Chapter 3

Policies and Measures

3.1 Promoting Efforts for Achieving Kyoto Protocol Targets

3.1.1 Background and Significance of the Revised Kyoto Protocol Target Achievement Plan

Japan has promoted countermeasures against global warming in various ways, including the establishment of the Action Program to Arrest Global Warming (1990), Basic Policy on Measures to Tackle Global Warming (1999), and the Outline for Promotion of Efforts to Prevent Global Warming (1998, 2002).

The 2002 Outline for Promotion of Efforts to Prevent Global Warming was set to be evaluated and revised in 2004. In addition, the Law Concerning the Promotion of the Measures to Cope with Global Warming (hereinafter, the “Act on Promotion of Global Warming Countermeasures”) stipulated the establishment of the Kyoto Protocol Target Achievement Plan upon the effectuation of the Kyoto Protocol.

In response, the Kyoto Protocol Target Achievement Plan was drafted in April 2005 following the establishment of the Outline for Promotion of Efforts to Prevent Global Warming, Action Program to Arrest Global Warming, and Basic Policy on Measures to Tackle Global Warming. Based on the Act on Promotion of Global Warming Countermeasures, the plan was drafted in order to stipulate the measures necessary for reliably achieving the Kyoto Protocol’s commitment of six percent emission cuts, and as a result of the 2004 evaluation and revision of the Outline for Promotion of Efforts to Prevent Global Warming.

In 2007, the revised Act on Promotion of Global Warming Countermeasures provided that a study shall be conducted concerning the targets and programs prescribed in the Kyoto Protocol Target Achievement Plan and that any changes to the Plan should be promptly enacted if found necessary based on the results of the study (Article 9). Therefore, the Plan was completely revised in March 2008.

Upon revising the Plan, technical considerations were made by expert councils as the Central Environment Council (Ministry of the Environment), Industrial Structure Council, Advisory Committee on Energy and Natural Resources (both of which belong to the Ministry of Economy, Trade and Infrastructure), Council for Social Infrastructure, and the Council for Transport Policy (both of which belong to the Ministry of Land, Infrastructure, Transport and Tourism).

Specifically, considerations were made for approximately one year beginning at the end of 2006 on such details as additional countermeasures and programs, after evaluating the progress of current countermeasures and programs and conducting forecasts on greenhouse gas emission amounts.

In examining such, public opinion has been reflected in these considerations by listening to the opinions of the industrial sector, local authorities, NGOs, and other bodies, while also conducting procedures for public comments. Persons were also allowed to sit in on meetings and meeting materials as well as agenda overviews were released publicly in an effort to ensure transparency of discussions.

Later in March 2008, the Global Warming Prevention Headquarters, which is composed of all Cabinet members, completed a proposal for the plan's revision and amendments to the Kyoto Protocol Target Achievement Plan were adopted by the Cabinet. This chapter will describe the policies and measures related to global warming in Japan as stipulated by this Plan.

The policies and measures listed in pages 2-62 were established using greenhouse gas emission amounts based on inventory information submitted to the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat in 2007 as well as the latest available information at the time.

Extracts from "Kyoto Protocol Target Achievement Plan, totally revised March 28, 2008) "

Chapter 1 Basic Direction of Promotion of Global Warming Countermeasures

Section 1 Direction of Japan's Global Warming Countermeasures

Japan will steadily achieve its 6% reduction commitment under the Kyoto Protocol. In addition, Japan will further aim at long-term, continuous and substantial emissions reduction.

The 21st century is known as the "century of the environment" and the response to the global warming issue is becoming an important challenge shared by all humans. In this context, Japan, as a leading environmentally advanced nation that is a model for other countries, will take the role of leading the world with respect to the global warming issue.

I. Steady Achievement of the 6% Reduction Commitment under the Kyoto Protocol

Japan will promote the measures necessary to achieve its commitment under the Kyoto Protocol to reduce its total greenhouse gas emissions by 6% from the base year level in the first commitment period (2008-2012).

During the Kyoto Protocol commitment period, the later we take measures, the more drastic ones we will have to adopt to attain large reductions over a short period to achieve the 6% reduction commitment. Thus, Japan intends to steadily reduce emissions by promptly implementing the measures and policies which are feasible at the present stage.

II. Further Long-term and Continuous Reduction of Greenhouse Gas Emissions on a Global Scale

Achievement of the reduction commitments of developed countries stipulated in the Kyoto Protocol is a significant milestone toward achieving the ultimate objective of the UNFCCC: stabilization of greenhouse gas concentrations in the atmosphere. Furthermore, Japan is proposing as a long-term global common goal "to cut greenhouse gas emissions by half from the current level by 2050" in the "Cool Earth 50," which it announced in May 2007. In order to contribute to the achievement of this goal, Japan will first work to achieve its 6% reduction commitment under the Kyoto Protocol and will further take the lead on a long-term, continuous and substantial

emissions reduction.

From this perspective, the Government positioned the measures and policies to achieve the 6% reduction commitment in overall measures toward its mid-term strategies beyond 2012 and long-term strategies up to 2050 based on the “Cool Earth 50,” and will aim to build a low-carbon society which incorporates greenhouse gas emissions reduction along with innovative technology development while ensuring the consistency of the efforts to achieve the Kyoto Protocol commitment and these mid- and long-term efforts.

Furthermore, because the causes and impacts of global warming are indeed global, Japan will continue efforts to ensure international cooperation on global warming countermeasures to lead to worldwide emissions reduction.

Section 2 Basic Philosophy of Global Warming Countermeasures

Greenhouse gas emissions are closely related to economic activities and citizens' lives. Therefore, the Government will boldly implement global warming countermeasures, founded on the basic philosophy of "compatibility between the environment and the economy."

Aiming to be a world-leading environmental nation, Japan will promote innovative technology development and creation of a low-carbon society, encourage the participation and collaboration of national and local governments, business operators and citizens, and try to ensure transparency and share information in order to achieve it.

Japan will ensure the achievement of its 6% reduction commitment by promoting countermeasures with diverse policy instruments and by strengthening progress management such as quantitative evaluations and reviews of countermeasures. Japan will also ensure

I. Compatibility Between the Environment and the Economy

So that the efforts to achieve the 6% reduction commitment under the Kyoto Protocol can also lead to Japan's economic revitalization, employment creation and other benefits, the Government will take full advantage of technological innovation and its originality and ingenuity to develop and build mechanisms that contribute to compatibility between the environment and the economy.

Specifically, to realize sound economic development with a small environmental burden and a high quality of life for citizens while reducing greenhouse gas emissions, the Government will develop and disseminate energy-saving devices, improve the efficiency of energy use, further accelerate technology development, and move to reform citizens' lifestyles and working styles. In addition, the Government will boldly implement global warming countermeasures which entail transformations of wide-ranging socioeconomic systems.

II. Innovative Technology Development and Creation of a Low-carbon Society

To achieve the Kyoto Protocol commitment and also promote the long-term and continuous emissions reduction toward a "low-carbon society," it is ultimately necessary to reduce our dependency on fossil fuels.

In order to achieve these targets ensuring compatibility between the environment and the economy, Japan will aim to be a world-leading environmental nation not only by accelerating the dissemination of existing technologies and effective measures, but also by undertaking the following: improving its environmental and energy technologies such as energy conservation,

renewable energy and nuclear energy; promoting creative technological innovations; disseminating efficient devices and cutting-edge systems; and moving to reform the foundational structure of society such as citizens' lifestyles and urban and traffic systems.

III. Promotion of the Participation and Collaboration of All Actors and Ensuring of Transparency and Sharing of Information to That End

The global warming issue is deeply involved with all aspects of socioeconomic activities, communities and life of citizens, so it is necessary for all actors including the national and local governments, business operators and citizens to participate and collaborate in the efforts on this issue.

For this reason, the Government will promote the active participation of all actors in measures and policies, and will strengthen collaboration between each actor by actively providing and sharing information concerning the progress of global warming countermeasures.

The Government will actively provide and share, in as visible a manner as possible, knowledge about the increasingly serious global warming issue and information about the specific actions demanding enormous efforts to achieve the 6% reduction commitment and about what each individual must do. The Government will carry out public relations and dissemination activities on these topics to improve the awareness of households and enterprises and rouse them to take action.

IV. Utilization of Diverse Policy Instruments

In order to meticulously take into account the conditions in each sector, realize the potential for emissions reductions as much as possible, fully mobilize all types of policy instruments and work toward effective and efficient control of greenhouse gases, the Government will consider the fairness of the cost burden on each actor and effectively utilize diverse policy instruments such as voluntary, regulatory, economic and informational ones, while taking advantage of their special characteristics.

Particularly, to ensure wide-ranging emission control effects, the Government will place importance on incentive policies utilizing economic instruments which induce technology development and countermeasures introduction overcoming cost constraints.

V. Placing of Importance on the Evaluation and Review Process (PDCA)

In order to constantly assess the effectiveness of this Plan and make it reliable, each year after

formulation of this Plan, the Government will rigorously inspect the progress of the policies for each countermeasure using countermeasure evaluation indices and others, and will expeditiously revise the Plan to add or strengthen measures and policies as necessary.

To promptly take effective additional measures and policies in and after FY2010 (the middle year of the first commitment period) to achieve the target, in FY2009 the Government will comprehensively evaluate the progresses of measures and policies in this Plan and the state of emissions, based on the projection of Japan's greenhouse gas emissions during the whole first commitment period (five years).

For this reason, this Plan clearly specifies the following: targets by type of greenhouse gas or other category; individual countermeasures and their evaluation indices; estimated volume of greenhouse gas emissions reductions; each actor's roles and efforts for the countermeasures; and policies of the national and local governments (For details, refer to Chapter 4, Section 1).

VI. Ensuring of International Cooperation on Global Warming Countermeasures

Since the causes and impacts of global warming are indeed global, it is essential for all major emitting countries to endeavor to reduce greenhouse gases in an effective way so as to ensure the effectiveness of the global warming countermeasures. Not only efforts by each country, but also further efforts through international cooperation are indispensable. Therefore, Japan will unceasingly continue to put in its utmost efforts based on the "Cool Earth 50" in order to create an effective framework beyond 2012 in which all major emitters will participate.

Moreover, carbon dioxide emissions are projected to rapidly increase as a result of the future population growth and economic development on a global scale. Therefore, Japan, which has superior technological capabilities and accumulated experience in environmental conservation, will take a leading role in the world's efforts to combat global warming through international cooperation. From the viewpoints of responding to the global warming issue and freeing ourselves from fossil fuel resource constraints, it is necessary to create a "Low Carbon Society," in which citizens can feel the affluence in their life and at the same time the atmospheric greenhouse gas concentrations are stabilized at a level that has no negative impact on the climate, by substantially reducing greenhouse gas emissions from fossil fuel consumption to the level equivalent to the capacity of natural sinks.

Chapter 3 Measures and Policies to Achieve the Targets

Section 1 Basic Roles of the National and Local Governments, Business Operators and Citizens

The national government has the role of comprehensively promoting global warming countermeasures and taking the initiative in implementing such countermeasures. Local governments, business operators and citizens are required to undertake the roles appropriate for their respective positions.

Concerning the promotion of global warming countermeasures, the national government is to have the following basic roles, and local governments, business operators and citizens are required to undertake the following roles.

If all the actors are aware of their roles and closely collaborate with each other to promote the countermeasures, it is expected that synergistic results exceeding those of efforts by each actor alone can be obtained.

I. Basic Roles of the National Government

1. Comprehensive Promotion of Global Warming Countermeasures by Mobilizing Diverse Policy Instruments

Taking account of the fact that it is essential to reconsider socioeconomic activities and lifestyles that involve mass production, mass consumption and mass disposal to reduce greenhouse gas emissions, the national government has the roles of forming the overall framework of Japan's global warming countermeasures and comprehensively implementing the countermeasures through promotion of this Plan. Furthermore, all national government agencies are to promote the countermeasures by sufficiently collaborating in line with this overall framework and mobilizing diverse policy instruments including voluntary, regulatory, economic and informational ones, environmental impact assessment, social capital development.

In addition, when implementing a policy whose major objective is not prevention of global warming, each national government agency will make arrangements so that it can also contribute to the control of greenhouse gas emissions.

2. Taking the Initiative in Implementing Countermeasures

The national government will take the lead in implementing measures to reduce the greenhouse gas emissions and to conserve and strengthen the removal effects concerning its own administration and undertakings, while placing importance on promoting dissemination of such measures to the entire society.

II. Basic Roles of Local Governments

1. Implementation of Countermeasures in Accordance with the Local Characteristics

Local governments will endeavor to formulate and implement comprehensive, plan-based programs for the control of greenhouse gas emissions, in accordance with the natural and social conditions of their local areas.

For example, local governments will develop pioneering, highly original and ingenious countermeasures tailored to the natural and social conditions in their areas, including low-carbon town planning, promotion of the use of public transport systems and bicycles, introduction of renewable energy such as biomass energy, and promotion of waste management closely related to local residents.

Through the revisions to the Act on Promotion of Global Warming Countermeasures, the Government will prompt prefectures, government-designated cities, core cities and special case cities to stipulate the following programs in their local government action plans: encouragement of solar and wind power utilization; promotion of activities for the control of the greenhouse gas emissions from business operators or residents in their local areas; improvement of the convenience for passengers using public transport; conservation and expansion of green spaces in urban areas; and promotion of waste generation control.

2. Taking the Initiative in Implementing Countermeasures

Local governments themselves are required to be a model in their areas by taking the initiative in implementing global warming countermeasures. To this end, they will formulate and implement action plans for their administration and undertakings, including public schools [1] and hospitals, based on the Act on Promotion of Global Warming Countermeasures.

3. Information Provision and Activity Promotion for Local Residents, etc.

When prefectural and major municipal Promotion Centers for Climate Change Action, Climate Change Action Officers or Regional Councils on Global Warming Countermeasures have been designated, commissioned or organized in order to give meticulous support to local residents and enterprises, local governments will endeavor to utilize them to provide education, support private organizations, introduce pioneering efforts and offer consultations.

III. Basic Roles of Business Operators

1. Highly Original and Ingenious Efforts

Each business operator will voluntarily and actively implement appropriate, effective and

[1] Excluded are the schools belonging to public universities established based on the Local Independent Administrative Agency Act (Act No.118 of 2003).

efficient global warming countermeasures with originality and ingenuity in a wide range of fields in the light of the nature of its business activities. Each business operator will promote efforts contributing to greenhouse gas emissions control by other actors to the extent possible. Such efforts include development of CO_2-saving[2] products and reduction of waste generation.

2. Efforts Based on the Social Role of Business Operators

Business operators, as members of society, will individually or collectively formulate voluntary plans and inspect the implementation of those plans. They will also provide environmental education to employees and collaborate with labor unions, consumer groups or community groups to work toward the control of greenhouse gases. In addition, they will cooperate with the policies of national and local governments.

3. Reduction of Environmental Burdens Throughout the Life Cycle of Products and Services Provided

Business operators providing final-consumption products will monitor greenhouse gas emissions or other data throughout the life cycle of their products and services, and will make efforts to provide ones with lower environmental burdens. They will also provide information concerning greenhouse gas reduction by their products and services.

IV. Basic Roles of Citizens

1. Control of Greenhouse Gas Emissions Arising From Daily Life

Being aware that the increase in greenhouse gas emissions in recent years is closely related to the life of citizens, namely the *residential* and *transport* (private automobile) sectors, citizens will actively work toward the reform of lifestyles involving mass consumption and mass disposal.

Specifically, citizens will monitor their own energy consumption and greenhouse gas emissions, and choose a CO_2-saving lifestyle. For example, they will try the following: taking part in the campaign “Team Minus 6%” including *Cool Biz* and *Warm Biz*, which require proper temperature setting of cooling and heating; installing heat insulation in their houses; switching to energy-saving devices; and using public transport and bicycles.

Citizens will also exert meticulous efforts such as saving electricity like standby power, and refraining from unnecessary or unhasty automobile use.

2. Participation in Global Warming Countermeasure Activities

Citizens will further deepen their understanding of the global warming issue and undertake

[2] In this Plan, *CO_2-saving* refers to the control or reduction of carbon dioxide emissions through countermeasures on the energy demand side, such as promotion of energy conservation, or countermeasures on the energy supply side, such as promotion of nuclear power and introduction of renewable energy.

efforts in collaboration with all actors. The efforts include active participation in global warming countermeasure activities such as a national campaign to promote the 3Rs (***R***educe waste generation, and ***R***euse and ***R***ecycle recyclable resources of manufactured goods and the like), forest fostering and other tree-planting campaigns.

Section 2 Global Warming Measures and Policies

I. Measures and Policies for Greenhouse Gas Emissions Reduction and Removal

1. Measures and Policies for Greenhouse Gas Emissions Reduction

(1) Energy-originated Carbon Dioxide

The Government will implement all of the measures and policies based on the following six basic philosophies.

○ Shift From an Individual Approach to an Integrated Approach

The Government will continue to promote conventional measures for individual energy-related devices or places of business, and at the same time will rethink Japan's energy supply-demand structure from an integrated, wide-ranging perspective in order to change the structure itself into a CO_2-saving one. In other words, it will endeavor to maximize CO_2-saving effects through such measures as reforming Japan's socioeconomic structure, including urban/regional structures and public transport infrastructure, and designing low-carbon cities and transport systems.

○ Transcending the Boundaries Between Actors

Each actor involved in energy supply and demand will appropriately be aware of their own roles and aim to further improve energy efficiency in collaboration with other suppliers and consumers of energy, not just within the areas they directly manage. They will work to control carbon dioxide emissions in as wide a range of sectors as possible. For example, the industrial community can actively contribute to CO_2 saving in the *consumer* and *transport* sectors.

○ Approaches From Both Supply and Demand Sides Placing Priority on Demand Side Countermeasures

In order to effectively implement CO_2-saving countermeasures, it is necessary to take measures on both energy supply and demand sides. To produce results at an early time, first of all, the Government will place priority on countermeasures on the energy demand side and set a goal of becoming an "energy-conservation nation serving as a model for the world." Although a certain amount of time is required to develop and reform infrastructure for energy supply side countermeasures, the Government will make every effort to continue their steady promotion.

○ Approaches Placing Priority on Improvement of Intensities

With a view to steady advancement of CO_2-saving countermeasures, the Government

will place priority on promoting emission control by improving the energy intensity and the carbon dioxide emissions intensity per unit of energy consumption through increasing the efficiency of energy use.

Specifically, it will work on the following: utilization of such frameworks as voluntary action plans of industry, the Energy Conservation Act and the Top-runner Program; dissemination of energy-saving devices and automobiles; introduction of highly energy-efficient buildings and houses; traffic flow management and improvement of the efficiency of logistics systems; and mutual energy accommodation at the regional level.

In order to improve the carbon dioxide emissions intensity in the *energy conversion* sector, the Government will steadily promote such efforts as implementation of nuclear power generation and introduction of renewable energy.

○ Effective Measures to Respond to the Factors Behind Increases in Emissions

Looking at carbon dioxide emissions trends by sector, the emissions from the *industrial* sector, accounting for approximately 40% of emissions on the demand side, have not shown much change, and those from the *transport* sector, accounting for around 20%, have been on a downward trend. On the other hand, the emissions from the *commercial and other* sector, accounting for about 20%, and those from the *residential* sector, accounting for approximately 10%, have greatly increased.

For this reason, the Government will steadily promote countermeasures in the *industrial* and *transport* sectors, while drastically strengthening effective countermeasures in the *commercial and other* and *residential* sectors.

○ Change of Every Citizen’s Lifestyle and Working Style

Beyond the countermeasures in individual sectors, and based on not only short-term but mid- and long-term points of view, the Government will strengthen countermeasures so that every citizen will be urged to change their lifestyle and working style to give their total efforts to curtailing greenhouse gas emissions.

Table 3.1 Overview of Countermeasures Concerning Energy-originated Carbon Dioxide

Formation of low-carbon urban/regional structures and socio-economic systems		**Low-carbon Urban/Regional Designs** Realization of compact, low-carbon urban structures Measures at the block and district levels Promotion of area-wide energy usage Efforts transcending the individual boundaries between actors Decarbonization of urban areas through improving the thermal environment by urban greening and other heat island countermeasures Measures for extending the useful life of housing **Low-carbon Transport and Logistics System Designs** Construction of low-carbon transport systems Formation of low-carbon logistics systems
	Measures and policies by sector	**Efforts in the *Industrial* Sector (Manufacturers, etc.)** Promotion and reinforcement of voluntary action plans of industry Promotion of introduction of highly energy-efficient equipment and devices ○ Dissemination of energy-efficient devices in the manufacturing field ○Dissemination of fuel-efficient construction machinery in the construction field Thorough energy management, etc. ○ Thorough energy management in factories and workplaces ○ Implementation of emissions reduction measures for small and medium sized enterprises ○ Efforts in the agriculture, forestry and fisheries industry ○ Efforts by the industrial community in the *consumer* and *transport* sectors **Efforts in the *Commercial and Other* Sector** Promotion and reinforcement of voluntary action plans of industry Initiatives by public organizations ○ Initiatives by the national government ○Initiatives by local governments ○ Promotion of the initiatives by other public organizations CO_2 saving of buildings, equipment and devices ○ Improvement of the energy efficiency performance of buildings ○ Decarbonization of urban areas through improving the thermal environment by urban greening and other heat island countermeasures ○Dissemination of energy management systems ○ Improvement of the efficiency of devices based on the Top-runner standards ○ Support for the development and dissemination of high-efficient energy-saving devices Thorough energy management, etc. ○Thorough energy management in factories and workplaces ○ Implementation of emissions reduction measures for small and medium sized enterprises ○ Initiatives in water supply and sewerage systems and waste management Development of national campaigns

Efforts in the *Residential* Sector

Development of national campaigns

CO_2 saving of houses, equipment and devices

○ Improvement of the energy efficiency performance of houses

○ Dissemination of energy management systems

○ Improvement of the efficiency of devices based on the Top-runner standards

○ Support for the development and dissemination of high-efficient energy-saving devices

Efforts in the *Transport* Sector

Automobile/road traffic measures

○ Improvements in the fuel efficiency of automobile, etc.

○ Promotion of traffic flow management

○ Promotion of the environmentally-friendly usage of vehicles

○ Development of national campaigns

Promotion of public transport utilization, etc.

○ Promotion of public transport utilization

○ Promotion of the development and introduction of energy-efficient railways, ships and aircrafts

Promotion of telework and other transport substitution by information and communications technology

Promotion and reinforcement of voluntary action plans of industry

Improvement of the efficiency of logistics systems, etc.

○ Implementation of CO_2 saving by cooperation between shippers and logistics operators

○ Promotion of modal shifts, increase of truck transport efficiency, etc.

○ Promotion of dissemination of the Certification Program for Green Management

Efforts in the *Energy Conversion* Sector

Promotion and reinforcement of voluntary action plans of industry

○ Reduction of carbon dioxide emissions intensity in the electric power sector

Efforts by energy type

○ Steady implementation of nuclear power generation

○ Introduction and utilization expansion of natural gas

○ Promotion of the efficient use of petroleum

○ Promotion of the efficient use of liquefied petroleum gas

○ Realization of a hydrogen society

Measures for renewable energy

○ Promotion of the introduction of renewable energy, etc. ○ Promotion of biomass utilization

○ Initiatives in water supply and sewerage systems and waste management

(i) Formation of Low-carbon Urban/Regional Structures and Socioeconomic Systems

It is quite effective to incorporate efficient energy use structurally through sweeping reviews of urban/regional structures and transport systems or reviews of socioeconomic systems with collaboration among energy consumers.

Therefore, the Government will work toward building a "low-carbon society" by commencing the transformation of urban/regional structures and socioeconomic systems from a mid- and long-term perspective at the earliest possible time.

In particular, the Government will reconstruct urban structures into low-carbon ones since urban structures can have a big impact on global warming, taking into account the aims of the Improvement Plan for Cities and Urban Lives.[3]

Furthermore, the Government will formulate and improve policies based on regional voices through the invitation of proposals concerning the special zones for structural reform and the regional revival.

A. Low-carbon Urban/Regional Designs

Since the improvement of energy use efficiency is very effective in urban areas with high energy demand density, the Government will improve the energy environment of urban areas by means of area-wide energy usage or heat island countermeasures, while extending the useful life of housing, building and infrastructure. The Government will also encourage low-carbon urban/regional development by realizing cities with minimal environmental loads, or "Compact Cities," where urban functions are allocated within walking distance.

○Realization of Compact, Low-carbon Urban Structures

Aiming to realize a compact urban structure in which various urban functions are concentrated centering on public transport, the Government will ensure suitable location of large-scale customer-attracting facilities and other functions. It will also encourage the buildup of those functions by means of maintaining and revitalizing central urban districts, while promoting coordinated urban/regional transport strategies.

Furthermore, in an effort to carry out area-wide measures including the promotion of public transport utilization and the untapped energy and natural capital usage, the Government will support the establishment of effective carbon dioxide reduction plans through reduction simulations. In addition, the Government will aim to reconstruct the urban structures into low-carbon ones through improving energy efficiency of housing, building and infrastructure, extending their useful life, constructing ring roads, and implementing heat island countermeasures.

[3] Recognized at the Third Regional Meeting of the Regional Revitalization Headquarters (January 29, 2008)

The Government will promote the creation of *environmental model cities* out of around ten cities selected from all over the country, which will take on pioneering efforts by setting challenging goals for drastic greenhouse gas reductions.

○ Measures at the Block and District Levels

Taking advantage of urban development and other opportunities, the Government will promote the construction of low-carbon cities through introduction of area-wide measures at the block and district levels, for example, bringing in pioneering measures to an entire district or complex buildings, which are anticipated to lead to drastic reductions in carbon dioxide emissions by the efforts through public-private partnership.

