Kyoto City
Program of Global Warming Countermeasure
<2011~2020>
— For an environmentally-friendly city, economy and lifestyle —

(Digest)
Remarks upon revising “Kyoto City Program of Global Warming Countermeasure”

In Kyoto city, in 2010 we revised all our regulations relating to global warming countermeasures, which were the first regulations in Japan to specialize in global warming countermeasures, setting ambitious goals to reduce the city’s total greenhouse gas emissions by 40% by 2030 and 25% by 2020. This Kyoto City Program of Global Warming Countermeasure is our roadmap for achieving this goal.

However, the devastation brought on by the accident at the Fukushima Daiichi Nuclear Power Station following the Great East Japan Earthquake on March 11, 2011 significantly changed our awareness of energy, which is essential to citizens’ lives as well as to economic and social activities. The nuclear accident also prompted the national government to discuss review and revision of the Basic Energy Plan for the development of new energy policy.

Amid all this, we developed in December 2013 the Strategy for the Promotion of Kyoto City’s Energy Policy in an effort to set forth direction for the energy policy that the city should promote and keep the lessons learned from the March 2011 disaster from fading away.

Energy policy is related to a wide range of policy fields, and at the same time, it plays a key role in efforts to address global warming. In Kyoto City, we have decided to further strengthen our measures for preventing global warming by immediately reflecting in Kyoto City Program of Global Warming Countermeasures the direction of policy promotion, leading projects and such outlined in the Strategy for the Promotion of Kyoto City’s Energy Policy, which is inseparable from the program.

<Reference>

Kyoto City’s Code of Global Warming Countermeasures requires review and revision of initiatives for preventing global warming when it is determined that such actions are needed in light of advances made in global warming prevention technologies as well as changes in social and economic conditions.
Background to drawing up the plan

1 What is global warming?

◆ Global warming is a phenomenon where the global temperature rises due to heat-absorbing green-house gases, including carbon dioxide (CO₂), increasing with human economic activity, while the absorption of carbon dioxide decreases with the destruction of forests.

◆ According to the Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) released in September 2013, there is a very high possibility that human activities were the main cause of global warming observed after mid-20th century. The report also stated that it is highly likely that the world's average surface temperatures from 2081 through 2100 will be as much as 2.6 to 4.8 degrees Celsius higher than the levels between 1986 and 2005.

2 International trends

◆ In 1992, to prevent a range of adverse effects caused by global warming, the Framework Convention on Climate Change, which established an international framework, was adopted.

◆ In December 1997, at the third Conference of the Parties to the United Nations Framework Convention on Climate Change (COP3), hosted here in Kyoto, the Kyoto Protocol was unanimously adopted. The Kyoto Protocol stipulates legally binding numerical targets (for example Japan: 6%, EU: 8%) for the reduction of greenhouse gas emissions of developed nations during the first commitment period (2008 - 2012).

◆ The second commitment period of the Kyoto Protocol is currently underway from 2013 through 2020, following the first commitment period that lasted from 2008 to 2012.

◆ At the same time, the United Nations Environmental Program (UNEP) has reported that there is a wide gap between the member countries’ goal—to hold temperature increases to less than two degrees Celsius above the pre-Industrial Revolution level—and the targets each member country submitted to the secretariat of the United Nations Framework Convention on Climate Change as a way to achieve the goal.

◆ Meanwhile, discussions are underway about increasing each member country’s emission reduction levels and the establishment of legal framework that would apply to all countries starting in 2020.

3 National trends

◆ In 1998, Japan established the Act on Promotion of Global Warming Countermeasures to comprehensively address global warming. After the Kyoto Protocol went into force in February 2005, the country developed in April 2005 the Kyoto Protocol Target Achievement Plan, which defines measures necessary to ensure the fulfillment of the country’s commitment of reducing carbon emissions by 6%. <For the first commitment period of the Kyoto Protocol, Japan achieved a five-year average of 8.2% reduction (a preliminary figure) from base-year levels, including absorption by forests and the Kyoto Mechanism Credit. The country is expected to achieve the target set in the Kyoto Protocol of a 6% reduction from base-year levels.>

