energy automobiles
- Control of the running speed of large trucks
- Introduction of equipment for idling stop
- Introduction of sulfur-free fuel
- Improvement in energy efficiency in the railroad, vessel and aircraft sections

Measures for equipment in offices, stores and households

- Improvement in the efficiency of equipment based on the top runner standards
- Provision of information on energy conservation type equipment
- Support for dissemination and technological development of energy conservation type machinery, including highly efficient water heaters
- Reduction of standby energy

(3) Reinforcement of energy conservation measures in each sector

1) Background

As part of the agreement reached at the COP3, held in Kyoto in December 1997, Japan pledged a 6% reduction in greenhouse gas emissions from the 1990 level, to be achieved in terms of the average annual value for the 2008–2012 period. CO₂ emissions reduction measures related to energy use by each sector are listed below.

2) Measures for achieving the goal and expected effect

(Unit:1,000kl-oe)

	Items for achieving the goal	additional measures or notes in 2005	Prospect in 2010 (as of May 2007)	
			Expected Minimum Effect	Expected Maximum Effect
Industrial Sector	Implementation of Keidanren Voluntary Action Plan on the Environment	Reflect improvement effect on energy intensity.	14,980	14,980
	Introduction of energy conservation equipment such as high performance furnaces, boilers		1,080	1,600
	Energy conservation by coordination among adjacent factories	Implement energy conservation by sharing waste heat etc. among multiple factories. (Support coordinated projects in major industrial complexes.)	450	1,000
	Reinforcement of energy management	Reinforce energy management in middle- to small-sized factories based on the Energy Conservation Law, expand target factories under the Law planned to be revised in 2005 and so on.	400	400
	Dissemination of fuel-efficient construction machine in construction sector	Encourage to use fuel-efficient construction machine and actively utilize it in public works.	100	100
Commercial/Residential Sector	Efficiency improvement of equipment by top runner standards	Review the top runner standards (9 items) and add electric rice cookers, microwave ovens and others to the target products.	6,100	6,100
	Reduction of standby power consumption		400	400
	Improvement of energy saving performance (Buildings, Houses)	Expect to further improve energy efficiency of buildings, newly built houses and existing houses under the Energy Conservation Law planned to be revised in 2005.	11,300	11,300
	Dissemination of energy saving equipment such as high efficient water heater, lighting (LED), air-conditioner, and refrigerator		2,600	3,100
	Provision of energy information to consumers by energy supply businesses etc.	Expect that consumers select energy saving products and use energy more efficiently by providing information to encourage them to save energy.	500	1,000
	Promotion of replacement with energy saving equipment	Expect the effect of the replacement of or with electric pots, dish washing machine, compact fluorescent lamps, water-saving shower heads and energy saving devices for air-conditioning compressor.	1,800	1,800
	Dissemination of HEMS and BEMS		1,600	2,200
Transportation Sector	Improvement of fuel efficiency of vehicles by top runner standards	Add LP gas passenger vehicles to the target products.	8,700	8,700
	Dissemination of clean energy vehicles	About 2.3 million vehicles	200	900
	Introduction of sulphur-free fuel and vehicles that can run on the fuel		0	100
	Support the introduction of idling stop vehicles	Expect to be disseminated at an accelerated rate by means of support measures for	10	20
	Energy saving measures concerning transportation system such as promotion of use of public transportation, modal shift to rail freight, and improvement of energy efficiency of rail and air		11,200	12,200
Supply	New energy		15,040	19,100
	Promotion of introduction of cogeneration with natural gas	Add the effect of measures for gas engine water heaters.	4,980	5,030
	Promotion of introduction of fuel cell		20	2,200
	Reduction of CO ₂ emissions intensity in electricity sector by promoting nuclear power	Reduce CO ₂ emissions intensity (Emission per unit of user end electricity) by approx. 20% in FY 2010 compared to the FY1990 level.		

Source) Prepared from “Material-1 at the 11th meeting of the Energy Efficiency and Conservation Subcommittee of the Advisory Committee on Energy and Natural Resource”