○ Promotion of Area-wide Energy Usage

In local areas, large CO_2-saving benefits can be expected from efficient area-wide energy usage including efficient energy supply to multiple facilities and buildings, mutual energy accommodation among facilities and buildings, and utilization of untapped energy. Therefore, the Government will intensively introduce multiple renewable energy-utilizing equipment to blocks, districts or buildings, and will actively introduce and disseminate environmentally outstanding district heating and cooling, keeping in mind the characteristics of each area, the promoting actor, the feasibility of each measure, etc.

For this reason, in order for a wide range of stakeholders including national and local governments, energy suppliers, local developers to collaborate and select efficient energy based on evaluations from the perspectives of the global and city environment, and to improve the understanding and promote the cooperation of people on the demand side like building users, the Government will continue to take such measures as the promotion of area-wide energy usage under the cooperation among multiple buildings at block and district levels, by indicating areas of potential area-wide energy usage, implementing pioneering model projects, or promoting environmental improvements by information provision. The Government will also continue to implement policies including the utilization of city planning systems.

○ Efforts Transcending the Individual Boundaries Between Actors

In order to promote CO_2 saving in an entire building or facility such as multi-tenant building or housing complex, the Government will activate efforts transcending the individual boundaries between actors like building owners, tenants and energy suppliers.

For this reason, the Government will utilize information technology to promote efforts such as energy management and control for an entire area, collective energy management for multiple buildings and facility-wide energy management.

○ Decarbonization of Urban Areas Through Improving the Thermal Environment by Urban

Greening and Other Heat Island Countermeasures

The Government will promote decarbonization of urban areas through improving the thermal environment by utilizing the knowledge obtained from scientific observations, studies and researches on the heat island phenomenon and implementing comprehensive heat island policies.

The Government will try to decrease anthropogenic exhaust heat from air-conditioning equipment, automobiles or the like by promoting the improvement in energy efficiency of equipment and the utilization of untapped energy. In addition, the Government will work for the improvement of the urban lifestyle and working style including proper temperature setting of cooling and heating, which leads to the mitigation of heat island phenomenon.

From the perspective of preventing and improving the decline in evapotranspiration effect and the rise in surface temperature caused by the artificial surface covering, the Government will take the following measures to improve area-wide land coverage: keeping green areas through the creation of urban parks; greening public spaces and government and other public facilities; greening the premises of buildings through utilization of the greening region system; using spring water or reclaimed wastewater; utilizing road paving materials that can control the rise in road surface temperatures; introducing integrally such technologies as water-retentive building materials and highly reflective coatings; and preserving privately-owned green areas and agricultural lands.

In addition, with a view to forming and utilizing green islands serving as sources of cold air and securing wind passages like green and water areas, the Government will work to improve the city form by the followng measures: conserving the green areas remaining in cities; carrying out facility greening such as rooftop and wall surface greening; creating urban parks; promoting the formation of water and greenery networks through collaboration among projects on parks, roads, rivers, *sabo* (erosion and sediment control), ports or sewage systems; and building cities with small environmental burdens.

○ Measures for Extending the Useful Life of Housing

Toward the realization of a sustainable society, the Government will promote measures for *"200-year Housing,"* which is designed to have long useful life, in order to contribute to CO_2 saving and other environmental burden reduction through long-term use of housing in good condition. These measures include the encouragement of construction and appropriate maintenance of housing with superior performances in durability, ease of maintenance, energy efficiency or the like.

B. Low-Carbon Transport and Logistics System Designs

○ Construction of Low-Carbon Transport Systems

In order to increase the efficiency of transport systems, the Government, coupled with realization of a compact urban structure, will implement comprehensive measures including the following: traffic jam alleviation; traffic demand management; development of traffic safety facilities such as traffic signals; and promotion of the use of public transport systems.

○ Formation of Low-Carbon Logistics Systems

To promote the greening of the overall logistics system, the Government will strengthen and expand the efforts under the cooperation among shippers and logistics operators, while promoting *modal shifts*, [4] improvement of the truck transport efficiency or other measures.

[4] *Modal shifts* means a change (shift) in the means of transport (mode), from trucking to railway or marine transport, which is considered as an effective way to reduce CO_2 from cargo transport sector.

(ii) Measures and Policies by Sector (*Industrial*, *Consumer*, *Transport*, etc.)

Each of actors who consume energy, including business operators and individuals will make various efforts aimed at overall control of carbon dioxide emissions related to their own activities.

In doing so, each actor, being appropriately aware of the scopes of their own responsibilities, roles and efforts, will contribute to the control of carbon dioxide emissions in a wide range of sectors. Such efforts include those taken by manufacturers for the *consumer* and *transport* sectors, and information provision by retailers to consumers.

Now that energy-saving performances of individual equipment like refrigerators, air conditioners and water heaters are dramatically improving, the Government will continue to work for further improvement in their performances and wide introduction and dissemination of such highly energy-efficient equipment.

In the *energy conversion* sector, the Government will also promote the utilization of energy sources with low carbon dioxide emissions intensity and the improvement in the efficiency of energy supply.

A. Efforts in the *Industrial* Sector (Manufacturers, etc.)

Carbon dioxide emissions in the *industrial* sector in FY2005 decreased by 6.1% compared to those in FY1990. The Government will steadily continue to promote voluntary action plans and other countermeasures. In addition, business operators in this sector will contribute to CO_2 saving in the *consumer* and *transport* sectors.

(a) Promotion and Reinforcement of Voluntary Action Plans of Industry

In the *industrial* and *energy conversion* sectors, in 1997 the *Keizai Dantai Rengokai*, or *Japan Business Federation* (hereinafter referred to as "*Nippon Keidanren*") took the lead in formulating Voluntary Action Plan on the Environment, and established the target of controlling carbon dioxide emissions in FY2010 below FY1990 levels. In addition to this *Nippon Keidanren* Voluntary Action Plan on the Environment, individual businesses in sectors including *commercial and other* and *transport*, both affiliated and unaffiliated with *Nippon Keidanren*, have set up greenhouse gas emissions reduction plans (hereinafter, these individual plans are referred to as "voluntary action plans"). These voluntary action plans now cover approximately 80% of the emissions from the *industrial* and *energy conversion* sectors, and around 50% of those from all sectors.

* In setting targets of the voluntary action plan, each business[5] voluntarily selects any of

[5] The term "business" here refers to a group or organization which formulates a voluntary

the four indicators—energy consumption intensity, energy consumption, carbon dioxide emissions intensity or carbon dioxide emissions.

As of the end of March 2008, 50 businesses in the *industrial* sector, 32 in the *commercial and other* sectors, 17 in the *transport* sector and 4 in the *energy conversion* sector have quantitative targets and have undergone assessments and verifications by councils or similar bodies.

Industrial sector: 50 businesses

（Breweries, tobacco manufacturing, pharmaceutical manufacturing, starch and saccharified products, dairy industry, soft drink, baking industry, beet sugar, frozen foods, vegetable oil, pastries, sugar refining, meat processing, flour milling, coffee, convenience foods, soy sauce, canning, mayonnaise and dressing, iron and steel, chemical industry, paper manufacturing, cement, electronics and electrical equipment, auto parts, automobile, mining, lime manufacturing, rubber, dyeing, aluminium, flat glass, glass bottle, auto body, electric wire and cable, bearing, industrial machinery, copper and brass, construction equipment, limestone mining, sanitary equipment, machine tool, petroleum development, industrial vehicles, construction, housing production, shipbuilding, marine equipment, rolling stock, boating）

Commercial and other sector: 32 businesses

（Banking, life insurance, damage insurance, telecommunications, telecom service, commercial broadcasting, NHK(Japan Broadcasting Corporation), cable broadcasting, satellite broadcasting, schools, co-op, processed foods wholesale, supermarket, convenience store, department store, household appliance retailer, do-it-yourself industry, information services, chain drug store, trading company, liquefied petroleum gas, leasing, warehousing, refrigerated warehouse, hotel, international hotel, domestic hotel, automobile service, real estate, industrial waste management, newspaper, pet retailing）

Transport sector: 17 businesses

（Ship owner, trucking, scheduled airline, coastal shipping, passenger ships, taxi, bus, private railroads, JR East Japan, JR West Japan, JR Tokai, port transportation, JR Cargo, JR Kyushu, JR Hokkaido, transportation, JR Shikoku）

Energy conversion sector: 4 businesses

（Petroleum, electricity, gas, power producer and supplier）

Total: 103 businesses

NOTE: In revising this Plan (March 2008), the calculations of reduction effects by the voluntary action plans have been conducted concerning 85 out of these 103 businesses（*Industrial* sector: 49 businesses, *commercial and other*

action plan and undergoes assessments and verifications for its plan by the Government.

sector: 19 businesses, *transport* sector: 14 businesses, *energy conversion* sector: 3 businesses). The other 18 businesses have been excluded from the calculations because concerned governmental councils or similar bodies did not confirm their formulation of new plans or quantification of qualitative targets before the calculations by the Government (February 8, 2008).

These voluntary action plans by business operators have thus far produced results and the voluntary action plans of *Nippon Keidanren* are, in particular, playing a central role in countermeasures in the industrial community. The advantages of a voluntary instrument include the ease of selection of superior countermeasures for each actor based on its originality and ingenuity, the likelihood of providing incentives to pursue aggressive targets, and no procedural costs for both the Government and implementing actors. It is expected that these advantages will be further exploited in voluntary action plans by business operators.

In order for Japan to achieve its reduction commitment under the Kyoto Protocol, it is extremely important for the industrial community to advance efforts to control emissions, including the improvement of energy consumption intensity or carbon dioxide emissions intensity, so that the targets of these voluntary action plans will be achieved. For this reason, keeping in mind that the targets and content of voluntary action plans should be determined by the industrial community itself, the following efforts are encouraged from the viewpoint of meeting social demands:

1. Formulating a new plan for a business which has no plan;
2. Quantifying targets (i.e. setting quantitative targets) for a business which has qualitative targets only;
3. Undergoing strict assessments and verifications for the plan by the Government; and
4. Raising targets in the case where targets are already overachieved.

At the same time it is urged that the *Nippon Keidanren* Voluntary Action Plan targets should be fully achieved, and that individual businesses should make active efforts toward achievement of their own voluntary targets.

With regards to the businesses[6] noted below, related ministries and agencies will strongly encourage those within their jurisdiction to make the following efforts as soon as possible:

(1)Formulating a new plan;[7]

（Pachinko parlors, game centers, securities, hospitals, large-scale exhibition halls）

[6] The businesses named here are the ones for which the achievement of the efforts of (1) to (4) have not been confirmed by concerned councils or similar bodies (as for (3), assessments and verifications have not been undergone by them).

[7] When a new plan is formulated by a business which had no plan at the time of formulation of this Plan (April, 2005), such a plan is required to include quantitative targets based on the business' s actual performances and other factors, because it is necessary to evaluate emissions reduction effects quantitatively toward the achievement of the reduction commitment under the Kyoto Protocol.

(2)Quantifying qualitative targets;
（Credit unions, credit associations, dining establishments）
(3)Undergoing strict assessments and verifications by the Government; and
NOTE: As of the end of March 2008, there is no applicable business.
(4)Raising targets for businesses whose current targets are overachieved.[8]
（* indicates the businesses with intensity targets.）
（Breweries, tobacco manufacturing, vegetable oil,* sugar refining, meat processing,* convenience foods,* soy sauce, automobile, mining,* lime manufacturing, dyeing, aluminum,* flat glass, glass bottles, construction machinery,* limestone mining,* sanitary equipment, construction,* rolling stock,* department store,* do-it-yourself industry,* chain drug store,* hotel,* automobile service, industrial waste management, petroleum,* gas, power producer and supplier*）

In order to improve the transparency, credibility and probability of targets achievement with regards to these voluntary action plans, the Government will promote periodic follow-ups by concerned councils or similar bodies as assessments and verifications of these plans.

In addition to the efforts above ((1) – (4)), the Government will carry out assessments and verifications with the following viewpoints in mind.

Since the first commitment period of the Kyoto Protocol runs from 2008 to 2012, the Government will encourage that plan targets should be met by the average values of the five-year period.

The Government will urge businesses to denote the contents and effects of future measures (including utilization of the Kyoto Mechanisms) designed to achieve unfulfilled targets in as quantitatively and tangibly as possible. With regards to the businesses that will utilize the Kyoto Mechanisms in the case targets achievement is difficult, the Government will urge these businesses to provide as tangible an outlook as possible regarding the volume and timing of credit acquisition. Also, the businesses which utilize acquired credits for their targets achievement need to transfer those credits to the Government account for free.

To further improve the probability of target achievement, the Government will urge that check and review should be carried out with regards to the responsibility sharing among the enterprises that constitute each business.

Given that the Kyoto Protocol has the targets of gross greenhouse gas emissions, the Government will urge the businesses having only intensity targets to proactively consider adopting the targets of total carbon dioxide emissions as well.

With regards to carbon dioxide emissions from places of business participating in the

[8] Although boating, JR East Japan, JR West Japan and JR Hokkaido are currently overachieving their target levels, it has been concluded that it would not be necessary to immediately raise their targets, in the results of assessments and verifications for their voluntary action plans at a joint session of the Environmental Subcommittees of both the Panel on Infrastructure Development and the Transport System Committee of the Council for Transport Policy.

voluntary action plans, the Government will press for even more proactive disclosure of information, including the presentation of examples of leading efforts in quantitative terms by utilizing emissions data from individual places of business based on the Act on Promotion of Global Warming Countermeasures.

Since it is required to drastically strengthen measures in the *commercial and other*, *residential* and *transport* sectors, *Nippon Keidanren* will urge its participating businesses and member enterprises to promptly establish carbon dioxide emission reduction targets for their headquarters and other offices in a cross-industrial and comprehensive manner. At the same time, *Nippon Keidanren* will further promote efforts such as expansion of environmental account book use in the homes of employees belonging to its member enterprises.

With regards to the industrial community's efforts in the *commercial* and t*ransport* sectors as well as its contributions to the emissions reduction in the *consumer* and *transport* sectors, the Government will urge quantification of these efforts to the extent possible, including quantification based on a product life cycle assessment (LCA) perspective.

In order to transmit to consumers and overseas easy-to-understand information concerning the efforts based on the voluntary action plans, the Government will encourage international comparisons founded on highly reliable data for each business and proactive outgoing transmission regarding the efforts based on the voluntary action plans.

(b) Promotion of Introduction of Highly Energy-efficient Equipment and Devices

○Dissemination of Energy-efficient Devices in the Manufacturing Field

In addition to the introduction of various kinds of energy-efficient devices based on the voluntary action plans, the Government will take support measures intensively and provide assistance for the introduction of next-generation coke ovens in order to promote the dissemination of highly efficient industrial furnaces and other devices enabling a large energy conservation compared with conventional ones.

○ Dissemination of Fuel-efficient Construction Machinery in the Construction Field

The Government will promote CO_2 saving in the construction field. For example, it will promote the dissemination of fuel-efficient construction machinery by encouraging its use and actively utilizing it in public construction projects.

(c) Thorough Energy Management, etc.

○ Thorough Energy Management in Factories and Workplaces

In addition to the promotion and reinforcement of the voluntary action plans, energy conservation efforts for factories and other facilities have been made in the *industrial* sector by the measures based on the Energy Conservation Act.

Besides, highly energy-consuming office buildings and the like are required to make a regular report and formulate mid- and long-term plans for energy use after strengthening the regulations of the Energy Conservation Act in April 2003 in order to encourage energy management in those buildings.

Furthermore, the targets of regulation under the Energy Conservation Act were expanded in April 2006 by the integral management of heat and electricity, both of which had been dealt with separately up until that time.

From now, the Government will work for further reinforcement of effective energy conservation measures for factories, office buildings and the like, by amending the Energy Conservation Act. The amendment will aim to shift its legal system from the current regulations on a *factory/workplace* basis to comprehensive energy management on an *enterprise* basis. It will also introduce to a franchise chain consuming over a certain amount of energy the energy management of treating the entire chain as a single unit.

In addition, based on the management structure of each enterprise, the Government will promote objective valuations of the efforts by each factory or workplace by utilizing a benchmark or other indicators. At the same time, the Government will construct a mechanism in which multiple business operators will cooperate to carry out voluntary energy conservation or emissions reductions (energy/carbon dioxide joint reduction project), in such forms as the *Implementation of Emissions Reduction Measures for Small and Medium Sized Enterprises,* as described next, and the inter-enterprise accommodation of exhaust heat from factories in industrial centers like industrial complexes. The Government will also support cooperative projects with large energy conservation effects.

○ Implementation of Emissions Reduction Measures for Small and Medium Sized Enterprises

To strengthen greenhouse gas emission reduction measures for small and medium sized enterprises, the Government will provide further financial support to those companies' introduction of emission-reducing equipment.

In addition, the Government will construct a system in which large enterprises will provide technical or financial supports to small and medium sized enterprises (including moderately-large and large enterprises that do not participate in any voluntary action plan) and utilize the amount of emission reductions verified by the Government for achieving the targets of their own voluntary action plans. At the same time, the Government will urge those large enterprises to raise the targets of their plans.

While premised on the idea that participating enterprises make voluntary efforts, the Government will ensure certain strictness and additionality in verifying the amount of emissions reduction by commissioning a third-party body made up of private-sector experts to carry out the verification based on standards emulating simple verification methods applied to the Kyoto Mechanisms credits, so that this will lead to emissions reduction in the whole country. The

Government will also simplify the verification procedures from the perspective of ensuring convenience for small and medium sized enterprises.

The Government will design it to be coordinated and consistent with existing related systems (including the calculating, reporting and announcing system under the Act on Promotion of Global Warming Countermeasures and the periodic reporting system under the Energy Conservation Act).

In operating this system, the Government will see to it that small and medium sized enterprises can receive minimum existing support measures such as subsidies for equipment introduction only when their business cannot be viable solely with incomes derived through this system.

The Government will also create a simplest possible *Domestic Credits* management system, which will enable a small or medium sized enterprise and a large enterprise to jointly formulate a business plan and apply for its approval.

○ Efforts in the Agriculture, Forestry and Fisheries Industry

The Government will promote energy conservation in greenhouse horticulture by verification and dissemination of advanced heating systems utilizing woody biomass and oil-free horticultural systems, and by consideration of a rating system for energy efficient equipment and devices. It will also encourage the utilization of agricultural machinery and other devices that contribute to reductions in greenhouse gas emissions, and try to establish “local production for local consumption” models to utilize biodiesel for agricultural machinery.

The Government will promote energy conservation by setting up facilities utilizing woody biomass at lumber mills and other facilities.

The Government will encourage management improvement through promoting the acquisition of energy-efficient fishing vessels by the construction of vessels employing new energy-saving technologies such as LED (light emitting diode) fishing lamp and improved propulsion efficiency. The Government will also furnish vessel-owners with information on appropriate management and operations of these vessels for energy saving.

○ Efforts by the Industrial Community in the *Consumer* and *Transport* Sectors

The industrial community will contribute to CO_2 saving in the *consumer* and *transport* sectors through the following efforts: developing lighter and more functional materials; supplying highly energy-efficient products; improving the efficiency of logistics systems by modal shifts and shift from private trucks to commercial trucks; and urging their employees to use public transport in commuting.

B. Efforts in the *Commercial and Other* Sector

Carbon dioxide emissions in the *commercial* sector covering offices and other buildings (including service businesses such as stores) have increased by more than 40% above FY1990 levels along with the increase in floor area of those buildings. The Government will try to control these emissions through energy management under the Energy Conservation Act, steady implementation of voluntary action plans and other measures.

As energy consumption in the *commercial and other* sector can be controlled by developing and disseminating energy-efficient devices used in offices and other buildings, the Government will continue to promote further improvements in energy efficiency of those devices towards the world's highest standard of energy efficiency.

(a) Promotion and Reinforcement of Voluntary Action Plans of Industry

(As described previously: See A(a))

As of the end of March 2008, 32 businesses in the *commercial* sector had established quantitative targets and undergone assessments and verifications for their plans by concerned councils or similar bodies.

(b) Initiatives by Public Organizations

○Initiatives by the National Government

With the first commitment period of FY2008-FY2012 in mind, the Government will make leading efforts concerning its own administration and undertakings such as the purchase and utilization of goods and services, and the construction and management of buildings, based on the National Government Action Plan under the Act on Promotion of Global Warming Countermeasures and each ministry's implementation plan under this Plan,.

In particular, the Government will intensively promote *greening* of national government buildings across the country by means of photovoltaic power generation, building planting, ESCO[9] or the like.

In advancing the efforts based on the National Government Action Plan, the Government will conclude environment-conscious contracts mainly in four areas: electrical power, automobiles, ESCO and buildings, based on the Act Concerning the Promotion of Contracts Considering Reduction of Greenhouse Gases and Other Emissions by the State and Other Entities (Act No.56 of 2007; hereinafter referred to as the "Green Contract Act"), which was put into effect in November 2007, as well as its Basic Policies, which were decided by the cabinet on December 7, 2007. By this means, the Government will more reliably fulfill the targets stipulated in the National Government Action Plan and endeavor to achieve further reductions. The Basic Policies should be revised as necessary.

With regards to national government buildings, the Government will continue to promote Green Government Building[10] construction, Green Assessment and Green Renovation,[11] and thorough

[9] Energy Service Company.

[10] Green Government Building is a government building whose environmental burdens are reduced throughout its lifecycle from planning to construction to operation to abolishment.

[11] Green Assessment is the assessment of the environmental preservation performances of government buildings.

appropriate operation and management. In addition, the Government will utilize the Life Cycle Energy Management (LCEM)[12] method of air-conditioning system.[13]

Not only will the Government try to utilize bio-fuel, but it will also make efforts to take the initiative in introducing fuel-efficient vehicles such as clean diesel, clean energy and idling stop vehicles.

In order to spur demands for products that contribute to greenhouse gas emissions reduction and other eco-friendly goods and services, the Government will take the initiative in procuring such goods and services, based on the Act Concerning the Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities (Act No.100 of 2000; hereinafter referred to as the "Green Purchasing Act").

The Government will inspect the progress of the National Government Action Plan annually at the Directors' meeting of the Global Warming Prevention Headquarters, and publish the results. From the viewpoint of ensuring transparency, the Government will evaluate not only the total emissions, but the progress for each measure and for each organization by comparing the targets with the past performances. The results of this inspection will be made public all together.

The Government will work to form a "CO_2-saving government office area" around Kasumigaseki District through pioneering introduction of new technology and systems and organic collaboration among ministries and agencies.

Specifically, the Government will continue to advance the following efforts:

* Accelerated introduction of fuel cells;
* Further introduction of renewable energy such as photovoltaic power generation and wind power generation;
* Selection of energy sources that contribute to CO_2 saving;
* Introduction of heat pumps/thermal storage systems and storage batteries, which contribute to electric power load leveling, gas air conditioning, or the like;
* Introduction of water-retaining materials for pavements on government building sites at the time of repair;
* Thorough implementation of appropriate operation and management of facilities;
* Sophistication of common-use bicycle systems; and
* Further promotion of planting.

○ Initiatives by Local Governments

Green Renovation is the renovation for reducing environmental burdens of a government building throughout its lifecycle from planning to construction of renovation to operation to abolishment.

[12] Life Cycle Energy Management is the consistent management of energy throughout its lifecycle performances (e.g. setting performance requirements, verifying and improving performance).

[13] In the use of heat insulating materials, the Government is trying to use fluorocarbon-free ones by standard public works specifications (See footnote 24).

Based on the Act on Promotion of Global Warming Countermeasures, prefectures and municipalities are obliged to formulate local government action plans. They are expected to formulate these plans with reference to a manual formulated by the national government, pursuant to the provisions of the National Government Action Plan, in particular, with the following points in mind.

○Matters to be included in an action plan
- Basic matters such as plan objective(s) and period
- Comprehension of the total greenhouse gas emissions
- Concrete efforts (measures)
- Goals of efforts (measures), quantified targets regarding total greenhouse gas emissions
- Implementation/inspection systems, procedures for inspection, assessments, or publication of the plan

○ Scope
- Some local governments have large proportions of emissions from the operations of waste management, water supply and sewerage systems, publicly-owned mass transport systems, public schools and public hospitals or other facilities, as well as energy consumption in government buildings. For this reason, all the administrative affairs determined by the Local Autonomy Act (Act No.67 of 1947) should be within the scope of the plan.

  Furthermore, with regards to the affairs implemented via outsourcing or designated manager systems, local governments should request outsourcees or other contractors to take necessary measures to achieve possible greenhouse gas emissions reductions.
- In particular, in purchasing electricity for government buildings and facilities, local governments should try to save carbon dioxide by introducing a cutoff method, which bars from bidding power companies with over a certain carbon dioxide emission coefficient, based on the Green Contract Act and its Basic Policies.

○Inspection and Evaluation System
- Local governments should carry out periodical inspections and evaluations of implementation of the plan and publicize the results annually.
- In publicizing the results of inspections and evaluations, local governments should evaluate not only the total emissions but the progress for each measure and for each facility or organization by comparing the targets with the past performances. The results of these inspections should be made public all together in as much detail as possible.
- Based on the inspections and evaluations, when necessary, local governments should revise their action plans and rearrange the various schemes of operation which they set up for implementing the plans.

From the viewpoint of ensuring transparency, the national government will compile the results publicized by local governments and publish them in a comprehensive manner.

In addition, local governments will make efforts on environment-conscious contracts by, for example, creating a policy relating to promotion of environment-conscious contracts based on the Green Contract Act.