◆ In January 2010, Japan submitted to the secretariat of the United Nations Framework Convention on Climate Change its reduction target for 2020 of 25% below 1990 levels. After the Great East Japan Earthquake, however, the country retracted that target and submitted a new reduction target of 3.8% below 2005 emissions, in light of ongoing discussions concerning the country’s energy mix and energy policy including how nuclear power should be used. <The new target is a tentative one set without considering greenhouse gas reduction through the use of nuclear power. The country plans to review and revise the target according to progress made in the discussions on its energy policy and energy mix, and set a definite one.>
Kyoto City’s global warming countermeasures

1 Developments to date

(1) The beginning of global warming countermeasures
◆ In 1997 the Kyoto City Regional Propulsion Program of Global Warming Countermeasure was drawn up, highlighting the target to reduce carbon dioxide emissions by 10% compared to 1990 levels by 2010, and launching efforts to reduce greenhouse gas emissions.
◆ In 2003 the Kyoto City Regional Propulsion Program of Global Warming Countermeasure (revised edition) was drawn up, aimed at enhancing and fulfilling specific policies including the provision of a policy of 25 important points.

(2) Enactment of provisions and formulation of previous plans
◆ To promote further efforts, the Kyoto City Code of Global Warming Countermeasure, the first specialized regulation on global warming countermeasures in Japan, was enacted in December 2004 and enforced on April 1 the following year.
◆ In 2006 the previous plan, the Kyoto City Program of Global Warming Countermeasure, was drawn up to further fulfill and enhance the efforts and policies of citizens, businesses and the government.

(3) Selection of an Eco-Model City
◆ In January 2009 Kyoto City highlighted its ambitious goal to become a low-carbon society, one which drastically reduced greenhouse gases, and was selected as the Kyoto Eco-Model City, to pursue pioneering efforts.
◆ Not stopping at “reducing” greenhouse gases, long-term we have taken the angle of “not emissions” and assumed the basic stance of “going for a Carbon-Zero City”, together with establishing a mid-term target of reducing emissions by 40% compared to 1990 levels by 2030 and by 60% by 2050.
◆ Further, as symbol projects that will be the first step to these drastic reductions, we highlighted the “Kyoto, enjoyed by walking” strategy, “Kyoto, giving important value to culture of wood” strategy and “DO YOU KYOTO?” Changes in Lifestyle and Technological Innovation. Three city citizen’s councils have been established for these symbol projects, putting together the comprehensive traffic strategy “Kyoto, enjoyed by walking” (January 2010), “Kyoto, giving important value to culture of wood” City Resident’s Council Investigative Report (March 2010), and Proposals by the City Resident’s Council for Environmentally-Friendly Lifestyles (March 2010) based on the lively discussions at each of these city citizen’s councils. In Kyoto City we are promoting efforts, which make use of Kyoto’s character and charm based on these publications.

(4) Amendments to the regulations and the drawing up of this plan
◆ In October 2010 we renewed our resolve to aim for a low-carbon society that reduces its greenhouse gas emissions by over 80%, amending all regulations.
◆ This plan is a concrete action plan for achieving this reduction target.

(5) Development of the Strategy for the Promotion of Kyoto City’s Energy Policy
◆ In December 2013, we developed the Strategy for the Promotion of Kyoto City’s Energy Policy to set forth the direction of energy policy that we should promote. As a basic policy, we are aiming to develop a sustainable energy society that does not rely on nuclear power—one in which citizens will be able to maintain and increase the quality of life. Specifically, we are working to promote comprehensive energy conservation, significantly spread renewable energy, build a smart city unique to Kyoto, and create green-innovations.

*These terms are in the glossary on page 25
### Reduction target

Current target: 25% reduction compared to 1990 levels by 2020  
Target: 40% reduction compared to 1990 levels by 2030

### Main details

1. Stipulations on the responsibilities of each organization (Kyoto City, businesses, energy suppliers), citizens, tourists and visitors;
2. Stipulations on key policies to be implemented by Kyoto City and pioneer implementation;  
3. Stipulations on efforts that citizens and businesses strive to implement.

### Main compulsory stipulations

1. Large emitters*: introduction of an environmental management system*, a fixed proportion of new car buyers switching to eco cars, etc  
2. Distributors of large emission equipment**: energy-efficiency labeling for large emission equipment, etc  
3. Car dealers: eco-vehicle sales reports, etc  
4. People who put new extensions on large emission buildings***: installation of renewable energy systems, use of timber produced from within Kyoto area, etc  
5. People who build large greenery buildings****: greening buildings and the grounds

* These terms are in the glossary on page 25.

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### Figure 1 Developments in global warming countermeasures

<table>
<thead>
<tr>
<th>Year</th>
<th>The United Nations</th>
<th>Japan</th>
<th>Kyoto City</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>United Nations Framework Convention on Climate Change</td>
<td></td>
<td>Kyoto City Regional Propulsion Program of Global Warming Countermeasure</td>
</tr>
<tr>
<td>1997</td>
<td>Kyoto Protocol (Adopted)</td>
<td></td>
<td>Kyoto City Regional Propulsion Program of Global Warming Countermeasure (revised edition)</td>
</tr>
<tr>
<td>1998</td>
<td></td>
<td>Act on Promotion of Global Warming Countermeasures</td>
<td>Kyoto City Code of Global Warming Countermeasure (enacted)</td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>Kyoto Protocol (Went into force)</td>
<td>Kyoto Protocol Plan for Reaching Target</td>
<td>Kyoto City Program of Global Warming Countermeasure</td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td></td>
<td>Action plan to reduce CO&lt;sub&gt;2&lt;/sub&gt; emissions from Kyoto city hall</td>
</tr>
<tr>
<td>2008</td>
<td>Kyoto Protocol Start of the first commitment period</td>
<td>Kyoto Protocol Participated in the first commitment period</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
<td>Action Plan of Kyoto Eco-Model City</td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td>Registered with the UN a target to reduce emissions by 25% below 1990 levels by fiscal 2020</td>
<td>Kyoto City Code of Global Warming Countermeasure (fully amended)</td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td>Kyoto Protocol Declared non-participation in the second commitment period</td>
<td>Kyoto City Program of Global Warming Countermeasure</td>
</tr>
<tr>
<td>2012</td>
<td>Kyoto Protocol End of the first commitment period</td>
<td></td>
<td>Kyoto City Office’s Implementation Plan for Active Reduction of CO&lt;sub&gt;2&lt;/sub&gt; Emissions</td>
</tr>
<tr>
<td>2013</td>
<td>Kyoto Protocol Start of the second commitment period</td>
<td>Registered with the UN a target to reduce emissions by 3.8% below 2005 levels by fiscal 2020</td>
<td>Strategy for the Promotion of Kyoto City’s Energy Policy</td>
</tr>
</tbody>
</table>
2 The situation with greenhouse gas emissions in Kyoto City

(1) Greenhouse gas emissions

In fiscal 2010, Kyoto City achieved a 15.1% reduction in greenhouse gas emissions, far exceeding the target set in its old code of 10% reduction from 1990 levels. In fiscal 2011, however, emissions increased from the previous year to 7.57 million tons due to an increase in the CO₂ emission factor caused by a switch from nuclear to thermal power generation. The reduction achieved was only 220,000 tons, or a 2.8% reduction from the base-year total emissions of 7.79 million tons.

If we focus on carbon dioxide, which comprises the bulk of greenhouse gas emissions, industrial and transport emissions have fallen below those for the benchmark year, but civilian and commercial emissions, although lower than the previous year, have continuously increased drastically since the benchmark year, thus strengthening measures has become a matter of urgency.

Figure 2 Change in greenhouse gas emissions (above) and change in carbon dioxide emissions (below)
Basic facts

1 Plan period
The ten-year period from fiscal 2011 to fiscal 2020.
· Fiscal 2020 is the half way point to fiscal 2030, the target fiscal year of the regulations.
· We will consider a review in 5 years based on socio-economic circumstances.

2 Greenhouse gases targeted for reduction
The following 6 greenhouse gases are those targeted for reduction in this plan.

<table>
<thead>
<tr>
<th></th>
<th>Carbon dioxide</th>
<th>Methane</th>
<th>Nitrous oxide</th>
<th>Hydro fluorocarbon</th>
<th>Per fluorocarbon</th>
<th>Sulfur hexafluoride</th>
<th>Nitrogen trifluoride</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>[CO₂]</td>
<td>[CH₄]</td>
<td>[N₂O]</td>
<td>[HFC]</td>
<td>[PFC]</td>
<td>[SF₆]</td>
<td>[NF₅]</td>
</tr>
<tr>
<td>(2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>(3)</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>(4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3 Reduction targets
Reduce greenhouse gas emissions from the Kyoto municipal area
“by 25% compared to 1990 levels by fiscal 2020.”
· Below is the reduction target for the regulations.