Based on the Green Purchasing Act, local governments will also work on green purchasing by,

for instance, drawing up policies for promoting procurement of eco-friendly goods and services.

○ Promotion of the Initiatives by Other Public Organizations

National and local governments will provide information to public organizations such as independent administrative agencies concerning effective global warming countermeasures tailored to their characteristics. At the same time, national and local governments will encourage these public organizations to establish action plans for greenhouse gas emissions reduction regarding their administration and undertakings in conformity with national and local governments' action plans, and to make leading efforts based on these plans. The national government will regularly monitor their efforts to the extent possible.

The independent administrative agencies, quasi-governmental corporations and incorporated national universities that are subject to the green contract provisions of the Green Contract Act will steadily conclude environment-conscious contracts.

(c) CO_2 saving of Buildings, Equipment and Devices

○ Improvement of the Energy Efficiency Performance of Buildings

As the energy efficiency performance of buildings has a large and long-term impact on carbon dioxide emissions in the *commercial and other* sector through energy consumption, the Government will continue to advance energy-saving measures at the time of new construction, while promoting energy-saving renovations which help improve the energy efficiency performance of existing building stocks.

To this end, the Government will work for the amendment of the Energy Conservation Act in order to expand the coverage of buildings subject to notification obligation concerning energy-saving measures to include certain small- to medium-sized buildings and reinforce regulations regarding energy-saving measures related to large-scale buildings.

Furthermore, while qualifying high-efficiency building systems composed of such building equipment as highly energy-efficient insulation (e.g. windows), air conditioning, lighting and water heater for the Tax System for Promoting Investment in Energy Supply-and-demand Structure Reform, the Government will make the following efforts: development and dissemination of the Comprehensive Assessment System for Building Environmental Efficiency (CASBEE [14]) for buildings; promotion of the provision of information concerning design or construction for energy saving in buildings such as energy-saving renovation; promotion of the introduction of construction technologies related to energy-saving measures for small and medium sized enterprises; assistance for leading technology developments by private business operators and model projects introducing CO_2-saving technologies; and support to model projects aiming at the collaboration of building owners and tenants on

[14] CASBEE is a comprehensive environmental performance assessment system for houses and buildings, which integrally assesses the improvements of comfort of houses (indoor environment) and the measures to reduce environmental burdens including energy-saving ones and presents the results by easy-to-understand indices.

energy-saving measures. [15]

In addition, the Government will promote the introduction of energy-saving equipment and devices by utilizing ESCO.

○Decarbonization of Urban Areas Through Improving the Thermal Environment by Urban Greening and Other Heat Island Countermeasures

（As described previously: See (i)A）

○Dissemination of Energy Management Systems

The Government will promote the technology development and dissemination of energy management systems, which will display the state of energy use in real time and ensure the optimal operation of lighting, air conditioning, or other equipment depending on indoor conditions by utilizing information technology.

The Government will also support the introduction of energy management systems for commercial buildings by qualifying those systems for the Tax System for Promoting Investment in Energy Supply-and-demand Structure Reform.

○ Improvement of the Efficiency of Devices Based on the Top-runner Standards

The Top-runner standards have been in place since FY1998 under the Energy Conservation Act. In order to further improve the efficiency of individual types of devices, the Government will expand the range of products subject to the Top-runner standards and widen the range of application or toughen up the standards for the products already designated.

To reduce standby power consumption, the Government has encouraged voluntary efforts by the industry so far. The Government will continue to follow up on the industry’s voluntary efforts in this regard.

○ Support for the Development and Dissemination of High-efficient Energy-saving Devices

In order to further improve the efficiency of individual types of devices and systems, the Government will further promote the development of energy conservation technologies.

In the hot water supply sector, which accounts for approximately 30% of household energy consumption, new types of apparatuses with particularly outstanding energy conservation performance compared to the conventional types, have been developed and commercialized. Such apparatuses include carbon dioxide refrigerant heat pump water heaters, latent heat recovery type water heaters and gas engine water heaters. To accelerate the dissemination of these apparatuses, the Government will support their introduction to promote further dissemination by business operators and encourage technology development for miniaturization or installability

[15] In the case where heat insulation materials are used for energy conservation purposes in houses and buildings, the materials containing fluorocarbons are likely to have opposite results of increasing the total greenhouse gas emissions, because of their strong greenhouse effects. Therefore, it is necessary to promote the use of fluorocarbon-free heat insulation materials.

improvement.

Furthermore, recent years have seen the development of highly-efficient commercial-use air conditioners utilizing heat pump technology, highly energy-efficient and fluorocarbon-free commercial-use water heaters and low-temperature natural refrigerant freezer units, and energy-efficient integrated systems of refrigerator, freezer and air conditioner for the use of convenience stores and other energy-intensive small- and medium-scale retail stores. The Government will work to accelerate the dissemination of these appliances in the *commercial* sector through such measures as supporting their introduction.

The introduction of energy-efficient lighting utilizing light emitting diodes (LEDs) enables significant energy conservation compared to conventional incandescent and fluorescent lights. Therefore, the Government will promote technology development toward further efficiency improvements and work to disseminate these lightings.

(d) Thorough Energy Management, etc.

○ Thorough Energy Management in Factories and Workplaces

(As described previously: See A.(c))

○ Implementation of Emissions Reduction Measures for Small and Medium Sized Enterprises

(As described previously: See A.(c))

○ Initiatives in Water Supply and Sewerage Systems and Waste Management

With regard to waterworks, the Government will carry out energy conservation measures such as introduction of highly energy-efficient devices or pump inverter controls, and implement renewable energy measures such as small-scale hydropower and solar power generation.

As for sewerage systems, the Government will implement energy-conserving measures such as the improvements to equipment operation and the introduction of efficient devices to air diffusers of reactor and sludge dehydrators, while promoting renewable energy measures such as the utilization of solid fuels and digestion gases generated from sewage sludge for power generation and the effective use of heat from sewage and treated sewage (sewage heat), etc.

Regarding waste management, the Government will further promote waste power generation and other types of energy utilization at waste treatment facilities, while at the same time encouraging the recycling of plastic container and packaging and the vehicle measures such as the introduction of bio-diesel fuel (BDF) to waste collection vehicles.

(e) Development of National Campaigns

（As described later: See II.6.）

C. Efforts in the *Residential* Sector

Even though the increase in the number of households has gradually been slowing down, carbon dioxide emissions in the *residential* sector have gone up by more than 30% above FY1990 levels due to the growth in energy consumption resulting from the increase in the number of household appliances and other factors. For this reason, the Government will work to improve the energy efficiency performances of houses, while encouraging citizens to think of global warming as their own issue, constantly review their lifestyles and make efforts for energy saving.

Since the improvement and dissemination of energy-efficient devices used in households control the energy consumption in the *residential* sector, the Government will continue to promote further improvements in the energy efficiency of such devices, aiming for the world's highest standards of energy efficiency.

(a) Development of National Campaigns

（As described later: See II.6.）

(b) CO_2 Saving of Houses, Equipment and Devices

○ Improvement of the Energy Efficiency Performance of Houses

As the energy efficiency performance of houses has a large and long-term impact on carbon dioxide emissions in the *residential* sector through energy consumption, the Government will thoroughly implement energy-saving measures at the time of new construction, while promoting energy-saving renovations which help improve the energy efficiency performance of existing housing stocks.

To this end, the Government will work for the amendment of the Energy Conservation Act, in the same manner as buildings, in order to expand the coverage of houses subject to notification obligation concerning energy-saving measures to include certain small- to medium-sized houses and reinforce regulations regarding energy-saving measures related to large-scale houses. The amendment will also aim to introduce measures to urge businesses operators who construct or sell houses to improve their energy efficiency performance.

In addition, the Government will provide support by loans through securitization framework, promote dissemination of energy-efficient houses by creative and original local efforts through the Regional Housing Grant, and establish tax relief for renovations to improve energy efficiency (e.g. the installation of double-paned window glass) in existing houses. The Government will also encourage small- to medium-sized business operators to introduce energy-saving construction technologies, and will give assistance to leading technology development by private business operators and model projects introducing CO_2-saving technologies. The Government will provide support to the introduction or renovations of model houses which introduce insulating materials and install solar power systems/solar heating devices en masse, and will familiarize the public with and give support for eco-reform practices such as the introduction of CO_2-saving materials at the time of renovations.

So that consumers can select houses with superior energy efficiency performance, the Government will expedite the provision of information to consumers by evaluating and displaying energy efficiency performance. Specifically, the Government will enhance and disseminate the Comprehensive Assessment System for Building Environmental Efficiency (CASBEE) for houses and the Housing Performance Indication System, and promote the development of comprehensive energy efficiency evaluation methods including ones for housing equipment.

In order to encourage the wider use of window glass and sash with a high energy-saving performance, the Government will smoothly put into execution a system under which the manufacturers have to display the energy-efficiency performances of their products on labels, while thoroughly publicizing their energy-saving effects by utilizing all forms of media. The Government will implement familiarization of all types of energy-saving measures that can be introduced at the time of housing renovation.

Besides, as for detached housing, the Government will promote the provision of information to each resident on the benefits of introducing energy-saving devices, equipment and building materials in accordance with the state of energy consumption. Regarding complex housing, the Government will encourage the introduction of energy-saving devices, equipment and building materials by utilizing leasing and ESCO.

○Dissemination of Energy Management Systems

(As described previously: See B.(c))

○Improvement of the Efficiency of Devices Based on the Top-runner Standards

(As described previously: See B.(c))

○ Support for the Development and Dissemination of High-efficient Energy-saving Devices

(As described previously: See B.(c))

D. Efforts in the *Transport* Sector

Carbon dioxide emissions in the *transport* sector have increased by approximately 20% above FY1990 levels but have been on a declining trend in recent years. In order to make this trend steadier, the Government will implement comprehensive measures such as automobile/road traffic measures, promotion of public transport utilization, and improvement of the efficiency of logistics systems.

(a) Automobile/Road Traffic Measures

○ Improvements in the Fuel Efficiency of Automobile, etc.

Since automobile accounts for the majority of energy consumption in the *transport* sector, the Government will promote automobile measures such as further improvements in the fuel efficiency by the world's highest technology and dissemination of highly fuel-efficient or clean energy vehicles.

With regards to the Top-runner standards, the Government will proactively promote the expansion and dissemination of automobiles conforming to the 2015 fuel consumption efficiency standards, which have already been in effect (passenger vehicles since July 2007; trucks and utility vehicles since April 2006), to promote the shift from the 2010 fuel efficiency standards to the more efficient ones.

In order to promote the dissemination of fuel-efficient vehicles (including clean diesel) and CO_2-saving clean energy vehicles (CEV)[16] (including electric, hybrid and natural gas), the Government will improve the infrastructure by developing support measures such as subsidy systems and favorable tax treatments and by utilizing assessment and publication systems on fuel efficiency performance.

The Government will also develop a mechanism by which retailers–contact points between manufacturers and consumers–will provide appropriate information on energy efficiency.

In addition, the Government will continue to provide subsidies for the introduction of idling stop devices, while improving the infrastructure by encouraging automakers to increase the number of models fitted with such devices and make efforts to promote sales of those models.

Taking into account the introduction of sulphur-free (containing no more than 10ppm of sulphur) petroleum fuel, the Government will work to improve fuel efficiency through the optimal combination with automobile technology.

○ Promotion of Traffic Flow Management

[16] *Clean energy vehicle (CEV)* is a general term for an electric, hybrid, hydrogen/fuel cell, natural gas or diesel fuel-substituting LP gas vehicle.

As the increase in traveling speeds by untying traffic jam improves effective fuel efficiency and reduces carbon dioxide emissions from automobiles, the Government will promote development of trunk road networks such as ring roads, and construction of continuous flow intersections using an overpass or underpass. The Government will also implement traffic flow management including the following: diverse and flexible expressway toll policies; traffic demand management for automobiles; Intelligent Transport Systems (ITS); traffic information provision service; illegal street parking control; roadworks reduction; countermeasures against bottleneck railroad crossings; and development of traffic safety facilities.

The Government will also promote the use of LEDs for signal lights in the above-mentioned development of traffic safety facilities.

○ Promotion of the Environmentally-friendly Usage of Vehicles

The Government will disseminate and promote eco-driving, which includes idling stop while stopping or parking, and driving at safe and constant speeds appropriate for the traffic conditions.

To this end, the Government will raise the awareness of citizens through public relations activities or the like, led by the Eco-driving Dissemination Liaison Meeting composed of four related government ministries and agencies,[17] while developing an environment for dissemination and promotion of eco-driving.

In order to promote eco-driving by commercial vehicles such as trucks, buses and taxis, the Government will endeavor to build and disseminate Eco-drive Management Systems (EMS)[18] for transport operators or the like. With a view to expanding the reach of eco-driving for further emissions reductions, the Government will also carry out a campaign to increase public awareness amongst general drivers.

In addition, the Government will improve the efficiency of commercial vehicle operations by promoting the introduction of such systems as make possible efficient dispatch and movement of taxis by the utilization of GPS and other information technologies.

By limiting the maximum speed at which large trucks travel on expressways by requiring them to install a speed control device, the Government will aim for CO_2 saving through improvements in fuel consumption efficiency.

○ Development of National Campaigns

（As described later: See II.6. concerning eco-driving, promotion of public transport utilization,

[17] National Police Agency; Ministry of Economy, Trade and Industry; Ministry of Land, Infrastructure, Transport and Tourism; and Ministry of the Environment

[18] *Eco-drive Management System(EMS)* is a system which implements planned and continuous eco-driving and its evaluation and guidance in an integrated manner in the operation of a vehicle.

etc.)

(b) Promotion of Public Transport Utilization, etc.

○ Promotion of Public Transport Utilization

The Government will make ongoing efforts to develop public transport systems such as new railway lines, Light Rail Transit (LRT)[19] and Bus Rapid Transit (BRT),[20] and to improve service and convenience by promoting IC card introduction or other computerization, facilitating connections and implementing park-and-ride schemes. At the same time, the Government will also promote measures toward the realization of seamless public transport.

In coordination with this, the Government will promote a shift in passenger transport from private cars to public transport including railways and buses by voluntary activities such as commuter transport management by business operators, implementation of ride sharing and familiarization activities for citizens. To promote these kinds of voluntary activities by business operators, the Government will advance specific measures by utilizing councils made up of people from the transport industry, the business community or the like at national and regional levels.

The Government will provide information on the results of the Environmentally Sustainable Transport (EST) model projects that have been underway since 2005 to the regions that will voluntarily aim to promote EST by limiting excessive dependence on private cars, which are a major cause of the increase in carbon dioxide emissions in the passenger sector. The Government will also plan to disseminate EST exploiting local characteristics to the entire country by providing supports to promotion of public transport utilization, introduction of low-emissions vehicles or familiarization under the cooperation between concerned ministries and agencies.

○ Promotion of the Development and Introduction of Energy-efficient Railways, Ships and Aircrafts

In the railway sector, the Government has promoted the introduction of energy-efficient vehicles which are lightweight or equipped with VVVF devices.[21] The Government will continue to promote the introduction of these types of vehicles.

In the ship sector, the Government has worked to develop and disseminate environmentally-friendly economical next-generation domestic vessels (Super Eco-Ships) and other vessels that have introduced new technologies. The Government will continue to promote the dissemination of these vessels. The Government will also establish indices for gauging the fuel

[19] *Light Rail Transit (LRT)* is an environmentally friendly, next-generation tram system with improved travel space and vehicle performance, possessing the following superior characteristics: ease of boarding/disboarding, punctuality, speed, carrying capacity and comfort.
[20] *Bus Rapid Transit(BRT)* is a high-speed bus system using bus-only lanes and the like.
[21] *VVVF device* is a mechanism that efficiently controls the motor revolutions without using electrical resistance.

efficiency of vessels to promote the dissemination of fuel-efficient vessels.

In the aviation sector, the Government has supported airlines' introduction of new energy-efficient aircrafts and improved the efficiency of flights. The Government will continue to promote such measures as introduction of these energy-efficient aircrafts and sophistication of aircraft safety systems.

(c) Promotion of Telework and Other Transport Substitution by Information and Communications Technology

The Government will promote the reduction of commuting traffic of trains, passenger vehicles or buses by encouraging flexible working styles free from place and time constraints with information and communications technology (telework) based on the Action Plan to Double the Number of Teleworking Population, which was established by the Ministries Concerned Liaison Conference on Teleworking Promotion on May 29, 2007.

(d) Promotion and Reinforcement of Voluntary Action Plans of Industry

（As described previously: See A.(a) on the businesses in the *transport* sector）

As of the end of March 2008, 17 businesses in the *transport* sector had established quantitative targets and undergone assessments and verifications for their plans by concerned councils or similar bodies.

(e) Improvement of the Efficiency of Logistics Systems, etc.

○ Implementation of CO_2 Saving by Cooperation Between Shippers and Logistics Operators

The Government will promote the greening of the entire logistics system by strengthening collaboration between shippers requesting delivery and logistics operators undertaking it and by expanding their efforts against global warming.

To this end, the Government will continue to promote energy management by shippers and logistics operators by the Energy Conservation Act. The Government will also provide support to the projects in which shippers and logistics operators collaborate on modal shifts or increase of truck transport efficiency through the Green Logistics Partnership Conference.[22] The Government will support the review of commercial practices that are supposed to have large environmental impacts and the construction of systems that increase consumers' awareness in logistics, such as the one issuing "eco-points" for improving delivery methods by home delivery service. To facilitate collaboration between shippers and logistics operators, the Government will also refine the unified methods (guidelines) for calculating carbon dioxide emissions in the logistics field, which can be utilized commonly by both parties to enable objective

[22] *Green Logistics Partnership Conference* is an organization composed of shippers, logistics operators, government and other related member enterprises and organizations, which is managed cooperatively by the Ministry of Economy, Trade and Industry, the Ministry of Land, Infrastructure and Transport and Tourism and related organizations, with a view to promoting voluntary efforts of the industrial community toward the greening of logistics systems.

evaluation of the effects for each measure.

In addition, based on the Act on Promotion of Comprehensive and Efficient Logistics Operations (Act No.85 of 2005), the Government will support comprehensive and efficient implementation of logistics operations including transport, storage and distribution processing through the introduction of 3rd Party Logistics (3PL) [23] projects, joint delivery and transport, or IT utilization.

In combination with this, in order to improve the efficiency of urban logistics, the Government will provide support to councils which uncover bottlenecks and consider problem-solving measures, based on the Total Plan on Urban Logistics.

○ Promotion of Modal Shifts, Increase of Truck Transport Efficiency, etc.

To promote the greening of the entire logistics system, the Government will promote a switch from trucking to domestic shipping or railway transport which produces lower carbon dioxide emissions.

As a part of these efforts, the Government will increase the competitiveness of domestic shipping by promoting the cut of transport costs and the improvement of services through developing domestic trade terminals able to handle combined multimodal transport, and by encouraging the development and dissemination of new technologies such as next-generation domestic vessels (Super Eco-Ships).

The Government will also promote the dissemination of fuel-efficient vessels by establishing indicators to evaluate the fuel efficiency performance of vessels. Moreover, the Government will endeavor to electrify and streamline cargo-handling equipment or the like in port terminals, which are the centers of logistics, by studying the development of onshore facilities for supplying electricity to vessels on the berth. The Government will make efforts on technological development towards further reductions of carbon dioxide emissions in ports.

In the same way, the Government will increase the competitiveness of railway freight transport by working for improving the convenience of freight railways. Specifically, the Government will expand and enhance transport power and quality, and reduce the costs of terminal transport through expansion of the carrying capacity of railway transport, arrangement of train diagrams and enhancement of transport equipment and materials such as containers.

The Government will also improve the truck transport efficiency further. To this end, it will promote a switch from private trucks to commercial trucks and the use of heavy or trailer trucks, while constructing roads fit for heavy vehicles. In combination, it will improve load efficiency through elimination of congested transport and ensuring back-hauling.

[23] *3rd Party Logistics (3PL)* is a high-quality service that provides consistent logistics from shippers.

In addition, the Government will promote the development of international marine container terminals, multipurpose international terminals and infrastructure to deepen collaboration among each mode in core and hub international ports, which can also contribute to the reduction of overland transport distances of international freight.

○ Promotion of Dissemination of the Certification Program for Green Management

The Certification Program for Green Management, which certifies transport operators carrying out certain environmentally superior efforts such as fuel efficiency improvement, has contributed to improvements in the average fuel efficiency of the certified operators. The Government will further promote its dissemination.

E. Efforts in the *Energy Conversion* Sector

Although a certain amount of time is required for infrastructure development and reform in the *energy conversion* sector, the Government will commence at the earliest possible time the measures for the utilization of energy sources with low carbon dioxide emissions intensity and for the improvement of the efficiency in energy supply by working toward the environmentally conscious use of fossil fuels, while keeping in mind the stable supply of energy.

(a) Promotion and Reinforcement of Voluntary Action Plans of Industriy

（As described previously: See A.(a) on the businesses in the *energy conversion* sector）

As of the end of March 2008, four businesses in the *energy conversion* sector had established quantitative targets and undergone assessments and verifications by concerned councils or similar bodies.

○ Reduction of Carbon Dioxide Emissions Intensity in the Electric Power Sector

It is important to reduce carbon dioxide emissions intensity in the power generation sector, which accounts for a large part of Japan's energy-originated carbon dioxide emissions. Therefore, the Government will take the measures described below.

- Assessments and verifications of the achievement of the voluntary targets of the following efforts by business operators.
  - Improvement of the nuclear power plant's utilization capacity through realization of scientific and rational operation management.
  - Further improvement of the thermal efficiency of thermal power generation, environment-conscious adjustment of the operational methods of thermal power sources, etc.
  - Acquisition of credits (volume of emissions reductions) under the Kyoto Protocol through utilization of the Kyoto Mechanisms by business operators.
- Promotion of measures for electrical load leveling that result in CO_2 saving by promoting the dissemination of heat pump and thermal storage systems, storage batteries, gas air conditioners, etc.
- Steady enforcement of the Act on Special Measures Concerning New Energy Use by Electric Utilities (Act No.62 of 2002, hereinafter referred to as the "RPS Act")[24] and promotion of the conversion of obsolete coal thermal power plants into natural gas power plants.

(b) Efforts by Energy Type

○ Steady Implementation of Nuclear Power Generation

[24] The Act obligates Japanese electric utilities to use a certain amount of electricity from renewable energy, etc. It was promulgated in June 2002 and came into full force in April 2003. *RPS* stands for " Renewables Portfolio Standard."

Nuclear power does not produce carbon dioxide in the power generation process, so it occupies an extremely important position with respect to the promotion of global warming countermeasures. Based on the most fundamental premise of ensuring safety, the Government will continue to work toward the further utilization of nuclear power generation and steadily promote it as a mainstay power source for the nation under public private partnership. When doing so, the Government will steadily advance the establishment of the domestic nuclear fuel cycle as the fundamental principle of the country with a view to further improvement in the characteristics of nuclear power generation such as its outstanding supply stability. To this end, complying with the Nuclear Energy Action Plan (Nuclear Energy Subcommittee of the Electric Industry Sectional Committee of the Advisory Committee on Natural Resources and Energy report of August 8, 2005) and in accordance with the basic principles of the Framework for Nuclear Energy Policy (Japan Atomic Energy Commission decision of October 11, 2005), the Government will promote the following policies.

- In addition to the 55 nuclear power plants currently in operation, the Government will follow up on the efforts by the electric utilities in order to ensure that the two new plants under construction (Tomari Unit 3 and Shimane Unit 3) will steadily go into operation by FY2012.
- The Government will progress the development of an environment for the long-term stable operation of nuclear power generators through the following efforts: developing next-generation light water reactor technology, which can become a global standard, through public-private partnership; working with stakeholders towards the early commercialization of the Fast Breeder Reactor (FBR) cycle technology; promoting the voluntary development of uranium resources; and developing human resources for nuclear power generation.
- The Government will also implement the following: steady efforts towards the establishment of the nuclear fuel cycle including the steady implementation of MOX fuel and the full operation commencement of the Rokkasho reprocessing plant; measures for individual sites; public hearings and public relations activities; enhancement of associated industries; and reinforcement of the measures towards promotion of final disposal projects for high-level radioactive wastes.
- The Government will progress the improvements of capacity factor of nuclear power plants and the utilization of existing furnaces through realizing scientific, rational operation management based on the most fundamental premise of ensuring safety.

○ Introduction and Utilization Expansion of Natural Gas

Natural gas is a clean form of energy which has relatively small environmental burdens compared to other fossil fuels and is widely distributed in other regions than the Middle East. Therefore, the Government will promote the introduction and utilization expansion of natural gas including the shift to natural gas, while taking into account energy security and the balance with other energy sources such as nuclear power.

- In order to revitalize domestic gas distribution, the Government will comprehensively promote the development of an environment for building a natural gas supply infrastructure by private actors.
- The Government will advance the fuel conversion for industrial boilers to natural gas, and the conversion of the gas type of city gas utilities to natural gas.
- To promote the efficient use of natural gas, the Government will promote the improvement of the efficiency of gas turbines and gas engines and the introduction of natural gas cogeneration and highly efficient gas air conditioners which contribute to the leveling of electrical load.
- The Government will promote the development of technologies related to Gas-to-Liquid (GTL)[25] and Dimethyl ether (DME),[26] which can be produced from natural gas and methane hydrate.

○ Promotion of the Efficient Use of Petroleum

The Government will promote the environment-conscious and efficient use of petroleum, which will continue to serve as an energy source occupying an important position in the primary energy supply.

For this reason, the Government will promote the dissemination of more environmentally-friendly petroleum systems, including petroleum cogeneration systems and highly efficient boilers with low NO_X, as energy conservation systems that can contribute to CO_2 saving.