Current target : 25% reduction on 1990 levels by fiscal 2020
Target : 40% reduction on 1990 levels by fiscal 2030

Figure 3 Period of this plan and reduction target
Features of the plan

1 Presentation of the six visions of a society

Kyoto City Code of Global Warming Countermeasure, it is essential to switch from the mass, production, mass consumption and mass waste disposal socio-economic system of the past. To do that, it is important for citizens and businesses to be able to universally empathize, present an image of society that can be shared, and promote policies for achieving that.

For this reason, this plan presents a low-carbon society for fiscal 2030, the end reduction target of the regulations, from six perspectives taking into account the character of Kyoto.

| 1 | A city which can be enjoyed on foot with preference given to people and public transportation |
| 2 | A city that regenerates its forests and values its "culture of wood" |
| 3 | A city of energy creation and community recycling |
| 4 | Environmentally-friendly lifestyles |
| 5 | Environmentally-friendly economic activities |
| 6 | Garbage reduction |

For more information on the six visions of a society, see pages 12-23.

2 The role of each level

<table>
<thead>
<tr>
<th>Level</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citizens</td>
<td>Increase interest in and deepen the understanding of global warming issues. At the same time, practice resource- and energy-saving activities, utilize renewable energy, and use resource- and energy-saving products and services in everyday lives.</td>
</tr>
<tr>
<td>Businesses</td>
<td>Practice resource- and energy-saving activities, utilize renewable energy, and use resource- and energy-saving products and services throughout the entire business process, including production, distribution, use/consumption, recycling, and disposal. Furthermore, provide environmental education to employees while partnering and collaborating with citizens and the government on their global warming countermeasures.</td>
</tr>
<tr>
<td>Kyoto City</td>
<td>Using facilities oriented to the local community, such as ward offices and branch offices, support global warming countermeasures implemented by citizens and businesses, together with taking the necessary action, including creating systems that provide regulations and incentives. Furthermore, Kyoto City itself is one of the primary large establishments operating in the city. Accordingly, as an operating entity and a consumer, actively practice resource- and energy-saving activities, utilize renewable energy, and use resource- and energy-saving products and services in its office operations.</td>
</tr>
<tr>
<td>Environmental conservation groups</td>
<td>Tackle concrete environmental conservation activities, such as working flexibly in domains where the government either cannot meet or not do enough to meet the diversified needs of society. Tourists and other visitors</td>
</tr>
<tr>
<td>Tourists and other visitors</td>
<td>Cooperate with global warming countermeasures implemented by citizens, businesses, the government and environmental conservation groups.</td>
</tr>
</tbody>
</table>
3 Management of the progress of policies

(1) Progress management of policies by an index of reduction effect

- In addition to a “progress indicator” (for example the number of development approvals for) which grasps the progress situation of policies called “result indicators” established in the previous plan, this plan establishes an “Index of reduction effect” for an assessment of the reduction effect of such things as the electricity output of solar power generating equipment.

- The following are some of the benefits of establishing an index of reduction effect.

1. The reduction effect of the target fiscal year can be measured by establishing a numerical target for each index of reduction effect.

2. Appropriate and targeted responses for major deviations of numerical targets, such as strengthening policies, are possible every fiscal year, by understanding the index of reduction effect.

3. It is possible to grasp the potential of the reduction effect of each vision of a society and each field based on numerical targets.

- ② is a particularly big feature of this plan. In addition to conventional progress indicators, policies can be promoted to the right amount by understanding index of reduction effects, making the realization of targets possible.

- As shown in Table 2, our policies are estimated to reduce carbon dioxide emissions by approximately 910,000 tons if the fiscal 2020 target is met for each index of reduction effect, which is set for each of the sectors including industrial, transport, residential, and commercial.