○ Promotion of the Efficient Use of Liquefied Petroleum Gas

The Government will promote the use of liquefied petroleum gas (LPG), which has relatively low environmental burdens and is deemed as a clean energy source along with natural gas. Therefore, the Government will promote the highly efficient use of LPG systems such as LPG cogeneration systems and gas engine boilers.

○ Realization of a Hydrogen Society

Hydrogen is an environmentally-desirable secondary energy in the sense that it is an energy medium which does not emit carbon dioxide at the use stage and can be manufactured from non-fossil fuels.

For this reason, the Government will promote measures including technological development, establishment of codes and standards, and revision of regulations regarding fuel cells and hydrogen production that are key technologies for a hydrogen society. The Government will also

[25] Gas-to-Liquid (GTL): new fuel which can substitute diesel oil, etc. manufactured using synthetic gas made from natural gas or the like.
[26] Dimethyl ether: a fuel gas manufactured using synthetic gas made from natural gas or the like. It has similar properties to LPG and can be liquefied easily. In the wider sense, it is one type of GTL products.

promote the leading introduction and dissemination of these technologies as well as technological development of hydrogen production that does not produce carbon dioxide, such as hydrogen conversion by nuclear power or renewable energy.

(c) Measures for Renewable Energy

○ Promotion of the Introduction of Renewable Energy, etc.

As renewable energy produced by sunlight and solar heat, wind power, biomass[27] or the like makes a big contribution to global warming countermeasures and helps the diversification of energy sources, the Government will promote its introduction through enhancement of governmental supports and other policies. Furthermore, the Government will evaluate the local efforts to introduce renewable energy by local production for local consumption, and will share best practices by introducing such leading efforts.

In order to promote steadier and more cost-effective introduction of renewable energy, the Government will promptly conduct a comprehensive study on the fundamental reinforcement of measures for renewable energy.

○ Heat Sector

・The Government will take the following measures: promotion of the formulation, implementation and evaluation of comprehensive plans for introducing renewable energy by local governments; reinforcement of the promotion of biomass heat utilization in collaboration with the promotion of the Biomass Nippon Strategy; promotion of solar heat utilization; and promotion of the use of heat from waste incineration.

・The Government will promote the dissemination of biofuels including the ones for transport by tackling such challenges as competition with food, stable supply and economic efficiency. The Government will also promote the following: utilization of economic incentives such as a biofuel associated tax system; establishment of technology utilizing as raw material cellulose such as rice straw, which does not compete with food; large-scale demonstration towards the expansion of domestic biofuel production; and technological development towards the utilization of highly-concentrated biofuels in vehicles or the like. In addition, the Government will develop a system to ensure the quality of biofuels, while supporting the cooperative efforts between people engaged in agriculture, forestry or fisheries, who produce raw material for biofuels, and biofuel manufacturers.

○ Power Generation Sector

・The Government will take the following measures: expanded introduction of renewable energy in the public services; technological development for promoting cost reduction and efficiency improvement of photovoltaic power generation or the like; implementation of grid interconnection measures for wind power generation; smooth coordination with all

[27] Carbon dioxide emissions derived from renewable energy including biomass are not counted in the calculation of carbon dioxide emissions under the UNFCCC.

types of land use regulations including natural park regulations; promotion of the introduction of power generation from waste and biomass; steady enforcement of the RPS Act; and promotion of private-sector voluntary efforts such as green power certificates.

In addition, the Government will promote the introduction of dispersed power sources such as wind power, biomass, photovoltaic power, cogeneration systems (highly energy-efficient ones) and fuel cells, while taking into account technological challenges related to connection to the existing network. Through this approach, the Government will endeavor to realize CO_2-saving energy systems by encouraging the introduction of renewable energy sources in the regions as a whole. To this end, the Government will implement leading model projects and advance the development and demonstration of related technologies.

In conjunction with this, the Government will ensure efficient energy supply in the regions by promoting the use of untapped energy taking full advantage of the local characteristics (e.g. energy using the differences in temperature of sewage, and heat from snow and ice), or the use of exhaust heat from waste incineration.

○ Promotion of Biomass Utilization

The Government will provide information and promote local activities towards the building of biomass towns, which have systems to utilize the various local biomass resources efficiently and comprehensively for thermal and electric power, fuel or materials. At the same time, the Government will develop biomass utilization facilities and technologies for biomass energy conversion or use.

○ Initiatives in Water Supply and Sewerage Systems and Waste Management

(As described previously: See B.(d))

(2) Non-energy-originated Carbon Dioxide

To date, the Government has implemented the following measures: expansion of the use of blended cement generating lower carbon dioxide emissions in the production process; promotion of waste *reduction* and *reuse* and *recycling* of recyclable resources of manufactured goods and the like (hereinafter referred to as the "3Rs"); effective use of timber which is environment friendly and reproducible as raw material or biomass energy source; cultivation of green manure on farmland; recycling through composting; and promotion of biomass plastic use.

Carbon dioxide emissions from industrial processes such as limestone consumption and ammonia manufacture in FY2005 (53.9 million t-CO_2) were 13.5% lower than in FY1990.

Carbon dioxide emissions from the combustion of wastes (waste oil and waste plastics) in FY2005 (36.7 million t-CO_2), which account for approximately 2% of the total carbon dioxide emissions, were approximately 1.6 times higher than in FY1990.

○ Expansion of Blended Cement Use

The Government will expand the production ratio and use of cement made by blending clinker—an intermediate product of cement— with blast-furnace slag or the like.

The Government will also promote the use of blended cement, for example, by taking the lead in using it in public works carried out by the national government and other bodies based on the Green Purchasing Act.

○ Promotion of Measures to Reduce Carbon Dioxide Emissions Derived From Waste Incineration

The Government will promote the 3Rs measures towards the achievement of the targets determined in the Fundamental Plan for Establishing a Sound Material-Cycle Society (hereinafter referred to as the "Sound Material-Cycle Plan") under the Fundamental Act for Establishing a Sound Material-Cycle Society (Act No.110 of 2000, hereinafter referred to as the "Sound Material-Cycle Act") and the waste volume reduction targets based on the Waste Management and Public Cleansing Act (Act No.137 of 1970, hereinafter referred to as the "Waste Management Act"). Specifically, the Government will further promote the 3Rs on wastes and the reduction of carbon dioxide emissions resulting from waste incineration, by conducting the following: implementing measures based on the individual recycling acts; evaluating and studying those measures; providing support to projects such as ones for developing facilities contributing to global warming countermeasures; ensuring thorough separated garbage collection and introduction of charge for garbage collection by municipalities; and promoting familiarization regarding the 3Rs on wastes.

The Government will progress the reduction of carbon dioxide emissions resulting from waste incineration by promoting voluntary action plans of industrial waste generators and

industrial waste management business operators.

○ Development of National Campaigns

(As described later: See II.6. on promotion of the 3Rs)

(3) Methane and Nitrous Oxide

(i) Methane (CH_4)

To date, the Government has been making the following efforts: promotion of the 3Rs on wastes; sophistication of combustion in waste incineration facilities through such measures as promoting the introduction of continuous furnaces; improved management of cultivated fields; and improvement of livestock manure treatment methods.

Methane emissions in FY2005 (24 million t-CO_2) were 28.1% lower than in FY1990. A big contributor to this was the reduction of emissions from coal mining.

○ Reduction in the Amount of Final Waste Disposal, etc.

The Government will promote measures toward the achievement of the targets determined in the Sound Material-Cycle Plan under the Sound Material-Cycle Act and the waste volume reduction targets based on the Waste Management Act. Specifically, the Government will further promote the 3Rs on wastes and the reduction of methane emissions resulting from direct landfill disposal of waste, by conducting the following: implementing measures based on the individual recycling acts; evaluating and studying those measures; providing support to projects such as ones for developing facilities contributing to global warming countermeasures; ensuring thorough separated garbage collection and introduction of charge for garbage collection by municipalities; and promoting familiarization regarding the 3Rs on wastes. The Government will also promote the sophistication of combustion in municipal waste incineration facilities. The Government will progress the reduction of methane emissions resulting from landfill disposal by promoting voluntary action plans of industrial waste generators and industrial waste management business operators. The Government will also reduce methane emissions by decreasing illegal dumping of industrial wastes through such measures as strengthening waste management systems and fostering excellent waste management business operators.

○ Review of Organic Matter and Water Management in Rice Paddies

The Government will try to control the emissions of methane resulting from rice production (rice paddies) by shifting the management method of organic matter from “rice straw plowing” to “compost application,” while taking into account regional circumstances, and by improving the water management methods for intermittent irrigation rice paddies.

(ii) Nitrous Oxide (N_2O)

To date, as for nitrous oxide, the Government has promoted such measures as the emissions reductions in industrial processes and the sophistication of combustion in

incineration facilities for waste or sewage sludge through promoting the introduction of continuous furnaces.

Nitrous oxide emissions in FY2005 (25.5 million t-CO_2) were 22.0% lower than in FY1990. The introduction of nitrous oxide decomposer in the production process in workplaces manufacturing adipic acid– a raw material for some chemical products– largely contributed to this reduction.

○ Installation of Nitrous Oxide Decomposer in the Production Process of Adipic Acid

The Government will promote the recovery and destruction of nitrous oxide that is emitted as a by-product in manufacturing adipic acid by installing nitrous oxide decomposer.

○ Sophistication of Combustion at Sewage Sludge Incineration Facilities

The Government will reduce nitrous oxide emissions resulting from incineration of sewage sludge by sophisticating the combustion in incineration facilities. To this end, the Government will establish standards concerning the sophistication of sewage sludge combustion in sewage treatment plants and promote thorough implementation of these standards. The Government will also encourage the voluntary action plan by industrial waste management business operators.

○ Sophistication of Combustion at Municipal Waste Incineration Facilities, etc.

The Government will advance the sophistication of combustion in municipal waste incineration facilities by providing support to projects such as ones for developing facilities contributing to global warming countermeasures, promoting the installation of incineration facilities with continuous furnaces along with widening the areas of waste management, and increasing the ratio of waste disposal by continuous operation of incineration facilities. The Government will further promote the 3Rs on wastes and the reduction of nitrous oxide emissions resulting from waste incineration toward the achievement of the targets determined in the Sound Material-Cycle Plan under the Sound Material-Cycle Act and the waste volume reduction targets based on the Waste Management Act.

○ Optimization and Reduction of Fertilizer Application

The Government will promote the control of nitrous oxide emissions arising from fertilizer application through reduction in fertilizer applied, split application and utilization of slow release fertilizers.

(4) Three Fluorinated Gases (HFCs, PFCs and SF_6)

The three fluorinated gases account for approximately 1.3% of the total greenhouse gas emissions (FY2005 carbon dioxide equivalent). Some factors may increase the emissions of these gases. For example, it is projected that HFCs emissions will increase as they substitute for ozone-depleting substances whose production and consumption is being reduced under the Montreal Protocol (CFCs and HCFCs have strong greenhouse effects although they are outside the scope of the Kyoto Protocol). The Government will control the increase in emissions of these gases.

○ Promotion of Planned Efforts by Industry

In response to the “Guidelines for Measures to Limit Emissions of HFCs, etc. by Industry” (Ministry of International Trade and Industry public notice) in February 1998, 22 organizations in eight sectors have formulated voluntary action plans so far. The Government will continue to assess and verify the progress of the action plans of industry in the Industrial Structure Council, while working to improve the transparency and reliability of the action plans and increasing the certainty of targets achievement.

The Government will also take measures to support the efforts by business operators to control emissions, such as subsidizing the introduction of emissions controlling equipment, while urging the businesses having no action plans to formulate and publicize one.

○ Promotion of Development of Substitute Materials and Use of Substitute Products

The Government will promote the use of new substitute materials, substitute technologies and products, and recovery and destruction technologies for the three fluorinated gases.

To this end, the Government will carry out research and development of new substitute materials and substitute technologies. Taking into account safety, economic efficiency, energy efficiency or the like, the Government will provide information and education concerning the technologies and products using substitute materials or the products using the three fluorinated gases with smaller global warming effects.

In particular, it is expected that more HFCs, which are used as blowing agents in insulation materials, will be emitted into the atmosphere along with the promotion of measures to improve the energy efficiency performance of buildings and houses. In order to control this, the Government will formulate measures to further promote the use of fluorocarbon-free blowing agents and insulation materials. In conjunction with this, the Government will provide information on the appropriate disposal of waste insulation materials containing CFCs and other substances that are not subject to the Kyoto Protocol.

As increases are expected in SF_6 emissions in melting magnesium and HFCs emissions in using aerosol products containing HFCs, the Government will promote the development

of substitute materials and substitute technologies in these fields, and will implement familiarization on them.

The Government will further promote appropriate disposal measures for liquid PFCs or the like and development and dissemination of fluorocarbon-free technologies, including safe and highly efficient natural refrigerant freezer units.

○ Recovery of HFCs Filled as Refrigerant in Equipment Based on Relevant Acts, etc.

The Government will ensure thorough recovery and destruction of HFCs in the refrigerant field through appropriate operation of relevant acts including the Designated Home Appliances Recycling Act (Act No.97 of 1998), the Act on Ensuring the Implementation of Recovery and Destruction of Fluorocarbons concerning Designated Products (Act No.64 of 2001; hereinafter referred to as the “Fluorocarbons Recovery and Destruction Act”) and the Automobile Recycling Act (Act No.87 of 2002).

In particular, the Government will endeavor to increase the recovery volume of fluorocarbons from commercial refrigeration and air conditioning equipment by conducting familiarization on the revised Fluorocarbons Recovery and Destruction Act, which came into effect in October 2007. Furthermore, the Government will carry on assessments of refrigerant leakage in use of on-site fixed equipment or car air conditioners, with a view to strengthening the management system as necessary.

2. Greenhouse Gas Sink Measures and Policies

(1) Forest Sink Measures

It is necessary to ensure the attainment of the target removal by Japan's forest of 13.00 million t-C (47.67 million t-CO_2, approximately 3.8% compared to the base year total emissions) through the implementation of measures toward the achievement of the targets for full utilization of multiple functions of forests and for the supply and use of forest products, which are stipulated in the Basic Plan for Forest and Forestry decided by the Cabinet in September 2006 based on the Forest and Forestry Basic Act (Act No.161 of 1964).

According to the result of the estimation based on the assumption that the past level of forest management will continue, the target attainment will require undertaking 0.2 million ha per annum of additional forest management such as tree thinning for a six-year period starting from FY2007. Therefore, the current challenge is how to achieve this. This necessitates the efforts of the national government as a whole including consideration of cross-sectoral policies, and the cooperation and strenuous efforts of all actors, including local governments, forest owners, citizens and business operators in the forestry and timber industries.

To this end, the Government will promote support measures to accelerate forest management such as tree thinning. Taking into account the progress of consideration of cross-sectoral policies, the Government will make united efforts with the private sector to steadily and comprehensively promote forest management, timber supply, effective use of timber or other measures, which are necessary for achieving the targets of the Basic Plan for Forest and Forestry. Specific policies include the formulation of a new Act on Special Measures Concerning the Promotion of the Implementation of Thinning, etc. of Forests and the development of the "National Movement for Fostering Beautiful Forests in Japan" that has the target of undertaking 3.3 million ha of thinning in a six-year period starting from FY2007, with the understanding and cooperation of a wide range of citizens.

○ Development of Sound Forests

A. Forest management measures including additional thinning through new legal regimes or the like.
B. Promotion of efficient and effective thinning of forests by strengthening collective thinning operations, or promoting greater use of thinned wood.
C. Shift toward forests with longer cutting cycles and multistoried forests.
D. Measures to eliminate the land left denuded.
E. Programs to secure and foster essential personnel responsible for forest development.

○ Implementation of Appropriate Management and Conservation of Protection Forests, etc.

A. Appropriate operation of the regulations for land use conversion and logging and

planned designation of protection forests under the protection forests system; implementation of appropriate forest conservation and management under the protected forest system or the like.

B. Planned promotion of soil conservation projects in the regions with a high risk of mountain disasters, denuded forests in the hinterland or other areas.

C. Promotion of measures to prevent and control damage caused by forest pests and wild birds/animals; promotion of measures to prevent forest fires.

D. Expansion and enhancement of natural parks and nature conservation areas and strengthening of conservation management within these areas.

○ Implementation of Forest Fostering with the Participation of Citizens, etc.

A. Implementation of forest fostering activities by a wider range of actors, including promotion of the participation of enterprises or others in forest fostering through the development of the "National Movement for Fostering Beautiful Forests in Japan."

B. Improvement of the skills of people such as forest volunteers and upgrading of safety systems.

C. Implementation of forest environmental education.

D. Implementation of the Green Worker Program to protect flora and fauna including forests in national parks or other areas.

○ Promotion of the Use of Timber and Woody Biomass

In order to contribute to the promotion of sustainable forest management and work toward the active utilization of reproducible timber leading to the carbon dioxide emissions control by controlling the amount of fossil fuels used, the Government will implement the following measures:

A. Promotion of utilization of locally supplied timber in houses, public facilities or the like;

B. Implementation of consumer-focused programs to expand the buyer base creating actual demand for locally supplied timber;

C. Development of production, distribution and processing systems to meet consumer needs in close coordination among all concerned from forest workers to retailers; and

D. Establishment of an efficient and low-cost collection and transport system for remnant wood in forest areas and promotion of the utilization of such wood for making energy and products.

(2) Promotion of Urban Greening

Urban greening is one of the sink measures closest to the citizens' daily lives. Its promotion does not only have the effect of actual carbon dioxide removal but also brings about a large effect of familiarizing the public with the purpose of the global warming countermeasures.

The removal by urban greening can be counted for the amount of removal as

"revegetation" subject to Paragraph 4 of Article 3 of the Kyoto Protocol, outside the framework of the 13.00 million t-C, which is the upper limit of the amount of removal to be obtained through Japan's forest management (47.67 million t-CO_2, approximately 3.8% of the base year total emissions).

To this end, the Government will continue to actively promote the following: creation of urban parks; greening of public facilities such as roads, rivers, *sabo* (erosion and sediment control facilities), harbors, sewage treatment plants, public housing and government facilities; and creation of new green space on building rooftops or other places, based on comprehensive national and local government plans for the conservation and creation of greenery such as the Green Policy Outline and the Green Basic Plans drawn up by the municipalities.

As a part of these efforts, the Government will familiarize all sectors and strata of society with the value and effects of urban greening, while actively promoting the support for the creation of new greenery in urban areas by diverse actors and approaches, including urban greening with a wide-ranging participation of citizens, enterprises, NPOs or the like, and the utilization of the Authorization System of Greening Facilities Planning and the Multi-level City Parks System.

It is estimated that if these countermeasures are implemented as planned, an annual average removal volume of about 0.06% relative to the base year total emissions (0.74 million t-CO_2) will be acquired in the first commitment period.

The Government will also continue to promote in a planned manner the development of a system for reporting and verifying the volume of removals by urban greening.

II. Cross-sectoral Policies

1. Utilization of a Policy Mix Approach

The Government will utilize a policy mix approach of fully mobilizing all policy instruments, including voluntary, regulatory, economic and informational ones, taking advantage of their respective characteristics and organically combining them, in order to advance the effective and efficient reduction of greenhouse gas emissions, reduce the cost burden on the entire nation as much as possible with fairness taken into account, and achieve the multiple policy objectives of environmental conservation and economic development at the same time. The Government will promptly conduct a comprehensive study of the most appropriate form for this approach while monitoring the progress of the measures and policies of this Plan.

(1-1) Economic Instruments

Economic instruments rely on market mechanisms and induce each actor to take actions such as emission control based on economic rationality by providing economic incentives. They are expected to be effective also as economic support policies for global warming countermeasures. When using economic instruments, it is important to maximize their effects and minimize the burden on citizens and the administrative and fiscal costs in line with the policy mix approach. When providing fiscal supports, the Government will endeavor for efficient utilization of the budget, taking into account the cost-benefit performance.

(1-2) Domestic Emissions Trading Scheme

In order to accumulate knowledge and experience concerning steady, cost-efficient emissions reductions and trading, the Government has implemented since FY2005 voluntary emissions trading which provides economic incentives to the enterprises making efforts to achieve their self-determined reduction targets and utilizes the trade of emissions quotas. Following the end of the first round in the summer of 2007, from the perspective of accumulating more useful knowledge and experience with the results achieved in mind, the Government will enhance this scheme by expanding the scope of participants, diversifying participation methods and raising the efficiency of verification methods.

A domestic emissions trading scheme is an issue that must be comprehensively studied on a wide range of points such as a comparison with other methods and its effects, its possible impacts on industrial activities and national economy, and international trends in emissions trading, as well as the evaluation of specific proposals and the appropriateness of introducing such proposals, while adequately taking into account the perspective of realizing Japan’s mid-term strategies on global warming and the significant emissions reduction effects of the “expansion and reinforcement of voluntary action plans,” which is expected to be in place based on the FY2007 evaluation and verification as a pillar of the

measures in the *industrial* sector.

* A domestic emissions trading scheme is the system that first sets the total emissions quotas to be issued, then allocates emissions quotas to individual actors and allows such options as trading of emissions quotas with other actors and utilization of Kyoto Mechanism credits.

(1-3) Environment Tax

Since an environment tax would impose a burden on a wide range of citizens, it is an issue for which comprehensive studies must be seriously advanced, in tandem with efforts to obtain the understanding and cooperation of citizens, business operators and other actors, taking into account the specific role of the tax in the context of overall climate change policies and measures, its effects, its impact on national economy and the international competitiveness of industry, as well as the current state of climate change policies and measures in foreign countries.

2. Review of the Shift to Night-time Lifestyles and Working Styles

The Government will comprehensively consider the review of the shift to night-time lifestyles and working styles towards a fundamental change in citizens' consciousness, while taking into account the current state of the related efforts in foreign countries.

3. Introduction of Summer Time

As for summer time, the Government will progress the crystallization of points of the debate and endeavor for environmental awareness raising and public consensus building along with the development of the public debate.

4. The Mandatory Greenhouse Gas Accounting and Reporting System

The Government will promote the building of a foundation for voluntary efforts by all levels of citizens toward global warming countermeasures by having the emitters of greenhouse gases calculate their own emissions. With a view to increasing incentives and motivation for the promotion of voluntary efforts by all citizens and business operators through the publication and visualization of emissions information, the Government will also introduce a system under which the emitters of a certain volume of greenhouse gases or above will be obliged to annually report their emissions to the national government responsible for collating and publishing the reported information.

In addition, the Government will promote the control of greenhouse gas emissions through the revisions of the Act on Promotion of Global Warming Countermeasures, such as changing the system to require calculation and reporting of each enterprise unit or franchise chain unit, as well as taking a measure to reflect the Kyoto Mechanism credits

acquired by an electric utility to the utility's carbon dioxide emission coefficient.

5. Promotion of Environmental Consideration in Business Activities

Through the revision of the Act on Promotion of Global Warming Countermeasures and the formulation and publication of Guidelines for Controlling Greenhouse Gas Emissions, the Government will urge business operators to voluntarily and actively engage in environment-conscious business activities.

Large corporations are required to endeavor to publish environmental reports by the Act Concerning the Promotion of Business Activities with Environmental Consideration by Specified Corporations, etc. by Facilitating Access to Environmental Information and Other Measures (Act No.77 of 2004). Taking this and other related matters into consideration, the Government will promote the use of environmental information by business operators and citizens and work to develop the conditions for environment-conscious business activities to be highly evaluated by society and the market.

The Government will also promote the inclusion of information about business operators' greenhouse gas emissions and progress on efforts to control emissions in their environmental reports. The Government will prompt small and medium sized business operators to make environment-conscious efforts such as monitoring of carbon dioxide emissions.

The Government will promote environmental consideration in the financial sector (greening of the financial sector) through the following measures: bringing financial institutions' environmental governance to the fore on investment and loan projects; expanding Social Responsible Investment Funds (SRI Funds); disclosing information on the environmental conservation efforts by business operators or the status of environmental conservation projects; and making investments and loans considering environmental conservation efforts.

Furthermore, the Government, through collaboration among government, industry and academia, will promote the efforts toward "energy saving of IT devices" and "energy saving of society through IT," and the establishment of environmental impact assessment methodology for IT enterprises activities (Green IT Initiative). These will then be disseminated internationally.

6. Development of National Campaigns

The Government will clarify the expected roles of the national and local governments, citizens and business operators, while undertaking activities including the provision of information enabling each actor to make appropriate assessment and judgment and the familiarization promoting the practice of emissions reductions.

The Government will further strengthen the roles of the Japan Center for Climate Change Action, prefectural and major municipal Promotion Centers for Climate Change Action, Climate Change Action Officers, Regional Councils on Global Warming Countermeasures and other organizations which promote the activities of controlling greenhouse gas emissions.

○ Information Provision/Familiarization

The Government will encourage individual citizens to take voluntary actions for preventing global warming by strongly appealing to the awareness of citizens through the appropriate provision of information using diverse methods, including the proactive utilization of various mass media such as television, newspapers and the Internet, on the "I declare CO_2 reduction of 1 kg 1 day 1 person" movement, *Cool Biz*(business style to wear light clothing with the air conditioning set at 28℃ in summer), *Warm Biz* (business style to wear warm clothing with the air conditioning set at 20℃ in winter), and other efforts in the Team Minus 6% campaign.

In addition, in accordance with the Energy Conservation Act, energy suppliers and energy-efficient appliance retailers are to adequately provide the users of such appliances with information and methodology on energy saving. The Government will also encourage the industrial community to supply energy-efficient appliances.