Table 2 Measurement of reduction effects by index of reduction effect

<table>
<thead>
<tr>
<th>Sectors, etc.</th>
<th>Vision of a society</th>
<th>Index of reduction effect</th>
<th>Reduced amount (ktCO₂)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Subtotal</td>
</tr>
<tr>
<td>Industrial</td>
<td>Economic activity</td>
<td>Total volume of emissions in the large emitters system</td>
<td>36.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* report</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reduced* reduction</td>
<td>5.0</td>
</tr>
<tr>
<td>Transport</td>
<td>Economic activity</td>
<td>Total volume of emissions in the large emitters system</td>
<td>15.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* report</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Car fuel efficiency (sales based)</td>
<td>126.4</td>
</tr>
<tr>
<td></td>
<td>A walking city</td>
<td>Electric and plug-in vehicles</td>
<td>80.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private car ownership in Kyoto</td>
<td>83.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lifestyle Number of self-professed eco-drivers*</td>
<td>36.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reduced* reduction</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of home appliances replaced (refrigerators, air conditioners, TVs, LED lights)</td>
<td>117.2</td>
</tr>
<tr>
<td>Residential</td>
<td></td>
<td>Number of high-efficiency hot water heaters</td>
<td>61.7</td>
</tr>
<tr>
<td></td>
<td>Lifestyle</td>
<td>Number of residential fuel cells* installed</td>
<td>211.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of CASBEE Kyoto assessment notifications (Newly/expanded houses with an area of 2,000m² or more)</td>
<td>13.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of buildings meeting new energy-saving standards* (Houses with an area equal to or more than 300 m² and less than 2,000 m²)</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of durable, high-quality housing units* / low-carbon buildings* certified (newly-built single houses)</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of houses improved using energy-efficient renovation grant programs</td>
<td>1.4</td>
</tr>
<tr>
<td>Commercial</td>
<td>Economic activity</td>
<td>Total volume of emissions in the large emitters system</td>
<td>123.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* report</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reduced* reduction</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of CASBEE Kyoto* assessment notifications (Newly/expanded non-residential buildings with an area of 2,000m² or more)</td>
<td>37.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of buildings meeting new energy-saving standards* (Non-residential buildings with an area equal to or more than 300 m² and less than 2,000 m²)</td>
<td>2.5</td>
</tr>
<tr>
<td>Waste</td>
<td>Culture of wood</td>
<td>Amount of waste plastic received at the municipal disposal facility</td>
<td>57.0</td>
</tr>
<tr>
<td>Other reductions</td>
<td>Energy</td>
<td>Area of forest (naturally regenerated forest, cultivated forest)</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Output of solar power generating installations</td>
<td>65.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Amount of other renewable energy imported (Solar heat, Small-scale hydropower, wind, waste power generation, BDF*, Woodpellets*, etc.)</td>
<td>24.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>911</td>
</tr>
</tbody>
</table>

* These terms are in the glossary on page 25.
Figure 4 Calculated results of greenhouse gas emissions (fiscal 2020)

- As shown in Figure 4, it is forecasted that, if all measures outlined in this plan are thoroughly implemented, the amount of greenhouse gas emissions will be 5.70 million tons in fiscal 2020.
- Increase or decrease due to CO\(_2\) emission factor for electricity\(^*1\) was excluded when calculating the above figure, as the CO\(_2\) emission factor cannot be estimated for fiscal 2020 at this point\(^*2\).

\(^*1\) The amount of carbon dioxide emitted to generate 1 kilowatt hour of electricity. Because this factor is based on the actual amount of fossil fuels used by utilities to generate electricity each fiscal year, this factor fluctuates from year to year and is smaller in years with less fossil fuels used.

Carbon dioxide emissions due to electricity usage = Electricity usage \(\times\) CO\(_2\) emission factor for electricity

\(^*2\) The national government has yet to present an appropriate mix of energy sources for power generation, including coal, natural gas, nuclear, and renewables, which is necessary to estimate a CO\(_2\) emission factor for fiscal 2020. Therefore, estimates for fiscal 2020 cannot be made.

(2) Progress management using the Low-Carbon Index

- Kyoto City has set the Low-Carbon Index to track the progress of its policies from multiple perspectives while visualizing the results of those policies. The index is also designed to enable the city to manage progress while eliminating external factors related to power generation methods, namely the effect of more fossil fuels being used at thermal power plants following a decrease in nuclear power generation.