In order to urge consumers to take actions including choice of energy-efficient appliances, the Government will promote "visualization" of carbon dioxide emissions volume at the manufacture, use or other stages of various products and services, while working to foster a sound sense of crisis through the provision of the latest scientific knowledge, and engaging in information provision and familiarization on what specific actions can contribute to the control of greenhouse gas emissions or the promotion of sink measures. Therefore, through the revision of the Act on Promotion of Global Warming Countermeasures, the Government will list measures required of business operators in the Guidelines for Controlling Greenhouse Gas Emissions and implement the following measures for all levels of citizens by a variety of approaches.

- Promoting efforts such as the Team Minus 6% campaign, in which all Japanese make joint efforts for the prevention of global warming with the participation of a broad range of actors, through promoting the large scale campaign under the motto, "I declare CO_2 reduction of 1 kg 1 day 1 person," *Cool Biz*, *Warm Biz*, or the like.
- Promoting green purchasing by business operators and citizens through such means as the provision of information concerning eco-friendly goods and services.
- Promoting measures which provide economic incentives according to the amount of environmentally considerate behavior, such as "Eco action point."
- Progressing the dissemination of carbon offset measures.
- Promoting the dissemination of energy-efficient household appliances through the

Energy -efficient Household Appliances Promotion Forum.

- Encouraging people to replace dishwashers or other appliances not subject to the Top-runner standard regulations with less energy-consuming ones.
- In addition to the “Energy Saving Labeling Program” by which consumers can easily distinguish efficiency or other performances of appliances, working on the dissemination and enhancement of the “Energy Efficient Product Retailer Assessment System,” and promoting familiarization through measures like “Unified Energy Saving Labeling,” in order to promote the proactive sales of energy-efficient appliances.
- Promoting the proactive provision of energy-saving information to consumers by the retailers of household appliances including electrical, gas or oil burning ones.
- Requiring electric power and gas companies to implement energy conservation promotion projects, such as the promotion of dissemination of highly-efficient devices and the provision of information on energy use, and to publicize the progress of those projects.
- Promoting voluntary refrainment from unnecessary or unhasty use of private cars and dissemination of eco-driving (e.g. idling stop while stopping or parking, driving at safe and constant speeds appropriate for the traffic conditions).
- Developing familiarization activities to promote cooperative efforts among transport business operators, the business circle and others concerning promotion of the use of public transport systems.
- Developing familiarization activities to promote cooperative efforts between shippers and logistics operators.
- Developing familiarization activities to raise public awareness of environment-friendly railway freight transport.
- Promoting the efforts of local production for local consumption that contribute to controlling the fuel consumption associated with food transport.
- Promoting biomass utilization and other global environmental conservation efforts in agriculture, forestry and fisheries industries, which also contribute to regional revitalization.
- Developing popular-participation-type greening campaigns including the development of national greening campaigns in Greenery Month or Urban Greening Month and the promotion of private-sector forest fostering and greening activities through the utilization of the funds such as the Green Fund and the Urban Greening Fund, in order to widely familiarize the public with the importance of greening as a sink measure.
- Developing familiarization activities concerning the value of utilizing local wood, such as the “Kizukai-Undo”(Familiarization with Wood Campaign).

○ Environmental Education, etc.

In order to ensure that citizens recognize and understand the importance of the global warming issue and make it a habit to take actions to prevent global warming, the Government will promote environmental conservation activities and environmental

education based on the Act for Enhancing Motivation on Environmental Conservation and Promoting of Environmental Education (Act No.130 of 2003), taking into account the United Nations Decade of Education for Sustainable Development commencing in 2005.

Specifically, in accordance with the "21st-Century Environmental Education Initiative," the Government will progress environmental education in collaboration with various actors in all locations, such as schools, regions and workplaces. It will also promote programs contributing to this, including human resources development and foothold establishment.

In particular, the Government will promote the implementation of hands-on environmental education and energy conservation activities in school facilities that play a central role in regions. For example, the Government will take such measures as introduction of fluorocarbon-free insulation materials, renovations contributing to global warming countermeasures including local wood use and introduction of renewable energy devices, while utilizing the Internet or other media to promote support for global warming countermeasures in households.

At the same time, the Government will continue to advance the development of teaching materials and programs that encourage citizens' understanding and actions in collaboration with relevant actors such as NPOs.

The Government will also promote various hands-on activities in such areas as forests, parks and green space in order to deepen understanding of the functions of forests in preventing global warming, the necessity of forest development and cyclical use of timber resources, or the value of urban greening.

III. Basic Policies

1. Development of a National System for Calculating Greenhouse Gas Emissions and Removals Based on the UNFCCC and the Kyoto Protocol

The Kyoto Protocol requires each Annex I party to develop a national system for the calculation of greenhouse gas emissions and removals no later than one year prior to the start of the first commitment period. Therefore, the Government of Japan established a national system for calculating emissions and removals in compliance with the “Guidelines for national systems” decided by the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol at its first session (COP/MOP 1).

From now, taking into account that the first commitment period commences in 2008, the related ministries led by the Ministry of the Environment will cooperate in establishing as soon as possible a system for the aggregation, calculation and publication of statistics on greenhouse gas emissions and removals.

As to the calculation of greenhouse gas emissions, the Government will continue to examine how to refine the calculation methods/processes for emission coefficients and volume of activity.

Furthermore, the related ministries led by the Ministry of the Environment will cooperate to put in place a framework for the prompt submission of a greenhouse gas emission and removal inventory by the stipulated deadline, the quality control of data, the review and approval process of inventory, the response to review of expert review teams to be dispatched based on the Kyoto Protocol, or the like.

In addition, when calculating emissions, the Government will aim to more accurately monitor the status of emissions in each sector and to meticulously examine the methods for evaluating implementation of countermeasures by each actor. To this end, the Government will advance the development of statistics used for volume of activity, the studies and researches concerning calculation of the energy consumption intensity and carbon dioxide emissions intensity, greenhouse gas measurement methods or the like, while promoting standardization (development of Japanese Industrial Standards (JIS)) based on the results of these studies and working to further refine the calculation of greenhouse gas emissions and removals.

On the other hand, when measuring, monitoring and reporting removals (or emissions) by carbon sinks, the Government will establish transparent and highly scientifically-verifiable methods in conformity with the “Good Practice Guidance for Land Use, Land-Use Change and Forestry” decided by the Conference of the Parties to the UNFCCC at its tenth session (COP10). With an eye on the application of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, the Government will promote the accumulation of information on the volume of activity and land use changes, which is

necessary to carry out continuous measurement, monitoring and reporting, as well as the studies and researches concerning greenhouse gas removal and emission mechanisms in forests and other sinks.

2. Promotion of the Development of Global Warming Countermeasure Technology

Technological development is expected to generate large effects of greenhouse gas emissions reduction in the future through dissemination of the developed technologies while achieving compatibility between the environment and the economy. Towards the Third Phase of the Science and Technology Basic Plan (Cabinet Decision of March 28, 2006) and its pillar, the strategic focusing in science and technology, the ministries related to the Sectoral Promotion Strategies, which clearly state future selection and concentration of investment and targets for each research and development issue, collaborate for its promotion comprehensively under the cooperation among government, industry and academia. Also, from a mid- and long-term perspective, the Government will promote the fusion of differing fields of technology or the reform of systems in accordance with the long-term strategic policy road map, “Innovation 25” (Cabinet Decision of June 1, 2006). In order to further promote global warming countermeasures, the related ministries collaborate, for example, for the development of technology to lower costs of equipment utilizing renewable energy including solar power.

○ Promotion of the Practical Application and Commercialization of New Technologies

Further improvement of the efficiency, cost reduction and miniaturization by technological development can lead to the promotion of countermeasures for carbon dioxide emissions reduction such as the introduction and dissemination of renewable energy and highly-efficient devices. However, the important factor affecting whether the benefits of technological development can lead to greenhouse gas reduction within the first commitment period is how quickly effective technologies for emissions reduction can be practically applied and commercialized.

For this reason, through collaboration among government, industry and academia, the Government will strongly promote the following:

- clarification and sharing of a road map for commercializing the results of research and development;
- development and demonstration of technologies that promote practical application; and
- support for pioneering efforts toward commercialization.

In so doing, the Government will work in conjunction with the policies for disseminating development results to the market.

○ Promotion of Cross-sectoral Efforts

As can be seen in the case of the battery technology supporting hybrid automobiles,

innovative and promising global warming countermeasure technologies are being put into practical use through application of elemental technologies of a certain field to another or joint work across the boundaries of businesses. In order to produce as many such successful examples as possible, the Government will strongly promote efforts through cross-sectoral collaboration among government, industry and academia.

○ Promotion of Technology Development from a Mid- and Long-term Perspective

Taking into account the long-term goal of "halving global greenhouse gas emissions by 2050" proposed in the "Cool Earth 50," it is necessary to provide from an early stage sufficient support for the development of global warming countermeasures from a mid- and long-term perspective as long as sustained benefits can be expected from that development, even if it may take a long time before technological development will give results.

For example, some technologies for global warming countermeasures have a significant challenge of reducing costs associated with manufacturing or other processes to commercialize such technologies, although their technological challenges have already been overcome. In order to promote the further dissemination of such technologies and thus achieve further greenhouse gas emissions reductions, the Government will support from an early stage such technologies as follow: renewable or unused energy technologies that realize significant cost reductions and efficiently conduct energy conversion; dramatically energy-saving technology; carbon dioxide capture and storage technology that recovers carbon dioxide emitted through the use of fossil fuels and thus reduces emissions of carbon dioxide into the atmosphere.

In addition, as the "Cool Earth 50" highlights the necessity of the "innovative technology development," the Government will promote technological development from a long-term perspective under the international cooperation, aiming to achieve economic growth and greenhouse gas emissions reductions at the same time.

For example, nuclear power, which does not emit carbon dioxide in its power generation process, is currently the only clean energy source that could become a core power source in our country. Based on the most fundamental premise of ensuring safety, the Government will proactively promote the development and practical application of such technologies as the "Fast Breeder Reactor (FBR) cycle technology," which will dramatically raise the utilization rate of uranium resources and control the generation of radioactive wastes, next-generation light water reactor technology with significantly improved safety, economic efficiency and reliability, and "nuclear fusion technology," which will produce enormous energy from minimal resources.

The Government will also support the projects regarding the following technologies: ultra high energy efficiency technology; innovative technology for low-cost and high-efficiency solar power generation; fuel cells and hydrogen utilization technology; technology for efficiency improvement of coal-fired power generation and carbon dioxide

capture and storage; and green IT.

The Government will intensely promote technology for encouraging reform of urban/regional structures or socioeconomic systems to form a foundation for mid- and long-term global warming countermeasures, as well as technology supporting all kinds of countermeasures in a cross-sectoral manner.

In addition, the Government will promote basic researches in universities contributing to global warming countermeasures, bearing in mind also the perspective of continuously developing human resources in the fields in which Japan possesses strength, while respecting the voluntary efforts by universities.

Besides, the Government will meticulously promote countermeasure technologies in various fields, including the following: development of substitute materials for the three fluorinated gases; greenhouse gas emissions control technology in the agriculture, forestry and fisheries fields; and study and research on the mechanisms by which farmland removes greenhouse gases.

3. Promotion of Research on Climate Change and Strengthening of Observation and Monitoring Systems

Concerning research on global warming, the Government will strategically and intensively promote researches on the following areas: elucidation of the climate change mechanism; monitoring and future projections of global warming and development of the technology necessary for that; evaluation of environmental, social and economic impacts by global warming; and policies for greenhouse gas reduction and adaptation to global warming. In doing so, the Government will take into account the Global Warming Research Initiatives by the Council for Science and Technology Policy and other initiatives. It will also try to foster international cooperation in this regard.

The Government will strengthen the comprehensive global warming observation and monitoring systems to keep track of greenhouse gases, climate change and their impacts, taking into account the Global Earth Observation System of Systems (GEOSS) 10-Year Implementation Plan endorsed at the Third Earth Observation Summit (February 2005, Brussels), the Council for Science and Technology Policy's Earth Observation Promotion Strategy (decision and opinion offered of December 27, 2004), and the like.

In particular, Japan's efforts include the following: observation of atmospheric, continental and marine greenhouse gases primarily in the Asia and Oceania region; collection, exchange and analysis of various countries' observational data; observations of the continental and marine carbon cycle and ecosystems; observation of the impacts by global warming in regions vulnerable to climate change such as snow and ice zones and coastal zones; and integration of observational data and socioeconomic data.

4. Ensuring of International Partnership on Measures Against Global Warming and Promotion of International Cooperation

In implementing global warming countermeasures, it is essential to make long-term efforts to reduce greenhouse gas emissions not only by Japan but also by the entire world working together. The Kyoto Protocol is an important first step and it is necessary for the entire world to steadily implement the efforts.

To that end, Japan will continue to call on non-Parties to the Protocol to ratify it. At the same time, by utilizing its superior technological capabilities and accumulated experience of environmental conservation, Japan will provide support through a new financial mechanism (Cool Earth Partnership) to developing countries that are making efforts to achieve greenhouse gas emissions reduction and economic growth in a compatible way and to contribute to the climate stabilization. Such support will be given to the following efforts: greenhouse gas emissions reduction; forest conservation including measures against illegal logging and other deforestation and forest degradation; measures for the regions vulnerable to effects of global warming such as sea level rises and droughts; promotion of energy conservation and renewable energy; and promotion of clean energy utilization. Japan will extend its support to those developing nations which will suffer serious damage from climate change, in particular, LLDCs. Through these measures, Japan will fulfill a leading role in the global efforts.

Current global greenhouse gas emissions are more than double the capacity of natural sinks and the greenhouse gas concentrations in the atmosphere continue to increase. In order to achieve the ultimate objective of the UNFCCC, it is necessary not only for the Parties to the Kyoto Protocol to steadily fulfill their commitments under the Protocol, but for the entire world to control global emissions to the level equivalent to the capacity of natural sinks in the long term. To this end, in accordance with the “Cool Earth 50,” Japan is proposing a long-term target of cutting global emissions by half from the current level by 2050 as a common goal for the entire world.

Furthermore, towards the global target of “halving emissions by 2050,” a post-2012 framework must greatly move beyond the Kyoto Protocol. Therefore, in the “Cool Earth 50,” Japan has proposed “three principles” for designing a concrete framework for the period from 2013 following the end of the first commitment period under the Kyoto Protocol. It is important to establish a fair and effective next framework based on these principles.

＜“Three principles” for establishing an international post-2012 framework to address global warming＞

(i) All major emitters must participate, moving beyond the Kyoto Protocol, leading to the global reduction of emissions.

(ii) The framework must be flexible and diverse, taking into consideration the circumstances of each country.

(iii) The framework must achieve compatibility between environmental protection and economic growth by utilizing energy conservation and other technologies.

On a post-2012 framework, following the adoption of the “Bali Action Plan” at the thirteenth session of the Conference of the Parties to the UNFCCC (COP13) held in Bali at the end of last year, negotiations under the UNFCCC and the Kyoto Protocol are accelerating. Japan, as the chair of the G8 Summit of this year, will take initiatives and facilitate discussions on a post-2012 framework amongst stakeholder countries.

In January 2008, Japan proposed the following three points in the “Cool Earth Promotion Programme.”

(i) Post-Kyoto Framework

Japan will, along with other major emitters, set a quantified national target for the greenhouse gas emissions reductions in working towards the establishment of a framework in which all major emitters participate as well as the setting of fair and equitable emissions target.

(ii) International Environment Cooperation

Japan aspires to set a global target of 30% improvement of energy efficiency by 2020 toward the most efficient use of energy. In addition, Japan establishes a new financial mechanism, Cool Earth Partnership, on the scale of US $10 billion to support developing countries’ efforts.

(iii) Innovation

Japan will accelerate the development of innovative technologies indispensable for halving greenhouse gas emissions by 2050, while undertaking a rethinking for shifting Japan to a low-carbon society and playing a leading role in creating such a society on a global scale.

Particularly, in setting quantified national targets, it is important to ensure the equity of reduction obligations. To this end, the targets could be set by compiling on a sectoral basis energy efficiency as a scientific and transparent measurement and tallying up the volume of potential emission reductions that would be achieved based on the technologies to be in use in future. As to Japan’s quantified national target, the Government needs to accelerate necessary work.

The Government will also promote international cooperative researches that will contribute to improvements in developing nations’ problem-solving ability, while

continuing to provide appropriate support to the adaptation measures of vulnerable countries that have low capacity to respond to climate change, such as island nations and least developed countries. In addition, in order to achieve compatibility between environmental protection and economic growth in developing countries, the Government will promote cooperation through the co-benefits approach that will contribute to both pollution or waste control and greenhouse gas emissions reduction.

Section 3 Efforts Expected of Local Governments in Particular

In order to promote global warming countermeasures, it is important for local governments, which are responsible for environmental administration in local areas, to demonstrate the initiatives. It is expected that local governments will promote measures conceived locally and best suited to the conditions in each area.

I. Implementation of Comprehensive, Plan-based Programs

Based on Article 20 of the Act on Promotion of Global Warming Countermeasures, in view of the basic philosophy concerning global warming countermeasures in this Plan, local governments are expected to formulate and implement comprehensive, plan-based programs in accordance with the natural and social conditions of their local areas.

Specifically, such a program is anticipated to incorporate, by local originality and ingenuity, the following measures: urban/regional development and social capital development that contribute to greenhouse gas emissions reduction; introduction of renewable energy utilizing local resources; promotion of the active use of timber resources; forest conservation and development; timber and woody biomass use; and promotion of greening campaigns. Through this, it is expected that the development of cutting-edge model areas serving as examples for other areas will be advanced and spread to other areas.

In doing so, taking into account the difference in local circumstances such as lifestyle, industrial activities and transport, local governments are expected to exercise their originality and ingenuity to enhance or accelerate their unique efforts and establish symbolic global warming countermeasures, through utilization of the national support measures positioned in the “Global Warming Countermeasures Promotion Program for Regions” under the Regional Revival System, or the invitation of proposals for and implementation of special regulatory measures under the Special Zones for Structural Reform System.

Local governments, as the public sector closest to residents and business operators, are expected to advance community-based policies such as education or familiarization to local residents and support for the activities of private organizations.

In promoting policies, it is expected to appropriately ensure the cooperation and participation of residents, business operators and private organizations.

In taking policies, local governments are expected to collaborate with the policies of the national government in this Plan on the basis of respect for the autonomy of each local government, and to contribute to the nationwide greenhouse gas emissions reduction, while considering business operators’ effective improvements in energy efficiency on a national

scale.

Through the revisions to the Act on Promotion of Global Warming Countermeasures, the Government will prompt prefectures, government-designated cities, core cities and special case cities to stipulate, in their local government action plans, programs for controlling greenhouse gas emissions in accordance with the natural and social conditions of their local areas. In addition, local governments are to make considerations in related policies such as development of urban plans and agricultural promotion areas improvement plans, so that control of greenhouse gas emissions will be achieved in harmony with these policies' objectives and in partnership with local government action plans.

II. Efforts Expected of Prefectures in Particular

Prefectures, in particular, as the local public sector covering a wider area, are mainly expected to promote wide-area, large-scale local global warming countermeasures such as traffic flow management and promotion of efforts by commercial buildings and business operators in their areas, and to provide support for municipalities' efforts including formulation of action plans, in cooperation with prefectural and major municipal Promotion Centers for Climate Change Action, Regional Councils on Global Warming Countermeasures and Climate Change Action Officers.

The Government will back up the efforts to prevent global warming by local governments and other local actors by utilizing the "Regional Committees for Promoting Energy and Global Warming Countermeasures" (refer to Chapter 4, Section 3) established in each regional block throughout Japan.

III. Efforts Expected of Municipalities in Particular

Municipalities, in particular, as the public sector closest to local residents and business operators in their areas, are expected to cooperate with Regional Councils on Global Warming Countermeasures, analyze the natural and social conditions of their areas and advance more community-based programs that are most effective in accordance with the local characteristics, in collaboration with the national government, prefectures, local business operators or other actors. The programs mainly include the following: education and familiarization to local residents; support for the activities of private organizations; and implementation of projects to study and introduce renewable energy utilizing local resources.

Section 4 Efforts Expected of Business Operators with Large Emissions in Particular

Business operators with significantly large emissions of greenhouse gases are expected to individually or jointly formulate plans that include quantitative targets on measures for emission control, in order to promote effective countermeasures taking into account the diversities of types, sources and emission control countermeasures of greenhouse gases.

Although the contents of such plans are voluntarily determined by business operators, they are expected to pay attention to the following points in order to make their best efforts by exercising their originality and ingenuity.

○Controlling emissions by advancing improvement in the energy consumption intensity or carbon dioxide emissions intensity as the target of specific efforts, and carrying out analyses of those performances.
○Carrying out international comparisons of the intensities taking into account the characteristics of each business.
○Incorporating in the plan as many measures as possible to contribute to the control of greenhouse gas emissions of other actors, such as development of products with small greenhouse gas emissions, reduction of the amount of wastes, and undertaking quantitative evaluations of their contribution to emissions control in other sectors including *commercial and other*, *residential* and *transport*.
○A business operator that has formulated a plan should publish it and endeavor to publish the implementation status of measures taken based on it.
○A business operator should endeavor to improve the transparency and reliability of its plan, by undergoing an objective evaluation of the plan by a concerned governmental council or a third-party institution, and should work to improve the probability of accomplishing the plan, taking into account the results of such an evaluation.

Section 5 Measures and Policies Related to the Kyoto Mechanisms

I. Value of Promotion and Utilization of the Kyoto Mechanisms

In order to achieve the reduction commitments, prevent warming on a global scale and support the sustainable development of developing countries, the Kyoto Protocol approves the Kyoto Mechanisms[28] (Joint Implementation (JI), the Clean Development Mechanism (CDM) and emissions trading) to be utilized[29] as flexible measures that enable a party to this Protocol to use a part of greenhouse gas emission reductions or removals in another party or the emissions quota of another party toward achievement of their own reduction commitments.

To certainly and cost-effectively achieve the Kyoto Protocol commitment, Japan will appropriately utilize the Kyoto Mechanisms to acquire necessary credits, while bearing in mind the general rule that the Kyoto Mechanisms should be supplementary to domestic measures.

Given that greenhouse gas emissions are projected to dramatically increase mainly in developing countries in the future, it is important for Japan to promote and utilize the Kyoto Mechanisms with a view to contributing to prevent warming on a global scale.

II. Government Efforts Toward the Promotion and Utilization of the Kyoto Mechanisms

[28] Joint Implementation (JI) is a mechanism under which greenhouse gas emissions reduction or removal resulting from projects aimed at reducing anthropogenic emissions by sources or enhancing anthropogenic removals by sinks of greenhouse gases in developed countries, etc. can be received as "emission reduction units" (ERUs under Paragraph 1 of Article 6 of the Kyoto Protocol) by project participants from other developed countries, etc. that contributed to the project. The Clean Development Mechanism (CDM) is a mechanism under which greenhouse gas emissions reduction or removal resulting from projects aimed at reducing anthropogenic emissions by sources or enhancing anthropogenic removals by sinks of greenhouse gases in developing countries can be received as "certified emissions reductions" (CERs under (b) of paragraph 3 of Article 12 of the Kyoto Protocol) by project participants from developed countries, etc. that contributed to the project. Emissions trading is a mechanism under which trading of assigned amount units (AAUs) issued in developed countries, etc. in accordance with the provisions of paragraph 7 of Article 3 of the Kyoto Protocol and/or, removal units (RUs), which are assigned amounts corresponding with the net changes set forth in the provisions of paragraph 3 of Article 3 of the Kyoto Protocol for forests subject to the protocol, etc. is carried out. One form of emissions trading which is conducted under the condition that funds resulting from the transfer of assigned amounts, etc. are used for emissions reduction or other environmental policy objectives is called the Green Investment Scheme (GIS) (hereinafter emission reduction units, certified emissions reductions, assigned amounts and other calculated assigned amounts listed under each item in Paragraph 6 of Article 2 of the Act on Promotion of Global Warming Countermeasures (Act No. 117 of 1998) will be generally referred to as "credits").

[29] "Utilization" of the Kyoto Mechanisms means obtaining credits generated from CDM or JI projects or credits of developed countries, etc. and counting them toward achievement of the Kyoto Protocol commitment (transferring these credits first to the account for the Government, and then to the retirement account of the national registry).

1. Basic Philosophy on the Utilization of the Kyoto Mechanisms

Since the adoption of the Kyoto Protocol in 1997, Japan has participated in the international consideration of the implementation rules for the appropriate utilization of the Kyoto Mechanisms. The Government has also been progressing such efforts as capacity building of the countries where CDM or JI projects are conducted, feasibility study of CDM or JI projects and establishment of consultation counters for promoting private business operators' efforts.

All sectors and levels of society in Japan will need to make every effort to achieve the Kyoto Protocol commitment on the basis of the domestic measures for greenhouse gas emissions reduction and carbon sinks (hereinafter referred to as "domestic measures"). These efforts notwithstanding, there will be a shortfall in Japan achieving its Kyoto Protocol commitment (1.6% relative to the base year total emissions: See Chapter 2, Section 2, 3).

It is necessary to steadily make up for this difference by utilizing the Kyoto Mechanisms to acquire credits, while respecting the general rule that the Kyoto Mechanisms should be supplementary to domestic measures.

When acquiring credits in accordance with the Kyoto Mechanisms, it is important to take into account the following perspectives: (i) acquiring these while considering cost effectiveness and reducing risks, and (ii) aiming for the prevention of warming on a global scale and the support towards the sustainable development of developing nations.

It is necessary to proceed with the Kyoto Mechanisms utilization, based on the recognition of the following conditions. First, if we commence to utilize the Kyoto Mechanisms after 2013 when the final confirmation of any shortfalls in the achievement of the Kyoto Protocol commitment will be made, we will have a very high risk that we cannot acquire the amount of credits necessary to achieve the commitment. Second, it takes three to five years for CDM and JI projects, which contribute to additional greenhouse gas emissions reduction and removal, and projects under the Green Investment Scheme (GIS), which is an emissions trading mechanism linked to specific environmental countermeasures, to progress from planning to implementation and credit issuance. In addition, other countries which are anticipated to have difficulty in achieving the Kyoto Protocol commitments through domestic measures alone, have already commenced to utilize the Kyoto Mechanisms by advancing the selection of high-quality projects or the purchase contracts of credits in a systematic manner with a view to securing the credits necessary to achieve their own commitments. It is important for Japan to pay attention to such efforts in other countries.

2. Establishing the Foundations for the Utilization of the Kyoto Mechanisms in Japan

In order for Japan to qualify for the Kyoto Mechanisms throughout the first commitment period and ensure the safety of credit trading by the private sector, the Government will appropriately operate and manage the Quota Account Inventory, by which the Government and private corporations will acquire, hold and transfer credits, in accordance with the international decisions and the Act on Promotion of Global Warming Countermeasures. Likewise, the Government will appropriately manage the domestic system for calculating greenhouse gas emissions and removals, which is necessary to qualify for the utilization of the Kyoto Mechanisms. In addition, in accordance with the international decisions, the Government will aim to report an overview of these systems and other information to the UNFCCC Secretariat without delay.

Through the revision of the Act on Promotion of Global Warming Countermeasures, the Government will also stipulate an obligated actor and procedures including implementation methods concerning the internationally agreed indemnification obligation related to the credits arising from afforestation and reforestation CDM projects.

3. Promotion of CDM, JI and GIS Projects

In order to increase the amount of credits Japan could obtain in the future and to disseminate its superior technologies worldwide, it is important to make efforts to promote the formation of specific emission control, reduction or removal projects through CDM, JI and GIS by Japanese private business operators or other actors.

(1) Contribution to the Development and Improvement of CDM and JI Schemes

Japan will actively contribute to the improvement of international rules or other work to invigorate CDM worldwide. In particular, with energy demand expected to increase along with the development of industry in developing countries, it will be a vital issue to ensure the rational use of energy. The Government will therefore continue to call on the international community to accelerate project evaluations at the CDM Executive Board and integrate methodologies regarding the CDM projects related to energy conservation and renewable energy in order to promote those projects further.

The Government will actively contribute to the formulation of JI-related international rules and the debate on the scheme operation through the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (COP/MOP) or other meetings. With the debate on a future framework in mind, the Government will make efforts to promote broad-based deliberations on the issue of adding nuclear power to the scope of the CDM scheme. For example, the Government will put forward this issue in international deliberations on technology transfers to developing nations.

(2) Establishment of a Specific GIS Scheme

With a view to ensuring the appropriate utilization of GIS, the Government will advance

consultations with governments of other countries and work rapidly to establish a specific scheme.

(3) Support for Discovery and Formation of Projects

Through promoting the discovery and formation of CDM/JI/GIS projects, the Government will work to ensure that Japan can obtain credits from those projects. In order to promote the smooth implementation of CDM/JI/GIS projects, the Government will deepen the understanding of the Kyoto Mechanisms in partner countries where those projects are carried out (hereinafter referred to as “host countries”), and will provide support for the capacity building on domestic systems so that host countries can meet the qualifying standard for participation in the Kyoto Mechanisms.

- On CDM/JI/GIS projects, the Government will work to discover projects utilizing promising energy and environmental technology, enhance feasibility studies or other support, and promote their implementation.
- To date, Japan, recognizing the importance of its relations with host country governments, has advanced such efforts as issuing joint statements between heads of state for the promotion of CDM/JI projects. It will continue to advance the creation of these bilateral cooperation schemes.
- Through the holding of intergovernmental talks and seminars, technical cooperation or the like, the Government will work to understand the priority fields in host countries, and will advance the support for capacity building in host countries, such as dissemination of knowledge concerning the Kyoto Mechanisms, formulation of government approval guidelines and human resources development.

4. Japan’s Efforts for Credit Acquisition

On top of expending maximum efforts on domestic measures, it is necessary for the public and private sectors to collaborate appropriately in utilizing a variety of approaches effectively to acquire credits through the Kyoto Mechanisms so that Japan can make utmost effort toward the achievement of its Kyoto Protocol commitment.

(1) Establishment of the Government’s Credit Acquisition System and Implementation of Credit Acquisition

The Government will appropriately advance credit acquisition toward the achievement of its Kyoto Protocol commitment. In doing so, it is important to keep the following points in mind: (i) acquiring credits while considering cost effectiveness and reducing risks, and (ii) aiming for the prevention of warming on a global scale and the support towards the sustainable development of developing nations. The acquisition of credits by the Government contributes to the overseas expansion of Japanese private business operators actively engaging in the Kyoto Mechanisms, as well as the dissemination of Japan’s

superior technologies worldwide. Therefore, the Government will endeavor to obtain credits in the following way:

- The Government will make every effort to acquire credits under CDM/JI/GIS projects.

- The Governmentwill rigorously assess and manage the risks of each credit acquisition. In addition, the Government will endeavor to acquire credits while considering cost effectiveness and reducing risks through making efforts to diversify the countries and parties concerned with credit acquisition within the overall credit acquisition program or conducting public solicitations in principle.

- In acquiring credits, the Government will thoroughly consider the effects on the environment and the local residents concerned with the credit yielding project, keeping in mind international rules or the like.

- The Government will utilize the independent administrative agency, New Energy and Industrial Technology Development Organization (hereinafter referred to as "NEDO") for credits acquisition. In doing so, the Government will harness NEDO's skills such as its accumulated expert knowledge and overseas network related to the Kyoto Mechanisms in order to reduce the risks accompanying credit obtainment and ensure the long-term and stable implementation of credit acquisition by NEDO.

(2) Utilization of Public Funds Outside of the Government's Credit Acquisition Scheme

When promoting and utilizing the Kyoto Mechanisms, the Government will advance the effective utilization of ODA in conformity with international rules and on the premise of agreement by its recipient countries. The Government will also promote the effective use of other public funds. The Government will make efforts to have the credits resulting from these make the maximum contribution to the Government's credit acquisition.

5. Development of a Structure for Promotion and Utilization of the Kyoto Mechanisms

It is important for all of the concerned ministries within the Government to make joint efforts for measures and policies concerning promotion and utilization of the Kyoto Mechanisms. Therefore, the Government will strengthen the collaboration within the Government and with government-affiliated organizations in order for the concerned ministries to cooperate to advance their efforts efficiently.

With a view to strengthening the collaboration and promoting the measures and policies to be implemented, the Government will continue to utilize after FY2008 the "Meeting for Promotion and Utilization of the Kyoto Mechanisms," which is composed of the concerned ministries with the objective of comprehensive promotion and utilization of the Kyoto Mechanisms.

Each concerned ministry will proactively and voluntarily advance its respective efforts,

particularly in the following fields.

（Ministry of the Environment）

・For achieving Japan's Kyoto Protocol commitment, the Minister of the Environment, as a Vice Chairman of the Global Warming Prevention Headquarters, will take the initiative in all aspects of promotion and utilization of the Kyoto Mechanisms by the Government.

・The Ministry of the Environment will proactively work on promotion and utilization of the Kyoto Mechanisms from the viewpoints of promoting efforts toward project formation by private business operators or other actors and contributing to the sustainable development of the host country through CDM/JI projects.

・The Minister of the Environment, as a competent minister of NEDO's credit acquisition activities, will proactively work on the acquisition of credits through NEDO together with the Minister of Economy, Trade and Industry.

(Ministry of Economy, Trade and Industry)

・For achieving Japan's Kyoto Protocol commitment, the Minister of Economy, Trade and Industry, as a Vice Chairman of the Global Warming Prevention Headquarters, will take the initiative in all aspects of promotion and utilization of the Kyoto Mechanisms by the Government.

・The Ministry of Economy, Trade and Industry will proactively work on promotion and utilization of the Kyoto Mechanisms from the viewpoints of promoting efforts toward project formation by private business operators or other actors, disseminating Japan's energy and environmental technology internationally, and alleviating energy use restrictions.

・The Minister of Economy, Trade and Industry, as a competent minister of NEDO's credit acquisition activities, will proactively work on the acquisition of credits through NEDO together with the Minister of the Environment.

・The Ministry of Economy, Trade and Industry will proactively work on promotion and utilization of the Kyoto Mechanisms by use of ODA in conformity with international rules and on the premise of agreement by its recipient countries.

(Ministry of Foreign Affairs)

・From the viewpoint of complying with international treaties, the Ministry of Foreign Affairs will proactively work on all aspects of promotion and utilization of the Kyoto Mechanisms by the Government for achieving Japan's Kyoto Protocol commitment.

・The Ministry of Foreign Affairs will take the initiative in promoting and utilizing the Kyoto Mechanisms through coordinating negotiations and consensus formation with foreign governments necessary for promoting and utilizing the Kyoto Mechanisms, building cooperative relations with foreign governments concerning the Kyoto Mechanisms, implementing the necessary studies, and participating in international organizations.

・The Ministry of Foreign Affairs will proactively work on promotion and utilization of the Kyoto Mechanisms by use of ODA in conformity with international rules and on the premise of agreement by its recipient countries.

(Ministry of Land, Infrastructure, Transport and Tourism)

- The Ministry of Land, Infrastructure, Transport and Tourism will proactively work on promotion and utilization of the Kyoto Mechanisms in the transport sector and the social capital development sector.

(Ministry of Agriculture, Forestry and Fisheries)

- The Ministry of Agriculture, Forestry and Fisheries will proactively work on promotion and utilization of the Kyoto Mechanisms in the forest sector.

(Ministry of Finance)

- From the viewpoint of international financing, the Ministry of Finance will proactively work on promotion and utilization of the Kyoto Mechanisms by supporting the vigorous activities of multilateral development finance organizations and by utilizing the Japan Bank for International Cooperation.
- The Ministry of Finance will proactively work on promotion and utilization of the Kyoto Mechanisms by use of ODA in conformity with international rules and on the premise of agreement by theist recipient countries.

Furthermore, independent administrative agencies, government-affiliated financial institutions, diplomatic missions abroad and other government-affiliated organizations responsible for implementing measures and policies on the Kyoto Mechanisms are to collaborate in working on promotion and utilization of the Kyoto Mechanisms.

III. Utilization of the Kyoto Mechanisms by Private Business Operators

Positive evaluation can be given to the efforts by private business operators to control domestic greenhouse gas emissions and voluntarily utilize the Kyoto Mechanisms at their own expenses to achieve their own targets including voluntary action plans, from the perspectives of cost effectiveness and global emissions reduction using superior technology.

In order to promote such utilization of the Kyoto Mechanisms by private business operators, in addition to the measures in II.3 above, the Government will carry out the following policies: provision of consultations and information; support at the project discovery and formation stages; development of instruction manuals on the use of the Kyoto Mechanisms; effective utilization of the systems of lending to the formation of so-called carbon funds; facilitation of credit acquisition; and development of the institutional base for voluntary retirement of credits.

Reference: Accounting and Tax Treatment of Private Business Operators Utilizing the Kyoto Mechanisms

The accounting and tax treatment of private business operators voluntarily utilizing the Kyoto Mechanisms is as follows.

(1) Treatment in Corporate Accounting

Based on the Working Report No.15 “Current Treatment Concerning Account Processing for Emissions Trading” (Accounting Standards Board of Japan, November 30, 2004), credits are counted as “intangible fixed assets” or “investments and other assets” at the time of acquisition and are processed as “selling and general administrative costs” in the fiscal year in which they are retired.

(2) Treatment under the Corporation Tax Act

Taxable income, unless otherwise stipulated by the Act, “is to be calculated in compliance with the standards of accounting processes generally recognized to be fair and reasonable” (Corporation Tax Act (Act No.34 of 1965) Article 22, Paragraph 4). The tax treatment of credits, in principle, is to be handled in compliance with the above accounting standards.

Table 3.2 National Registry

This table describes the national registry that provides supplementary information as stated in Article 7.2 of the Kyoto Protocol. The following information is based on Decision 13/CP.10 ANNEX II para 1[30].

Item	Content
(a) The name and contact information of the registry administrator designated by the Party to maintain the national registry	[Name] ・ Mr. Masayuki Naoshima, Minister of Economy, Trade and Industry ・ Mr. Sakihito Ozawa, Minister of the Environment [Contact information] ・ Mr. Toshiaki Nagata, Kyoto Mechanism Promotion Office, Industrial Science and Technology Policy and Environment Bureau, Ministry of Economy, Trade and Industry (TEL: +81-3-3501-1757, E-mail: kyomecha-tourokubo@meti.go.jp) ・ Mr. Yasushi Ninomiya, Market Mechanism Office, Global Environment Bureau, Ministry of the Environment (TEL: +81-3-5521-8354, E-mail: kyomecha-registry@env.go.jp)
(b) The names of other Parties with which the Party cooperates by maintaining their national registries in a consolidated system	None relevant
(c) Description of the database structure and capacity of the national registry	[Database structure] A server equipped with disk array storage from Sun Microsystems, Inc. is used as the database server. Disk array storage is a mirroring framework that allows for replacing a failed hard disk without stopping the operation. The software of the database server is implemented

[30] FCCC/CP/2004/10/Add.2, p.p.15-16

Item	Content
	with Oracle relation database management system. [Capacity] The database server possesses sufficient data capacity based on forecasted workload during the first commitment period. In the event necessary capacity increases, additional hard disks could be attached to the database server.
(d) A description of how the national registry conforms to technical standards for data exchange between registry systems for the purpose of ensuring the accurate, highly transparent, and efficient exchange of data between national registries, the CDM registry, and the transaction log	・In 2006, certain Data Exchange Standards (DES) prepared by the UNFCCC Secretariat was updated four times (versions 1.1a, 1.1b, 1.1c, and 1.1 Final). The national registry was revamped to comply with the new version, including correcting response codes and the WSDL. ・In October 2007, DES annex E (list of checks to be undertaken by the ITL, version 1.1.001) was released, and the internal checks for the national registry were changed in order to be consistent with the updated Annex E ・In August 2008, part of the DES was updated as new checks were added relating to the commitment period reserve associated with the “joint achievement,” which is defined in Article4 of the Kyoto Protocol. DES annex E (version 1.1.2) was released and the internal checks of the national registry was updated in order to be consistent with the updated DES. ・In March 2009, version 1.4 of the technical specifications for the standard electronic format (SEF) was released. A function was therefore added to output XML files containing information on unit holdings and transactions undertaken, which allows the registry administrators to generate the SEF.
(e) A description of the procedures employed in the national registry to minimize discrepancies in the issuance, transfer, acquisition, cancellation, and	[Means to minimize discrepancies] The following are some of the checks implemented in the registry to minimize discrepancies: (1) Data type validity for information input manually

Item	Content
retirement of ERUs, CERs, tCERs, lCERs, AAUs and/or RMUs, as well as in the supplementing of tCERs and 1CERs. In addition, the procedure taken to forcefully terminate transactions when a discrepancy is notified and to correct problems in the event of a failure to terminate the transactions.	(e.g. numbers, alpha-numerics) (2) Data value validity for complying with Kyoto unit types. (e.g. whether an expiry date is set for tCERs) (3) The existence validity of corresponding Kyoto units in transferring accounts at the time of transaction. [Procedures for forced termination of discrepant transactions] The transactions are automatically terminated when discrepancies were identified for them. [Procedure in the event of a failure to terminate discrepant transactions] The registry logs information on failed transactions for which discrepancies were identified and forced terminations subsequently failed. The system administrator periodically checks the archive logs to resolve problems. In addition, in the event that there was a failure to terminate the discrepant transaction, the monitoring system automatically detects the failure and notifies the system administrator of it via email..
(f) An overview of security measures employed to prevent unauthorized tampering, operator errors and update methods oversight	・VPN communication and SSL encryption were selected for use in accordance with the DES (Version 1.0). ・Fingerprint authentication was introduced to limit users that can operate the terminals of the registry administrators, and access was restricted by providing the registry administrators with a private connection. ・The information security of the current national registry was audited by a corporation that acquired BS7799/ISMS certification, which is an international standard for security management.

Item	Content
	・The servers of the national registry system are established in a Integrated data center with a 24-hour surveillance system. ・All PCs and servers used for the national registry are installed with virus detection software and virus pattern files are automatically updated on a regular basis.
(g) A list of information publically assessable through the user interface of the national registry	・Account information and a list of authorized legal entities (up-to date information and by account type). ・Total amount of Kyoto units held and issued for each calendar year (by unit type, by account type). ・Total amount of Kyoto units held for each calendar year at the beginning and end of each year (by unit type, by account type) ・ Total amount of Kyoto units subject to external transfers for each calendar year (by unit type, by partner party) ・Total amount of Kyoto units which were expired, cancelled and replaced for each calendar year (by unit type, by transaction type) ・Summary information on transactions undertaken for each calendar year (by unit type) ・Information on corrected transactions (by unit type)
(h) The Internet address of the national registry's interface	http://www.registry.go.jp/index_e.html
(i) A description of measures taken to safeguard, maintain, and recover data in order to ensure that data storage is	[Data protection] The national registry is set at an IntegratedInternet data center (IDC) with the following characteristics:

Item	Content
preserved and registry services are recovered in the event of a disaster	・An anti-seismic building with high aseismic capacity. ・Electrical facilities that guarantee over 24 hours of continuous operation in times of power failures. ・Fire-resistant construction possessing a gas-type fire extinguishing system. [Data management] Online backup as well as redundant configuration of duplicates is implemented. [Data recovery] Separate system recovery manuals have been created for both hardware and software failure. In addition, disaster recovery exercises are conducted regularly and procedures are checked in order to recover the system promptly and infallibly in times of failure.
(j) The results of tests developed for testing the performance, procedures, and security measures of the national registry conducted in accordance with the provisions of Decision 19/CP.7 relating to technical standards for data exchange between registry systems	In July 2007, a test was conducted between the ITL and national registry of Japan based on DES annex H Version 1.1.002. The test was a success as the anticipated results were achieved in each of the test areas. In addition, the following tests were conducted between the ITL and the national registry before and after theGo-Live. -Go-live test In November 2007, a test was conducted in preparation for the Japanese registry connecting to the ITL for live operation. The test was completed without any problems and the live operation commenced. -ETS Go-live test In October 2008, a test was conducted in accordance for the CITL and national registries of the EU connecting to the ITL for live operation. The test was completed without any problems. -SEF coordinated testing In December 2008, predefined test transactions

Item	Content
	were conducted in a test environment. SEF results were outputted by the national registry of Japan and consistency was confirmed between the SEF generated by the registry and the one by the ITL -Developers test Tests using the developer environment and registry environment provided by the UNFCCC are conducted as necessary. Before conducting the tests listed above, internal tests were conducted to check the functionality, operability, performance, security, and reliability of the registry system.

3.1.2 Domestic and Regional Planning, Legislative Proceedings, and Execution and Management Procedures

An outline of Japan's major legal and other systems necessary for implementing global warming countermeasures is provided below.

Name of legal or other system	Outline
Law Concerning the Promotion of the Measures to Cope with Global Warming	[History] Formulation: 1998; Revisions: 2002, 2005, 2006, 2008 [Major measures] -Establishment of Centers for Climate Change Actions (national and regional) (1998). -Formulation of the Kyoto Protocol Target Achievement Plan (2002) -Establishment of the Global Warming Prevention Headquarters inside the Cabinet (2002). -Systems for calculation, reporting, and public disclosure of greenhouse gas emissions (2005). -Undertakings towards promoting and utilizing the Kyoto Mechanism (2006). -Revision of systems for calculation, reporting, and public disclosure of greenhouse gas emissions. -Formulation of the policies on emission limitation, and enrichment of action plans of local governments (2008). [Major organizations involved in its execution] -Climate Change Policy Division, Global Environment Bureau, Ministry of the Environment (MOE) -Office management division of each ministry and office (calculation, reporting, and public disclosure systems) -Environment departments and bureaus of local public organizations
Law Concerning the Rational Use of Energy (in short, the "Energy	[History] Formulation: 1979 Major revisions: 1993, 1998, 2002, 2005, 2008 [Major measures]

Conservation Law")	-Establishment of criteria for energy conservation at factory plants, specification of plants designated for energy management using thermal and electric power above a certain level, requiring the selection of energy managers and the recording of energy usage, establishment of energy conservation criteria for houses and other buildings, establishment of criteria on the energy consumption efficiency rate of machinery and appliances, and requiring the labeling of energy consumption efficiency rate (1979). -Establishment of the Basic Principles Concerning the Rational Use of Energy, and requiring periodic reporting on the energy use situation at plants designated for energy management (1993). -Expansion of plants designated for energy management (the conventional plants designated for energy management will be determined as Type 1 Designated Energy Management Factories, while newly establishing plants will be Type 2 Designated Energy Management Factories). Submission of medium- and long-term plans on energy conservation for Type 1 Designated Energy Management Factory are required, as is the adoption of the top-runner approach regarding the energy consumption efficiency rate of machinery and appliances (1998). -Enhancement of countermeasures taken by the commercial sector through expansion of plants designated for energy management (elimination of the restrictions on target business types for Type 1 Designated Energy Management Factories), and requiring the submission of energy conservation measures for buildings (non-housing) above a certain size (2002). -Enhancement of energy management through integrated thermal and electric power management at factory plants, enactment of criteria for energy conservation for transport service providers and cargo owners (with a designation for those above a certain size), submission requirements for plans on energy conservation and periodic reporting on the energy use situation, and submission requirements for energy conservation measures for housing above a certain size (2005). -Change from energy management by factory and workplace to energy management by business, requirement of the same business-based energy

	management for certain franchise businesses, requirement of electing energy management supervisors and energy management plan promoters, introduction of sector-based benchmarks and joint energy conservation projects, introduction of protocol and penalties in the event that the energy saving measures of large-scaled buildings are particularly insufficient, requirement of reporting, etc. of energy saving measures for certain small- to medium-sized buildings, and introducing measures to promote upgrades in the energy saving performance for businesses that construct and sell houses (guarantee through recommendations, orders, etc. for businesses that construct and sell multiple houses) (2008). [Major organizations involved in its execution] -Energy Efficiency and Conservation Division, Agency for Natural Resources and Energy, Ministry of Economy, Trade, and Industry (METI) -Environmental Policy Division, Housing Production Division, and Building Guidance Division, Policy Bureau, Ministry of Land, Infrastructure and Transport (MLIT) -Regional bureaus of the responsible office and ministries -Responsible departments and bureaus of local public organizations
Law Concerning Special Measures for the Use of New Energy, etc. by Electric Utilities (the "RPS Law")	[History] Formulation: 2002 [Major measures] -Requirement of electric utilities to use a certain ratio of electricity generated by new energy, etc. [Major organizations involved in its execution] -New and Renewable Energy Division, Agency for Natural Resources and Energy, METI
Law Concerning the Promotion of the Integration and Efficiency of Distribution	[History] Formulation: 2005 [Major measures] -Formulation and approval of the Comprehensive Efficiency Plan for the integration and streamlining of distribution operations, and in relation to this, assistance measures for project approval, fund procurement, etc.

Operations (the "Comprehensive Distribution Efficiency Law")	[Major organizations involved in its execution] -Office of Directors (Cargo Facilities), Director-General for Policy Planning, MLIT -Distribution and Logistics Systems Policy Office, Commerce and Distribution Policy Group, Commerce and Information Policy Bureau, METI -Regional bureaus of the responsible office and ministries -Responsible departments and bureaus of local public organizations
Bill on the Promotion of the Use of Non-fossil Energy Sources and Effective Use of Fossil Energy Materials by Energy Suppliers "	[History] Formulation: 2009 [Major measures] Requires energy suppliers above a certain size (electrical power suppliers, gas service providers, and oil businesses) to use non-fossil energy sources—such as sunlight, nuclear power, waterpower, thermal power, and biomass—as well as to effectively use fossil energy resources. [Major organizations involved in its execution] General Policy Division, Agency for Natural Resources and Energy, METI Natural Resources and Fuel Department and the Electricity and Gas Industry Department, Agency for Natural Resources and Energy, METI
Approval system for Kyoto Mechanism projects	[History] Formulation: 2002 [Major measures] -Approval for individual projects of the Kyoto Mechanism (CDM/JI). [Major organizations involved in its execution] -Council for Promotion and Utilization of the Kyoto Mechanisms (composed of the Cabinet Secretariat, MOE, METI, the Ministry of Foreign Affairs, the Ministry of Agriculture, Forestry and Fisheries, MLIT, etc.)

3.2 Promoting Efforts Aimed at Creating a Low-Carbon Society

Japan has proposed to share globally the long-term goal of “halving total global greenhouse gas emissions by 2050 from its current level of emissions”.

It will be indispensable to have not only participation of the major economies but also efforts of all countries in some way. Japan, as one of the developed countries which should contribute more than developing countries, should set a long-term goal of reducing 60 to 80 percent of its current level of emissions by 2050, so as to realize a low-carbon society that we can proudly present to the world.

A basic policy was laid down for realizing such a low-carbon society in a speech by then Prime Minister Yasuo Fukuda (June 9, 2008) and in proposals from the Council on Global Warming Issue (June 16, 2008). In July 2008, the Action Plan for Achieving a Low-Carbon Society was formulated in order to clarify concrete measures for each policy item indicated in the prime minister’s speech and committee proposal.