A Managing the progress of reduction in greenhouse gas emissions

To manage the progress toward the target on greenhouse gas emission reductions, the trend in actual greenhouse gas emissions (= electricity usage for a given fiscal year \(\times\) CO\(_2\) emission factor for electricity for the same year) is tracked. The actual greenhouse gas emissions are calculated using the CO\(_2\) emission factor for electricity, which changes from year to year. In addition, the following index has been set.

- The trend in greenhouse gas emissions calculated using the CO\(_2\) emission factor for electricity for the previous fiscal year.

B Progress management using indices unaffected by the CO\(_2\) emission factor for electricity

The following indices are used to manage from multiple perspectives the progress of policies implemented by citizens and businesses. The indices include those that indicate energy usage (e.g., electricity usage before being converted to greenhouse gas emissions) and the efficiency of energy usage.

- Energy usage (electricity and gas)
- Industrial and commercial sectors’ energy usage per GDP of the city
- Residential sector’s energy usage per capita and per household
- Commercial sector’s energy usage per taxable floor area
- Gasoline consumption for all personal vehicles within the city, gasoline consumption per household
- Trend in the percentage of households implementing policies
**Promotion of strategic project**

**Strategy I** Shift to building a city that does not emit greenhouse gases

1 Project to create a walking and low-carbon city

- Promotion of the comprehensive traffic strategy "Kyoto, enjoyed by walking"
  1. Establishment and operation of the Kyoto Future Transportation Innovation Research Institute
     - Establishing the Kyoto Future Transportation Innovation Research Institute (KFTIRI). In order to make transportation more convenient and safer for people and goods, conducting a range of activities in the transportation field, from research and development to commercialization assessment, using information and communication technologies and other resources to gather and consolidate a variety of transportation-related information. Striving to create a smarter city and more enriched society.
  2. Upgrade of the square in front of Kyoto station Minamiguchi exit
     - Upgrade of the Kyoto station Minamiguchi exit square to really feel user-friendly, pleasant, beautiful, entertaining and lively.
  3. Widening the pedestrian walkway and restricting traffic on Higashioji-odori
     - Plans to expand the walking space and improve traffic safety as well as restricting traffic on Higashioji-dori with its many residents and tourists.
  4. Widening the pedestrian walkway on Shijo-dori and prioritizing public transport
     - Plans to maintain a pleasant walking space by widening the walkway, and shift away from private cars to public transport in the midtown area centred around Shijo-dori, the city's biggest shopping area.
  5. Implementation of a year-round park-and-ride service
     - Implementing a year-round park-and-ride, reducing the inflow of cars into the midtown area with people parking their cars in car parks around suburban stations then changing to public transport.
  6. More convenient public transportation with the use of Kyoto Freepass, an in-city mass transit pass
     - Improving the convenience of public transit by leveraging the network of railroad and bus operators to a maximum extent and offering the Kyoto Freepass, a convenient transit pass that allows unlimited rides on virtually all trains and buses in the city.
  7. Enhancing the bicycle-friendly environment
     - Plans to improve the traffic environment by upgrading bicycle and car parks and maintaining or upgrading existing bicycle paths and lanes through coordination and cooperation between the government and businesses.
  8. Carpark policies
     - As one installation of cities, carparks are an important facility, encouraging valid use based on necessary parking demands and appropriate positioning in the future.

- Promotion of the creation of a Kyoto-style eco-compact city
  1. Building an intensive urban structure that has a low load on the global environment
     - Based on the Master Plan for City Planning, applying various policies in Kyoto, also incorporating a low-carbon perspective in the next urban master plan, which is the future urban plan for Kyoto, and striving to create a convenient, liveable zone in which customer-drawing facilities are assimilated with transport hubs where public transport from different areas are more integrated.
  2. Increasing the popularity of car sharing
     - Striving to reduce car ownership and walking distance by increasing the popularity of car sharing whereby several employees from the same workplace have shared usage of a car.

- Appropriate preservation of forests and usage of timber produced from within Kyoto area
  1. Promotion of the spread of “Heisei Kyo-Machiya type housing”
     - Striving for widespread “Heisei Kyo-Machiya type housing”, a Kyoto-style eco-friendly housing blending the wisdom of traditional Kyo-Machiya with modern environmental technology.
  2. Promoting the spread of buildings with high environmental performance assessment by “CASBEE Kyoto”
     - Endorsing the display of “CASBEE Kyoto”, a system for the appropriate assessment and guidance of Kyoto-style eco-friendly buildings and striving for the spread of buildings with high environmental performance. In addition, operating an assessment system for buildings that have existed over a year and for improvements made to such existing buildings.
  3. Development of an information system of timber stock produced from within Kyoto area
     - As a way to promote the use of timber produced in Kyoto City, operating a timber stock information system that provides updates to construction companies on current timber supply. This system is being operated in collaboration with the timber industry.
Project to create green economy

Promotion of green-innovation

1. Creation and promotion of green-innovation in partnership with Kyoto Prefecture and the business community through the Kyoto Consortium for Industrial Development* as well as in joint efforts of the entire Kyoto community through the Kyoto Industrial Eco-energy Promotion Organization*

Collaborating with Kyoto Prefecture and the business community through the Kyoto Consortium for Industrial Development to develop and promote energy- and environment-related industries. In addition, providing comprehensive support for a range of activities, from research and technological development to commercialization, by bringing the entire Kyoto community onboard employing the Kyoto Industrial Eco-energy Promotion Organization as a platform of activities.

2. Formulation and promotion of Kyoto City’s Vision for the Promotion of its Green Industry outlining the direction of policies designed to draw on Kyoto’s strengths

In order to strategically develop energy- and environment-related industries, formulating and promoting Kyoto City’s Vision of the Promotion of the Green Industry, outlining the direction of policies and other elements that are designed to draw on Kyoto’s strengths.

3. Promotion of new innovative projects leveraging the national government’s competitive funds, including the Super Cluster Program* and the Regional Innovation Strategy Support Program*

Based on the achievements made in the green field through the Kyoto Environmental Nanotechnology Cluster and other projects Kyoto City has conducted in collaboration with the industrial and academic sectors, promoting new innovative projects that leverage competitive funds, including projects for developing research achievements (the Super Cluster Program) and the Regional Innovation Strategy Support Program, which are provided by the national government and other entities. Mobilizing the efforts of the industrial, academic, and public sectors in Kyoto to achieve this end, and striving to create green-innovation originating in Kyoto that will not only contribute to the rest of Japan but also to the world.

4. Promotion of a Kyoto version of SBIR to create new industries with high added value

Supporting business activities that use local small and medium-sized businesses and technologies and the new technology of small and medium-sized business ventures, thus promoting systems (Small Business Innovation Research) that use the strengths of Kyoto’s local support system platform and provide consistent support from research and development to market development.

Building a smart-community

1. Making a significant leap forward in the spread of renewable energy (e.g., photovoltaic, solar thermal, micro hydro, and wood-derived biomass*)

Carrying out the following initiatives to reduce CO₂ emissions into the atmosphere and make a significant leap forward in the spread of renewable energy, which can be used without drying up resources.

• Continue to provide grants and other support for the installation of solar power systems, solar thermal systems, and other such equipment
• Evolve the Institution to Generate Electric Power by Civic Collaboration
• Formulate and promote the Biomass Industrial City Plan*
• Utilize wood-derived biomass energy and develop related industries
• Promote the use of waste-derived biomass energy, including BAIO KEIYU (light oil) and energy generated through the “Urban Oilfield” Development Project.
• Promote the introduction of solar power and other renewable energy sources as well as batteries and other equipment in disaster-prevention activity centers, evacuation centers, and other locations in coordination with national policy

2. Creation of new projects regarding various themes, including disaster prevention, energy, and information and communication technologies in collaboration between the industrial, academic, and public sectors through the Smart City KYOTO Research Group

Discussing the development of smart city-related projects that will not only build mechanisms for optimizing energy supply and demand for the entire region but also solve the region’s problems, including those related to disaster prevention, by leveraging information and communication technologies. These discussions will be led by the Smart City KYOTO Research Group, which was established in a partnership between the industrial, academic, and public sectors.