Below, this chapter will describe the policies and measures relating to achieving a low-carbon society as stipulated in this plan. These policies and measures were established using the latest available information at the time of establishment.

Extracts form “Action Plan for Achieving a Low-carbon Society, July 29, 2008”

I Japan’s targets

In order to halve the global greenhouse gas emissions by 2050 with the aim of achieving a low-carbon society, it is essential that all countries, not only the major economies, address this issue. Japan sets the long-term goal of reducing 60 to 80 percent of its current level of emissions by 2050.

In order to achieve the long-term goal of halving emissions by 2050, we will work to ensure that the world’s total emissions peak in roughly the next 10 to 20 years.

Moreover, regarding the post-2012 framework, Japan will aim to build international agreement on fair and equitable rules, and will announce its quantified national emission reduction target at an appropriate time next year.

1. Building agreement on a fair, equitable, and effective post-2012 framework

Japan will aim for an agreement at the Fifteenth Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP15), to be held in 2009, on a fair and effective post-2012 framework with participation of all relevant countries which includes major economies such as the U.S., China, and India, in order to ensure that global emissions peak in the next 10 to 20 years and to achieve at least 50% reduction of global emissions by 2050.

To achieve this, Japan will promote discussions of the working group under the United Nations (the Ad Hoc Working Group on Long-term Cooperative Action) in accordance with the Bali Action Plan agreed at COP13. Japan will also deepen discussions at the G8 Summit and other multilateral platforms and at bilateral meetings on sharing a long-term goal, setting fair quantified national targets based on the sectoral approach, and ways of improving global energy efficiency through technology transfer. The results of these discussions are to be reflected as appropriate in the discussions in the UN.

2. Setting quantified national targets

Japan aims at obtaining the understanding of other countries regarding the sectoral approach for setting fair quantified national targets, in order to establish this approach as a common methodology at the international level. Japan will announce its quantified national target, at an appropriate time next year, together with points of controversy such as a review of the base year.

Japan will promote the understanding of other countries toward the method of setting quantified national targets based on the sectoral approach, through various platforms, such as the G8 Summit, Meeting of Major Economies (MEM), and bilateral meetings. At the same time, Japan will also introduce applied case study such as the long-term energy demand forecast, and will call on other countries to analyze the actual extent of their reduction potentials and to report on the results at COP14.

The workshop on the sectoral approach to be held during the meeting of the Ad Hoc Working Group on Long-term Cooperative Action in Ghana, August 2008 and the second international workshop on sectoral emission reduction potentials by a bottom up basis, to be held this autumn, both offer significant opportunities for establishing a common methodology. Japan intends to use both workshops to promote further understanding of the sectoral approach.

Japan’s aim on both occasions is to gain understanding from other countries in order to establish a common methodology, taking into account other countries’ evaluations of the sectoral approach and also other points including base year and the treatment of carbon sinks such as forests.

From a perspective of ensuring the participation of all the major economies and of ensuring

fairness, Japan's own quantitative national targets will be decided at an appropriate time next year, taking into consideration the status of the negotiations.

3. Support for other countries' efforts

(1) The dissemination of technologies through the sectoral approach and support through co-benefits

Through the sectoral approach, Japan proactively disseminates environmentally friendly and energy-conserving technologies, in which Japan has advantages, globally, including developing countries.

To achieve this, Japan works with the International Energy Authority (IEA) and at the Asia-Pacific Partnership on Clean Development and Climate (APP) to identify and share best practices sector by sector. Japan also makes use of multilateral and bilateral frameworks to carry out technological cooperation with China, India, and other countries such as the demonstration projects of energy-saving installations and the dispatch of expert personnel, and also to remove barries to technical cooperation.

In order to strengthen international collaboration to reduce greenhouse gas and air pollutant emissions from the transport sector, Japan is hosting the Ministerial Conference on Global Environment and Energy in Transport. Based on the outcomes of the Conference, Japan will work to promote cooperative measures such as sharing best practices, facilitating new technologies and measures, and enhancing capacity building in developing countries.

Moreover, Japan will work to achieve in developing countries sustainable development, low-carbon, low-pollution, and sound material-cycle societies, and create societies adapted to climate change and can coexist with nature.

To achieve this, Japan will promote the Clean Asia Initiative, and promote the implementation of co-benefit projects in China and Indonesia, conduct the feasibility study of recovery/recycling of the fluorocarbons in the waste refrigeration equipment in East Asia, cooperate toward an inventory of developing countries, and bolster Asia's capacity to build low-carbon, and sound material-cycle societies .

(2) The Cool Earth Partnership

Japan will promote the Cool Earth Partnership, which will give support to developing countries regarding mitigation measures, adaptation measures, and access to clean energy. This program will make on the scale of 10 billion dollars available over five years to developing countries aiming to achieve greenhouse gas emission reductions and economic growth and working to contribute to

climate stability.

As part of this program, Japan will make use of the Climate Change Japanese ODA Loan (In July 2008, the Government of Japan decided to extend ODA loans up to the total amount of 30.8 billion yen to Indonesia as the first case), Program Grant Aid for Environment and Climate Change, Trade and Investment Insurance for Preventing Global Warming, and Japan- UNDP Joint Framework. At the same time, Japan will further extend the aid in the form of ODA loan grant aid (non-project grants have already been extended to Madagascar, Senegal, and Guyana) and technical cooperation, as well as ODA through international organizations such as the Asian Development Bank. And other official finance rather than ODA will also be made available through institutions such as the Japan Bank for International Cooperation and Nippon Export and Investment Insurance. Aid will be allocated, for example, to forest conservation and natural disaster prevention in response to climate change, co-benefit measures, and measures toward energy conservation or new energy development.

Japan will call on African countries for a Japan-Africa Cool Earth Partnership and will hold policy consultations with them, and will continue to proactively promote partnership with developing countries such as Tuvalu and Laos.

Through such assistance outlined above, Japan will facilitate the negotiation process to provide encouragement to developing countries to join the post-2012 framework.

(3) Establishment of a multilateral fund

With the initiative from Japan, the U.S., and the U.K., the Climate Investment Funds were established as a multilateral fund within the World Bank, on July 1, 2008. This fund will support efforts by developing countries to tackle climate change, including mitigation measures to reduce greenhouse gas emissions, such as the installation of solar and wind power generation, improvements to the energy efficiency of thermal power stations, the use of low-emission public transport, and improvements to the efficiency of electricity use in buildings and industry, as well as adaptation measures to cope with the adverse effects of climate change. Japan will make use of the opportunities afforded by bilateral and multilateral platforms to call on interested countries other than itself, the U.S. and the U.K to make a contribution to the fund.

Japan will pursue early operationalization of the fund, and will take an active part in its operation in order to carry out effective and efficient assistance to developing countries.

II The dissemination of innovative technologies and existing advanced technologies

Encouragement will be given to the development of major innovative technologies and the dissemination of existing advanced technologies in order to move toward a low-carbon society and achieve long-term targets.

1 Development of innovative technologies

(1) Steady enforcement of the roadmap to innovative technology development

It will not be possible to achieve drastic cuts in greenhouse gas emissions only through the dissemination of existing technologies or of technologies that are just the extension of what already exists. Japan will thus develop innovative technologies as set out in the Low Carbon Technology Plan (May 19, 2008) and the Cool Earth—Innovative Energy Technology Program (March 5, 2008). These are technologies that are innovative in terms of structures, materials, systems, etc., going beyond existing technologies, and will contribute to substantial global reductions of greenhouse gases by 2050.

Over the next five years, Japan will invest around 30 billion dollars in implementing the technological roadmaps set out in the Low Carbon Technology Plan; this encompasses fast-breeder reactor cycle technology; technologies for the use of biomass; low-fuel consumption (and low-noise) aircraft; high-efficiency ships; improved traffic and goods distribution efficiency through the Intelligent Transport Systems (ITS); and international contributions to earth observation, climate change projection and impact assessment.

Among them, the necessary budget will also be secured for the development of 21 innovative energy technologies set out in the Cool Earth—Innovative Energy Technology Program. These include: innovative photovoltaic power generation that gives significant improvements in efficiency and reductions in cost (the aim is to establish photovoltaic cell technology from 2030 using new materials and new structures that will improve generating efficiency by over 40 percent and give a generating cost of seven yen per kilowatt-hour); plug-in hybrid cars and electric cars; innovative steelmaking processes that reduce emissions through technology that uses hydrogen as a reducing agent instead of coke and technology to capture carbon dioxide (the aim is to start basic research in fiscal 2008, carry out verification experiments in fiscal 2013, and to establish and apply technology to cut emissions from steelworks by approximately 30 percent by fiscal 2030, depending on the cost at the time of hydrogen production and carbon dioxide capture and storage); advanced nuclear power technologies such as next-generation light water reactors; fuel cell technology (the aim is to bring costs down to 400,000 yen per kilowatt, increase durability to 90,000 hours, and put fuel cells into widespread use by around 2020−2030); and effective, ultra-efficient heat pump technology for air conditioning and hot water, which account for roughly 50 percent of carbon dioxide emissions from the household sector (the aim is to reduce the cost to

three quarters of current levels and increase efficiency by 50 percent by 2030, and to halve the cost and double the efficiency by 2050).

Japan will promote the implementation of technologies as appropriate for realizing technology roadmaps with international collaboration and role sharing among the public and private sectors; at the same time, it will carry out regular reviews of the roadmap. Japan will also work toward the smooth dissemination of the results of technology development as appropriate.

(2) Upgrading coal use

In comparison to oil or natural gas, coal is cheap and its reserves are plentiful; however, coal emits large quantities of carbon dioxide when burned. For this reason, Japan is promoting the development of clean combustion technology that can increase the efficiency of power generation and reduce emissions, and carbon capture and storage (CCS) technology, which returns carbon dioxide to the ground by storing it underground so that it is not emitted into the atmosphere.

Regarding clean combustion technology, Japan will promote the necessary technological development and carry out verification tests toward achieving the targets of a 48 percent increase in the generation efficiency of Integrated Gasification Combined Cycle (IGCC) power generation by around 2015, with a long-term target of its 57 percent increase, and a 55 percent increase in the generation efficiency of Integrated Gasification Fuel Cell Combined Cycle (IGFC) power generation by around 2025, with a long-term target of its 65 percent increase.

CCS technology has the potential for massive emissions reductions in thermal power generation, which accounts for roughly 30 percent of Japan’s emissions, and in the steelmaking process, which accounts for roughly 10 percent. Japan will promote the development of this technology with the target of the cost of capture and storage in the order of 2,000 yen per ton by around 2015, falling to 1,000 yen or so in the 2020s. At the same time, Japan will commence verification tests on a large scale at an early stage from 2009 onward, with the aim of implementation by 2020. Regarding application, Japan will work to resolve issues such as enhancing environmental impact assessments and monitoring, putting legislation in place, and ensuring public approval.

Ultimately, the aim is to combine these technologies to bring emissions down to virtually zero. Full-scale verification tests will be carried out of an integrated system for separation, collection, transport, and storage of carbon dioxide from coal-fired power stations, in order to bring about coal-fired power generation with no emissions of carbon dioxide at all.

(3) Bringing about an International Partnership for Environment and Energy

Developing innovative technologies requires considerable expenditure in terms of money and personnel. Japan will work to accelerate the development and encourage the dissemination of its

results by sharing roles among countries under international cooperation.

In order to achieve this, Japan will expand investment in energy research and development, globally share the technology development roadmaps, strengthen existing international collaboration, and launch new international collaboration, as agreed in the G8 Hokkaido Toyako Summit Leaders Declaration. Japan will also facilitate the appropriate dissemination of technology to developing countries by encouraging the participation of motivated developing countries from the development stage.

Specifically, in fiscal 2008 Japan will commence the work of sharing information on the research and development policies of different countries in collaboration with the IEA, in order to formulate a roadmap in fiscal 2010 that can be shared internationally and will form the core of the International Partnership for Environment and Energy.

2. Dissemination of existing advanced technologies

(1) Huge increase in the installation of solar power generation facilities

Among the different types of renewable energy, solar power generation in particular offers a huge potential supply and is capable of becoming a major part of the domestically-produced energy of Japan, which currently has a low rate of energy self-reliance. Japan is thus aiming to become once again the world leader in solar generation, and is promoting a huge increase in the installation of solar power generation facilities with the target of increasing the amount of installations 10-fold by 2020 and 40-fold by 2030.

To make this increase possible, it will be necessary to bring the price down substantially through technological innovation and creation of demand. At the same time, it is necessary to promote technology to mitigate the effects on the power system, which will be a major issue with a big increase in installations. With regard to price, the aim is to roughly halve the current price of a solar power generation system within three to five years.

Japan will consider bold measures to support the introduction of solar energy and new pricing systems, taking as an example the renewable energy policies of Germany and other countries. Specifically, there will be far-reaching support for the installation of solar power generation facilities in the domestic, industrial, and public sectors, support for the research and development of innovative solar cell technology, and support for planning the construction of mega solar power generation facilities by electricity companies. The government will also encourage collaboration with local public bodies and collaboration between companies manufacturing solar systems and companies building houses, and will make further use of private-sector capital such as tradable green certificates or citizens' investment. At the same time, the government will promote the development of power system stabilization technology to mitigate the effects of solar power on the

national grid, and the development of high-capacity, low-cost storage cell technology. Examination of approaches to sharing the cost burden of renewable energy introduction and power system stabilization commenced in July 2008, and conclusions are expected to be reached by the spring of 2009.

(2) Raising the proportion of zero-emission energy sources to over 50 percent

Measures for the electrical power generation sector are extremely important, as this sector accounts for approximately 30 percent of Japan's greenhouse gas emissions. As part of the measures for electricity supply, on the basis of the Long-term Energy Supply and Demand Outlook (May 2008), the proportion of electricity generated from zero-emission sources (renewable energy, nuclear power generation, etc.) will be increased from 40 percent, the level in 2006, to over 50 percent by around 2020. With regard to solar power generation in particular, the aim is to increase the amount of installations 10-fold over the fiscal 2005 level—in crude oil terms, an increase from 350,000 kiloliters to 3.5 million kiloliters. With regard to nuclear power, there will be steady construction of new facilities—construction of 13 facilities is currently being planned, of which nine are planned for construction by 2017.

Specifically, the government will provide support for solar power system installation across the various sectors, and will support research and development, as well as planning for the construction of mega solar power generation facilities by electricity companies. At the same time, it will examine approaches to sharing the cost burden. With regard to nuclear power, the government will aim to improve the utilization capacity to the level of major nuclear-using countries and will promote steady construction of new facilities, with ensuring complete safety as a fundamental premise.

With regard to wind power, the government will support terrestrial installations, and will promote studies of new technology for wind power generation at sea. Hydroelectric generation is calculated to have the potential for an increase of 7 billion kilowatt-hours by 2030,[31] on the basis of which development surveys and improvements to construction assistance will be examined. Additionally, with regard to geothermal and other renewable energy types, the government will promote local energy production for local consumption, support new energy venture businesses, and encourage independent initiatives.

The government will also share local best practices by evaluating initiatives by local public bodies to produce renewable energy locally for local consumption through means such as solar generation, micro-hydroelectric generation, biomass, wind generation, and snow and ice that take local characteristics into account. The best of these will be selected for the "Renewable Energy Top 100" for two or three years. Regarding power generation from waste, the government will boost

[31] Interim report by the Hydroelectric Study Group, July 25, 2008.

the significant amount of energy recovery and will study economic incentives.

Moreover, in order to ensure the smooth trading of electricity generated through the above measures, trial trading of carbon dioxide-free electricity on the Japan Electric Power Exchange will commence by April 2009 at the latest.

In addition, the current targets under the Renewables Portfolio Standard Law (Act No. 62 of 2002) will be robustly enforced, while examination of targets up until fiscal 2018 will commence by fiscal 2010.

(3) Introduction of next-generation vehicles

In order to cut emissions from the transportation sector, which accounts for approximately 20 percent of emissions, while also bolstering the technological strength and competitiveness of the Japanese auto industry, the government will aim at achieving the ambitious target of increasing the present proportion of one in 50 new car sales accounted for by next-generation vehicles (hybrid vehicles, electric vehicles, plug-in hybrid vehicles, fuel cell vehicles, clean diesel vehicles, compressed natural gas [CNG] vehicles, etc.) to one in every two new car sales by 2020.

Specifically, the government will create initial demand by providing support for introduction such as covering part of the cost, and will promote higher performance and lower cost through research and development of next-generation cells and fuel cells, the fundamental technology for electric vehicles, plug-in hybrid vehicles, and fuel cell vehicles (the aim is to increase the capacity of next-generation cells by 50 percent over current levels and bring the cost down to one seventh of the current price by 2015, and to increase capacity seven-fold and reduce the cost to one fortieth by 2030). At the same time, the government will encourage comprehensive efforts that include putting in place recharging infrastructure, including high-speed recharging facilities in order to resolve the worry of batteries running down (for example, high-speed recharging could make it possible to reduce the approximately seven-hour domestic recharging time to approximately 30 minutes); promoting traffic flow measures such as the Intelligent Transport Systems (ITS); and improving the perception of clean diesel cars and encouraging their uptake. The government will also encourage the commercialization of next-generation, low- emission trucks and buses.

(4) Changing from incandescent light bulbs to low-energy lamps

Incandescent light bulbs commonly used in homes are to be replaced by products such as bulb-shaped fluorescent lamps, which offer superior energy efficiency, by around 2012.

Bulb-shaped fluorescent lamps consume one fifth of the electricity of incandescent light bulbs and have a product life span six to ten times as long, so that with the period of use included they offer excellent value. Nonetheless, with the product price approximately 10 times that of a conventional

bulb, the large price differential represents a heavy burden at the time of installation. There is also the issue that conventional bulbs cannot readily be replaced by fluorescent lamps in some variable or ornamental lighting applications.

To resolve these issues, the government, manufacturers, distributors, and consumer groups have collaborated to call on consumers to replace their light bulbs by providing consumers with information about the benefits of energy-efficient lighting through initiatives such as the introduction of the Day of Lighting (October 21), the Energy-saving Lighting Forum, and Team Minus 6%.

The government will also carry out research and development of next-generation lighting using organic electroluminescence (organic EL), which offers the possibility of even greater energy savings than fluorescent lamps. At the same time, manufacturers will work to improve performance and usability, and develop products for use in applications where it is difficult to replace conventional light bulbs. Distributors will make proactive efforts to provide information about energy-efficient lamps and market them.

(5) Accelerating the introduction of energy-efficient televisions, water heaters, air-conditioning, and refrigerators

The government will work to spread energy-efficient devices that meet the “top-runner” standards, which include televisions that achieve a 15.3 percent improvement in efficiency from fiscal 2004 to fiscal 2008, air conditioners that achieve a 22.4 percent improvement in efficiency from fiscal 2004 to fiscal 2010, and refrigerators that that achieve a 21.0 percent improvement in efficiency from fiscal 2004 to fiscal 2010. With regard to high-efficiency water heaters, the government will aim for accelerated uptake of between 4.46 million and 5.2 million units for carbon dioxide refrigerant heat pump water heaters and between 2.91 million and 3.26 million units for condensing gas-fired water heaters.

Specifically, the government will review and bolster the “top-runner” standards in accordance with the Act on the Rational Use of Energy (also known as the Energy-saving Law, Act No. 49 of 1979). Regarding televisions, which will reach their target year in fiscal 2008, new standards will be examined during fiscal 2008 in order to bolster the standards at an early stage. Standards will be steadily bolstered in this way for all devices that reach their target year, and additional standards will be examined for other devices, such as commercial-use refrigerators, routers, and combination printer-copier-scanner-fax devices.

Moreover, research and development will be carried out into large-size liquid crystal and plasma displays, semiconductors, and innovative energy-efficient air conditioners using refrigerants that do not contribute much to the greenhouse effect, and the government will give support for the installation of high-efficiency water heaters and energy-efficient refrigeration equipment with

natural refrigerants.

In addition, the government will work toward the provision of information to consumers by manufacturers, distributors, and consumer groups from their respective standpoints through the energy-efficient labeling system, the energy-efficient products sellers evaluation system, the Team Minus 6% initiative, and the activities of the Energy-efficient Appliances Popularization Forum; the government will also enhance the standards for uniform energy-efficient appliance labeling and increase the range of appliances that come under the scheme.

A study will be carried out during fiscal 2008 of the construction of a system to disclose the reduction in carbon dioxide emissions achieved through the use of energy-efficient appliances, so that producers, consumers, and sellers of the respective products can feel that there is an incentive.

(6) Promoting energy-efficient housing and office buildings, and “200-year Housing”

With regard to energy-efficient housing and office buildings, the goal is that all newly constructed housing and office buildings will be energy efficient. To achieve this, the revised Energy-saving Law (Act No. 47 of 2008) will be properly enforced; this law includes extending the criteria for obligatory reports on energy-efficiency measures, the introduction of directives for the construction of large-scale housing or buildings, and measures to encourage housing businesses to improve the energy efficiency of houses built for sale. The government will examine the creation of standards for water heaters and other devices, and methods of assessing and displaying energy performance that are easy for the consumer to understand. Assistance will also be made available for constructing or improving energy-efficient housing and office buildings through the implementation of taxation and budgetary measures.

The introduction of renewable energy to office buildings will be accelerated through measures that include increased assistance for introducing energy-efficient devices.

Regarding the promotion of “200-year Housing”, the aim is to reduce the burden on the environment and lighten the load on the people by switching to a richer, eco-friendlier lifestyle through the creation of a stock of high-quality housing that can be used for many years. To achieve this, legislative systems will be put in place and assistance given through the implementation of taxation and budgetary measures as well as financing at each stage of housing construction, maintenance, distribution, and financing.

(7) Promotion of nuclear power

Nuclear power emits no carbon dioxide during the electricity generation process, and as a key low-carbon energy source it will occupy an extremely important position in the promotion of

global warming counter-measures. The government is thus aiming to improve the utilization capacity to the level of major nuclear-using countries, while at the same time steadily constructing new facilities—construction of 13 facilities is currently being planned, of which nine are planned for construction by 2017—with ensuring complete safety as a fundamental premise. Through these initiatives, the aim is to greatly increase the proportion of electricity coming from nuclear generation, as part of the effort to increase the proportion of electricity output from zero-emission sources to over 50 percent by around 2020. The government also aims to establish a nuclear fuel cycle as well as to implement the fast breeder reactor cycle at an early stage.

To achieve this, the government will make the necessary improvements to the environment to assist initiatives by power companies aimed at improving the utilization capacity to the level of major Western nuclear-using countries, with ensuring complete safety as a fundamental premise. At the same time, with regard to the new and additional facilities being planned, including the three currently under construction (Tomari no. 3 reactor, Shimane no. 3 reactor, and Oma reactor), as well as the 55 reactors currently in operation, the government will conduct follow-up checks of the initiatives of electricity companies. Also, the government will promote development of next-generation light-water reactor technology in the light of expected demand for replacement of existing light water reactors around 2030, and also from the perspective of the global market.

Regarding fast breeder reactor cycle technology, the Monju prototype reactor will restart during fiscal 2008, and research and development will be promoted with the aim of constructing a demonstration reactor and related fuel cycle facilities by 2025 and introducing the technology on a commercial basis from around 2050. There will also be steady efforts toward establishing a nuclear fuel cycle, which will include implementation of plutonium-thermal reactor technology and the start of full-scale operations at the Rokkasho reprocessing plant. Moreover, from a long-term perspective, research and development of nuclear fusion will be promoted.

(8) Providing outstanding nuclear power safety technology and expertise to the world

Japan will contribute to the international trend toward introducing nuclear energy emanating from the viewpoint of climate change and energy security, through the use of its outstanding nuclear power technology and by means of intergovernmental cooperation and international activities of the nuclear industry, while ensuring nuclear non-proliferation/safeguards, safety, and security (3S) as a prerequisite for peaceful uses of nuclear energy.

Specifically, Japan will continue to promote more actively from fiscal 2008 assistance for and cooperation with countries planning to introduce or expand nuclear power, with regard to infrastructure development including 3S, ensuring of which is indispensable for international cooperation on nuclear energy. Assistance and international cooperation will be extended through multilateral frameworks such as the International Atomic Energy Agency (IAEA) and the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development(OECD/NEA), as

well as bilateral frameworks. At the same time, Japan will consider establishing frameworks for the transfer of nuclear materials and equipment, including bilateral agreements, taking into account current infrastructure development situation, specific needs and other related issues in each individual country. The government will also make use of government financial institutions to support the international activities of the Japanese nuclear power industry. Japan will also continue to participate in activities of the IAEA such as developing international safety standards and will continue to be engaged in information and personnel exchanges through platforms such as bilateral information exchanges meetings with the authorities responsible for nuclear safety regulations in countries such as the US, France, and China.

(9) Implementing Japan's own initiatives

The government will be at the forefront in implementing and enforcing advanced global warming countermeasures, with the aim of developing its initiatives into a propulsive force behind the realization of a low-carbon society inclusive of the private sector. These initiatives will be disseminated to local public bodies, including independent administrative institutions, public schools, and hospitals, and then to the private sector. This will lead to a movement among the Japanese people toward bringing about a low-carbon society.

Specifically, on the basis of the Plan Stipulating Measures to Curb Greenhouse Gas Emissions Relating to the Work of the Government (decided by the Cabinet on May 30, 2007), the government will steadily increase its use of low-emission vehicles and energy-efficient office appliances, and will promote emissions countermeasures in the construction and maintenance of its buildings, including energy-efficient lighting and air-conditioning, and the introduction of solar power generation. Through these measures, by 2010−2012 there will be an average cut of 8 percent over 2001 levels in greenhouse gases emitted through government activity.

The government is also working toward realization of a "Kasumigaseki Low-carbon Society" in Tokyo's Kasumigaseki district, which is the center of the Japanese government. The introduction of solar power into government buildings, improved energy efficiency through reconstruction, and heat island countermeasures are all being examined. These measures will be compiled to coincide with the formulation of the development plan for a new Central Government Building as site of the Ministry of Finance and the Central Government Building No.4, and targets for improvements in energy efficiency will be set.

III Framework to move the whole country toward reduced carbon

In order to reduce emissions in all sectors, the government will price carbon dioxide and make use of market mechanisms, and at the same time will encourage the provision of information about carbon dioxide emissions.

1. Emissions trading

The government will commence an experimental introduction of an integrated domestic market for emissions trading this autumn, with the inclusion of as many sectors and companies as possible. The government will design the system of the experimental introduction, taking into account the consistency with the Kyoto Protocol Target Achievement Plan and with the Voluntary Action Plans which is one of the countermeasures in the Target Achievement Plan, focusing on a scheme in which participating sectors and companies set their targets by energy intensity or emission volume and trade various types of emissions allowances and credits to achieve their targets, making use of existing and under considered systems, and expecting the participation of as many sectors and companies as possible. Considering issues such as target setting, types of tradable emissions allowances and credits, and monitoring and verification methods, study team from the relevant ministries will consider designs of an experimental introduction during September, and commence an experimental introduction around October.

The government intends to use the experience thus gained, to identify the conditions nessesary to be met, the issues of design to be dealt with and other relevant matters in the event an emissions trading scheme is to be fully introduced.

2. Tax system

(1) Making the tax system greener

In discussions scheduled this autumn on a fundamental reform of the tax system, in addition to the usage of earmarked revenues for road construction after its shift into general revenues, the government will carry out a cross-sectional review of the whole tax system, including environmental taxes, and make the tax system greener from a perspective of promoting reduced carbon.

As an example, tax incentives to curb greenhouse gas emissions from cars, household appliances, housing and building will be examined.

(2) Global environment tax

The government will carry out a study on a possible modality of an internationally coordinated global environmental tax system that would serve as a financial resource for joint development of

innovative technology and implementation of aid projects in developing countries mainly by developed countries. The study will include review of the discussion carried out so far in international institutions and of various challenges. The government will make public of some outcome of the study around the end of the current fiscal year.

3. Visualization

(1) Disseminating the "carbon footprint" system, etc.

The government aims to make visible to the consumer the greenhouse gas emissions associated with as many goods, foodstuffs, and services as possible. In this regard, the approach to visualizing emissions from foodstuffs will be examined considering the concept of "food mileage."

Specifically, visualization involves a "carbon footprint" system that displays the greenhouse gas emissions associated with the life cycle like the complete process from manufacture of goods or production of a foodstuff to transportation and disposal, or the emissions associated with the use of a service. The aim is for guidelines for calculating emissions, ensuring their credibility, and displaying them to be compiled during fiscal 2008, and for the trial implementation to be started in the following fiscal year.

The government will use the results of this trial to further crystallize area-specific guidelines for goods, foodstuffs, and services, and will promote the spread of goods, foodstuffs, and services that display the greenhouse gas emissions associated with them.

In drawing up the guidelines, the government will give sufficient consideration to international consistency on the basis of World Trade Organization (WTO) agreements, and Japan will make proactive contributions to the discussions toward establishing international standards on the carbon footprint system under the International Organization for Standardization (ISO).

(2) Creating rules for carbon offsetting and carbon accounting

The government will raise awareness of businesses and citizens toward carbon offsetting[32] and carbon accounting, and disseminate these initiatives widely.

As for carbon offsetting, model carbon offsetting projects will be implemented since FY 2008, taking into account the consistency of carbon offsetting with existing systems and initiatives, and considering common rules that will be necessary to disseminate carbon offsetting (the methods for calculating the amount of emissions to be offset and the amount of emissions reductions to be used

[32] Activities to recognize one's greenhouse gas emissions, make voluntary efforts to reduce them and subsequently offset the whole or a part of such emissions that cannot readily be reduced by buying greenhouse gas emission reductions or absorption that have been achieved elsewhere, or by implementing projects or activities to reduce greenhouse gas emissions or absorb greenhouse gases elsewhere.

in offsetting, the way to ensure the certainty of the reductions, the way to prevent double counting of the reductions, etc.). The results of the considerations will be made public around FY 2008.

Carbon accounting, which involves disclosure of both greenhouse gas emissions and emission reductions from business activities converted into carbon equivalents, is integral to corporate environmental information disclosure. Implementation methods and rules will be examined during FY 2008, and the findings will be made public.

4. Formulating standards and frameworks to facilitate flow of capital into environmental businesses

The government will implement continuous initiatives to make Japan's capital markets internationally attractive to overseas businesses and investors, and will also work to create an environment encouraging investment from individual investors. Furthermore, , standards and frameworks will be formulated to facilitate the flow of domestic and foreign capital to environmental businesses, aiming Japanese financial and capital markets to be top runners in environmental friendliness.

In order to strengthen competitiveness of environmental businesses by attracting more capital, comprehensive methods for assessing the environmental initiatives of companies, possibility of using such initiatives for the stock index, and ways to disclose comparable environmental information, will be further examined during FY2008, and policies regarding assessment methods and measures for disclosing comparable environmental information will be announced after FY2009.

Following primary financing initiatives will be implemented:

- The government will establish the Innovation Network Corporation of Japan to ensure the smooth provision of domestic and foreign long-term "risk money" (high-risk, high-return investments).
- The government will give financial support to environmental funds, loans based on environmental ratings, etc.
- Guidelines will be drawn up to promote private investment and private financing initiatives (community funds, etc.) involving investment and loans aimed at projects to collect private funds for environmental conservation.

The government will clarify the scope and categories of environmental finance, encourage Japanese financial institutions to participate in the Principles for Responsible Investment (PRI) and promote disclosure of environmental finance initiatives. The government will ask for financial institutions to report initiatives such as environment-related financing and eco-funds, and will bring together case studies of leading approaches and cases worthy of dissemination.

Also, as well as carrying out leading research on the mutual relationship between climate change and social economy, the government will construct an international network of institutions involved in low-carbon society research.

IV Support for regional and citizens' initiatives

In order to bring about a low-carbon society, the government will carry out efforts to encourage regional pacesetting initiatives as well as understanding and action on the part of individual citizens.

1. Reducing carbon by using the functions of agriculture, forestry and fisheries

Regions with rural areas have a major part to play in bringing about a low-carbon society, as they represent sources for the provision of biomass and their forests act as carbon sinks. In order to give free rein to these capabilities, the government will promote local production for local consumption to help reduce the energy used for transportation, it will promote the improvement and use of forest resources which act as carbon sinks and sources of wood products, and it will promote measures to cut greenhouse gas emissions in the fields of agriculture, forestry and fisheries. Such measures may also be expected to have beneficial effects with regard to issues such as regional revitalization and improving the food self-sufficiency rate.

Regarding biomass, the government aims to expand the number of municipalities which has created Biomass Town plan to 300 by fiscal year 2010. It will also introduce measures to enhance the production of biofuels that do not compete with food production; promote the production of ethanol from rice straw and waste wood; examine the use of extensive ethanol for transportation use and promote the provision and use of untapped woody biomass.

Regarding local production for local consumption, the government will give support to local production for local consumption model towns in order to promote initiatives aimed mainly at the use of local agricultural and marine products in school lunch and the setting up of points for direct sales of local produce. Support will also be given for producing biofuel from waste cooking oil.

Regarding the improvement and use of forest resources, the government will carry out initiatives to improve forests through thinning, expand the use of local materials in housing construction, and expand the use of materials and energy from untapped biomass resources. In order to improve the carbon sink functions of farmland, the use of model districts for verification, etc., will be examined.

2. Creating low-carbon cities and regions

(1) Making use of local characteristics to create low-carbon cities and regions

An effective approach for making society overall low-carbon is to implement finely-tuned, integrated measures making use of the particular characteristics of individual cities and regions, thus creating advanced models which can be spread across the whole country.

To achieve this, 10 or so cities will be selected as environmental models during fiscal 2008 (six cities have already been selected as of July); support will be given for their initiatives with follow-ups conducted to assess the results, and outstanding cases will be developed on a nationwide basis. There will also be collaboration with cities overseas making proactive environmental efforts, and outstanding initiatives from Japan will be publicized overseas.

Bringing about intensive urban structure and promoting the use of public transportation are integral to the creation of low-carbon cities and regions. The government will give support to the formulation of regional planning to cut greenhouse gas emissions, to the implementation of measures based on this planning, to securing suitable locations for urban functions such as large-scale facilities used by many people, and to building up urban functions by improving and revitalizing city centers. The government will also improve the convenience of public transport by opening new railway lines and introducing Light Rail Transit (LRT) and Bus Rail Transit (BRT) systems, and will promote comprehensive urban and regional transportation strategies.

In addition, the government will conserve green areas and promote urban greening, encourage the effective use of the resources and energy of drainage systems, promote shared energy use at district or block level, and facilitate the effective use of the various resources and energy sources of rural areas.

(2) Traffic and transportation networks with low carbon dioxide emissions

With the aim of bringing about traffic and transportation networks with low carbon dioxide emissions, the government will encourage the use of public transport, transition toward intensive urban structure, encourage bicycle use, increase the efficiency of goods distribution by shifting from the use of trucks to modes of transportation with lower environmental impact (modal shift), and facilitate the smoother flow of traffic.

To achieve these aims, the government will put in place rail and bus networks that have low carbon dioxide emissions, and will concentrate urban functions. Specifically, the government will improve the convenience of public transportation by improving or securing wide-area and main-line bus routes, and putting into place new railway lines, LRT systems, and other infrastructure.

The government will also promote a modal shift toward rail and sea transportation of goods, which both have low carbon dioxide emissions, and promote reductions in overland distances in road transportation of international cargo. Specifically, the government will carry out projects to boost rail cargo transportation capacity; enhance the functioning of ports, which are the hubs for sea, rail, and road transport; strengthen collaboration between transportation organizations; and promote initiatives such as the Green Partnership.

Furthermore, the government will carry out traffic flow measures in order to effectively improve fuel consumption by permitting greater speed. Specifically, the government will promote congestion measures such as the construction of ring roads, introduce flexible toll policy at expressways, and improve the environment for bicycle use.

In addition, the government will work to further reduce the carbon dioxide emissions of the different means of transportation by promoting the creation of low-carbon maritime transport systems and the spread and development of energy-efficient railway systems and low-carbon trucks and buses, as well as by giving support to the introduction of eco-drive management systems and promoting green, intelligent transportation.

Also, the government will give its support to initiatives that bring about low-carbon transportation networks based on planning for local public bodies to take a lead in curbing carbon dioxide emissions.

3. Frameworks for learning about low-carbon and sustainable societies

The government will incorporate frameworks for teaching and learning about low-carbon and sustainable societies into every educational level and situation, throughout people's lives, by collaborating with groups and individuals working with environmental issues, enhancing opportunities for Education for Sustainable Development (ESD), and promoting education that helps reduce emissions from schools and communities under the 21st Century Environmental Education Plan.

The government will further promote ESD including environmental education in school education by promoting environmental education appropriate to each educational stage through hands-on experience and other methods based on the revised government curriculum guidelines; by enhancing initiatives for learning and putting into practice specific methods for creating a low-carbon society; by increasing to 500 the number of UNESCO Associated Schools that are centers for promoting ESD; and by promoting school facilities with ecological considerations. In higher education, the government will implement the Environmental Leaders Education Program and foster Asian environmental human resources through collaborative consortiums of industry, academia, government, and the private sector.

Regarding families and communities, the government will collaborate with schools to endorse and disseminate superior initiatives for ESD that require the joint effort of the whole community, and will promote the training of coordinators. The government will also promote ESD including environmental education through the After School Environmental Education Project 21 (ASEEP21) and the Ecofamily project, which encourages the use of environmental education tools such as environmental household account books.

4. Urging changes to business styles and lifestyles

(1) Diligent energy saving, use of IT, promotion of the 3Rs

In order to bring about changes in business styles and lifestyles, the government will promote initiatives that allow people to actually feel in their daily lives the advances in the creation of a low-carbon society. These include diligent energy-saving initiatives that involve a continual awareness of carbon reduction, and styles of living, way of working, and business utilizing Green IT that allow people to feel the compatibility of convenience and low carbon. Initiatives toward things such as car sharing, which involves a shift in consciousness from ownership to utilization of functions, and the 3 Rs (reduce, reuse, recycle) will be promoted. Also, the government will encourage public debate to reevaluate lifestyles that involve staying awake until increasingly late hours.

Regarding diligent energy-saving initiatives, the government's Team Minus 6% campaign will collaborate with various media such as music, film, fashion, and sports to save electricity through Cool Biz (in fiscal 2008 the Cool Biz + campaign called for people to adopt one further action to help prevent global warming) and Warm Biz, and the government will work to spread domestic activities such as the use of reusable shopping bags and eco-cooking, as well as eco-driving. Advertising and events will also be carried out using photographs and visual images to spread awareness of global warming and to put across initiatives toward a low-carbon society in a readily understandable format.

Moreover, the government will disseminate examples of energy-saving ideas through its National Energy-saving Campaign, and will develop a nationwide Eco-Action-Point scheme, under which people can acquire points through the purchase of energy-efficient appliances or other products or services that contribute to reducing greenhouse gas emissions; these points can later be exchanged for goods, etc.

Regarding the use of IT, a model for a sustainable nation with ubiquitous networks founded on environmental principles will be developed and verified in "ubiquitous special zones," and the use of IT for saving energy in society will be demonstrated. This will allow the establishment of initiatives to reduce carbon dioxide emissions from homes, businesses, and social infrastructure, as well as methods to assess the results of emissions reductions.

A group to study the dissemination of car sharing will be launched during fiscal 2008, and by examining ways to resolve the issues and increase convenience, the scheme will be made attractive in both environmental and economic terms. At the same time, Environmentally Sustainable Transport (EST) will be spread by measures such as encouraging people to shift toward means of transport with low environmental impact.

With regard to the 3Rs, in order to improve resource productivity and so on, the government will work toward creating frameworks concentrating on reduce and reuse, charging for household waste, reducing disposable plastic bags in Japan and calling for other countries to follow suit, and thorough separation of different types of waste. The government will also carry out studies relating to the Act on the Promotion of Effective Utilization of Resources (Act No. 48 of 1991), and will implement model projects in order to create superior precedents of resource-efficient manufacturing through collaboration among the companies in the supply chain.

(2) Study of daylight saving time introduction

The government will specify the points of controversy with regard to daylight saving time in order to build the national consensus necessary for its introduction.

Specifically, the government will carry out a basic survey of the results and costs of introducing the system, and will examine the need for improving the control and information systems relating to administrative tasks and private-sector businesses, taking into consideration the status of studies of a daylight saving time bill.

In the event that daylight saving time is to be introduced, the government will ensure that citizens and businesses are fully informed, and as things like adjusting international flight timetables, modifying traffic lights and other traffic safety facilities, modifying the control and information systems of private-sector businesses, and dealing with work schedules will be particularly important issues, necessary measures for them will be put in place.

(3) Cool Earth Day

July 7 every year has been designated Cool Earth Day in Japan, when the steps toward the low-carbon society are shared among the Japanese people.

Every year various PR activities and events like the Tanabata (Star Festival) Light Down, which was held in fiscal 2008, will be held to encourage a shift in the awareness of the Japanese people toward the low-carbon society.

Specifically, the number of facilities participating in the Tanabata Light Down in different parts of Japan will be increased through advertising in newspapers and other media, the holding of count-down events, encouraging the understanding of children toward global warming through activities to spread information in schools, and the promotion of initiatives to make people think about local production for local consumption.

Moreover, the government will implement year-round efforts through the Team Minus 6%

activities, such as calling on citizens to participate in national efforts to prevent global warming (the “six actions” such as Cool Biz and electricity usage habits, carbon dioxide reduction of one kilogram per person), and holding various PR activities and events to encourage understanding among the people toward the low-carbon society.

(4) Support for initiatives by NGOs and community groups

The government will collaborate with a variety of different actors, such as NGOs, community groups, citizens, companies, and the administration, with the aim of established and spreading across the country activities that are rooted in the community, such as region-wide citizens’ movements, thus creating a society in which individuals act starting from what is closest at hand.

To achieve this, the government will support the initiatives of organizations of different types, such as the Centers for Climate Change Actions and regional committees, and the initiatives of climate change action officers. It will also support environmental conservation initiatives carried out through partnerships of regional NGOs, NPOs, companies, regional public bodies, etc. Moreover, the government will support community funds that give financial and non-financial support to the initiatives of organizations, NGOs, etc., that have close links to the community and demonstrate leadership; it will support businesses consulting on the emission reduction initiatives of companies and individuals; and it will facilitate such initiatives. The government will also support, through regional industry-university-government collaboration, the development of new products and services that contribute to bringing about a low-carbon society, and the expansion of markets for these products and services, by promoting Industrial Cluster Project.

Specifically, the government will elicit initiatives that use local creativity and ideas and disseminate them nationally; it will call for action on the part of the people through the challenge to reduce carbon dioxide emissions by one kilogram per person per day, etc.; it will give support to the diverse environmental conservation activities of NGOs and NPOs through consultations and information provision by intermediate support organizations; it will formulate guidelines for community funds; it will carry out projects giving incentives for region-wide citizens’ movements; and it will give support to strengthening regional networks between industry, academia, and the government.

*The following are the major changes in the situation including progress made to items related to the Action Plan for Achieving a Low-carbon Society following its establishment.

<**I Japan’s targets**: related to “Setting quantified national targets”>

○In October 2008, national debate was held on the “multiple options” presented in the results of a scientific and theoretical analysis conducted by the Mid-term Target Committee, which is a subcommittee of the Council on the Global Warming Issue. In consideration of the results, on

June 10, 2009, then Prime Minister Taro Aso announced the mid-term target of cutting emissions by 15% by 2020 compared to levels in 2005.

Also, at the United Nations Summit on Climate Change on September 22, 2009 Prime Minister Yukio Hatoyama announced that Japan would aim to reduce its emissions by 25% by 2020, if compared to the 1990 level, premised on the formulation of a fair and effective international framework by all major economies and agreement on their ambitious targets.

<**I Japan's targets**: related to "Support for others countries' efforts">

○At the United Nations Summit on Climate Change on September 22, 2009, Prime Minister Yukio Hatoyama voiced that vast amount of financial resources would be required to resolve the climate change problem, in particular to support adaptation efforts by vulnerable developing countries and small island countries. The Prime Minister thereupon announced that Japan is prepared to provide more financial and technical assistance than in the past, in accordance with the progress of the international negotiations. In addition, in regards to assistance to developing countries the Prime Minister expressed that 1) the developed countries, must contribute through substantial, new and additional public and private financing. 2) we must develop rules that will facilitate international recognition of developing countries' emissions reductions, in particular those achieved through financial assistance, in a measurable, reportable and verifiable manner. 3) on assistance to developing countries, consideration should be given to innovative mechanisms to be implemented in a predictable manner. And an international system should be established of information on and matching of available bilateral and multilateral financing. 4)Japan proposes to establish a framework to promote the transfer of low-carbon technologies which ensures the protection of intellectual property rights. These were proposed under the title of the Hatoyama Initiative, and the Prime Minister addressed that Japan will exert every effort for the success of COP15, in the course of formulating this initiative.

<**II The dissemination of innovative technologies and existing advanced technologies**: related to "(1) Huge increase in the installation of solar power generation facilities" under "2. Dissemination of existing advanced technologies">

○The economic crisis countermeasures compiled on April 10, 2009 (A Joint Meeting of the Government and Ruling Parties Council on New Economic Countermeasures and the Ministerial Meeting on Economic Measures) indicated raising the target implementation levels of solar power generation by twentyfold by around 2020. This policy was also maintained in

the Strategy for Opening Up a New Future (compiled by the Cabinet Office and Ministry of Economy, Trade and Industry on April 17, 2009) as well as the Economic and Fiscal Reform 2009 (approved by the Cabinet on June 23, 2009).

At the United Nations Summit on Climate Change on September 22, 2009, Prime Minister Yukio Hatoyama announced that Japan would aim to reduce its emissions by 25% by 2020, if compared to the 1990 level, premised on the formulation of a fair and effective international framework by all major economies and agreement on their ambitious targets. The prime minister was resolved to exercise the political will required to deliver on this promise by mobilizing all available policy tools. These will include the introduction of a domestic emission trading mechanism and a feed in tariff for renewable energy, as well as the consideration of a global warming tax.

○The subcommittee on the electric utility industry of the Advisory Committee on Energy and Natural Resources produced a certain degree of agreement on a policy for the cost burden necessary for implementing reusable energy and system stabilization in consideration of discussion held in the Study Group on Low Carbon Power Supply System.

<**III Framework to move the whole country toward reduced carbon**: related to "1. Emissions trading">

○"Experimental introduction of an integrated domestic market for emissions trading," which was planned for launch from October 2008, has begun recruitment of participants since October 21, 2008, following the Global Warming Prevention Headquarters Decision.

As a result of active efforts to encourage corporations to participate in the experimental introduction, such as by holding explanatory meetings in various places throughout Japan and for all industry types, as of July 6, 2009,

1) 521 "target setting participants" that set targets such including electrical power companies,

2) 68 "trading participants" that exclusively trade allowances such as commercial firms,

3) and 126 companies as domestic credit supply businesses,

a total of 715 companies, applied to participate.

*Japan's Voluntary Emissions Trading Scheme (JVETS), launched by Ministry of the Environment in 2005, became one of the types in the experimental introduction (176 companies of the participants in number 1 above).

○At the United Nations Summit on Climate Change on September 22, 2009, Prime Minister Yukio Hatoyama announced that Japan would aim to reduce its emissions by 25% by 2020, if compared to the 1990 level, premised on the formulation of a fair and effective international

framework by all major economies and agreement on their ambitious targets. The prime minister thus expressed his political resolve and determination to aim for the achievement of the mid-term target by mobilizing all available policy tools, including the introduction of domestic emissions trading mechanism and a feed-in tariff for renewable energy, as well as the consideration of global warming tax. On the establishment of the domestic emissions trading market, Prime Minister Hatoyama also spoke of promoting exchange of information on systems of other countries, and holding discussions on the issue, bearing in mind the impact on international competitiveness as well as possible future linkages among countries.

<**III Framework to move the whole country toward reduced carbon**: related to "(1) Making the tax system greener" under "2. Tax system">

○The FY2009 Tax Reform Act (Act No. 13, 2009), enacted in March 2009, created measures for temporary cut in Motor Vehicle Tonnage Tax, in addition to existing local measures, which increase/decrease tax on vehicles according to their burden on environment. The Act also expanded a tax reduction for energy efficient houses.

Furthermore, a supplementary provision of this Act stipulated that efforts are to be made to make the overall tax system "greener" (i.e. revisions to contribute to reducing the environmental burden) from the perspective of facilitating the development of a low carbon society.

○At the United Nations Summit on Climate Change on September 22, 2009, Prime Minister Yukio Hatoyama announced that Japan would aim to cut emissions by 25% by 2020 if compared to the 1990 level, premised on the formulation of a fair and effective international framework by all major economies and agreement on their ambitious targets. The prime minister was resolved to exercise the political will required to deliver on this promise by mobilizing all available policy tools. These will include the introduction of a domestic emission trading mechanism and a feed in tariff for renewable energy, as well as the consideration of a global warming tax.

<**III Framework to move the whole country toward reduced carbon**: related to "(2) Global environmental tax" under "2. Tax system">

○In March 2009, the Study Group on Global Environmental Taxes compiled and publicized a report on the various fund procurement methods that have hitherto been proposed at the global level (including non-tax system related matters as well).

<**III Framework to move the whole country toward reduced carbon**: related to "(1) Disseminating the "carbon footprint" system, etc." under "3. Visualization">

○In fiscal 2008, a study group was held to consider the role of the system and methods for calculating and displaying CO2 emission amounts. The study group established the Guidelines on the Carbon Footprint System, which is a policy for the system, and drafted the Standards for Establishing Product Category Rules (PCR) for creating measurement rules for emission amounts of products and services.

○In fiscal 2009, a trial project aimed at constructing an effective system was implemented under the premise of actually having products with carbon footprint labels circulated into the market. In September, the PCR were approved for uruchi rice (Japonica rice), powder detergent for clothing, and canola oil as the first set of PCR in the trial project. Also, in October, verification was conducted on the calculation results and display method for the carbon footprint system based on these PCR, allowing for products labelled with carbon footprints to be circulated in the market.

<**III Framework to move the whole country toward low carbon society**: related to "(2) Creating rules for carbon offsetting and carbon accounting" under "3. Visualization">

○Nine pilot projects were launched promoting carbon offsetting programs. In addition, from Sept 2008, various guidelines and standards for proper carbon offsetting program were established, including verification and carbon offset labeling.

○In November 2008, Carbon offsetting credit (J-VER) scheme was launched to certify domestic emission reduction and removals by sinks as highly reliable credits that can be used for carbon offsetting. In addition, a certification criterion for forest management was established that includes fossil fuel substitutes utilizing such materials as woody biomass as well as tree thinning.

<**IV Support for regional and citizens' initiatives**: related to "(1) Making use of local characteristics to create low-carbon cities and regions" under "2. Creating low-carbon cities and regions">

○By January 2009, 13 environmental model cities were selected and the Promotion Council for the Low Carbon Cities was established in December 2008 as a venue for promoting fine examples nationwide and creating partnerships with overseas cities (168 groups have joined as of October 5, 2009).