3. Promotion of the revitalization of the Okazaki community with a focus on the visualization and optimization efforts using renewable energy and energy management systems

Installing independent distributed energy systems and building energy management systems (e.g., Building Energy Management Systems (BEMS) and Community Energy Management Systems (CEMS)) in multiple locations in the Okazaki community. Conducting a model study of optimal energy management systems for the entire community and promoting the OKAZAKI Community Project Demonstrates Formation of an Energy Network between Public Facilities by employing visualization and other advanced environmental technologies.

4. Establishment and driving of the Kyoto BEMS Promotion Consortium for the achievement of energy and electricity conservation in the commercial sector, in joint efforts by the industrial, academic, and public sectors

Implementing measures in medical and welfare facilities in Kyoto City based on findings from BEMS implementation demonstration projects. Supporting the implementation of effective energy conservation measures for hotels and traditional Japanese hotels; colleges and universities; public facilities; and other establishments, according to the energy consumption characteristics of each category.

Visualiza”tion” of environmental value

1. Promotion of "DO YOU KYOTO? credit" institution

Promoting energy conservation activities in communities, including eco communities in elementary school districts, citizen groups, and shopping districts, by using the “DO YOU KYOTO? Credit” Institution, which is Kyoto’s community credit program that promotes the consumption of locally produced products.

2. Promotion of eco-friendly tourism

Using credit created in Kyoto, striving for widespread low-carbon eco-tourism that offsets* part of the greenhouse gas emissions generated from tourism in Kyoto; promotion of tourism where tourists can learn about, experience and walk around the natural environment, history and culture of Kyoto; and facilitation of environmentally-friendly services and facilities.

3. Facilitation of the “visualization” of environmental value using a carbon footprint calculator

Accumulating greenhouse gases that products emit in the process from their raw materials being supplied to their manufacturing, distribution and disposal after consumption as well as through their consumption of electricity and fuel, and so facilitate widespread “visualization” of environmental value and low-carbon products by using a carbon footprint calculator that displays and converts the emissions into carbon dioxide.

* These terms are in the glossary on page 25.
Ⅲ Shift to an environmentally-friendly lifestyle

-project to create eco-life community-

- Transmission of eco-life from the region
  1) Expansion of the Establishment of environment-friendly community “eco gakku” in which members of communities work together on environmentally-friendly activities
     Expanding the establishment of environment-friendly community “eco gakku” designed to support elementary school districts, which form Kyoto’s communities, to all 222 elementary school districts in the city. This effort aims to raise environmental awareness regarding energy conservation and other issues and to provide the opportunity to practice environmentally-friendly activities within communities, so as to encourage a shift to a greener lifestyle.

- Proposals for new eco-style
  1) Providing grants and other support for energy-efficient improvements on existing houses
     Implementing policies that are aimed at shifting people’s mindset to one that places more importance on preserving and using existing houses for a longer period of time. Specifically, providing assistance for home renovations including grants for energy-efficient upgrades, so that there will be more houses in which families continue to live over several generations with a peace of mind. Establishing a system that will achieve synergy in combination with other home improvement-related programs, such as the shake-resistance improvement support and renewable energy implementation support, for the implementation of these efforts.

  2) Promotion of total energy usage reduction as well as of reduction and shift in peak-hour energy usage through the visualization of energy demand via Home Energy Management Systems (HEMS*) and BEMS
     Supporting the installation and spread of energy management systems (e.g., HEMS and BEMS), batteries, and other tools. The goal is to promote the reduction in total energy usage and the reduction and shift in peak-hour energy usage through the use of information and communication technologies to visualize energy usage in homes and buildings.

  3) Promotion of efficient energy use by spreading the use of cogeneration systems* (combined heat power systems) and other resources
     Promoting the installation of cogeneration systems and other equipment including residential fuel cells. These systems and equipment work as distributed power sources. They also reuse waste heat from power generation as a heat source and for heating/cooling air inside homes and buildings and heating water in homes and industrial facilities, allowing for efficient usage of energy.

  4) Spread of Kyoto Style based on effective use of morning
     As one way to lead a green life, encouraging a healthy and environmentally-friendly lifestyle that is close to the natural cycle of awakening at sunrise and retiring at sunset.

  5) Popularization of an environmentally-friendly diet by spreading and promoting the local consumption of locally produced agricultural and marine products and “Kyoto food in season”
     Striving for the spread of a diet with a low environmental load through “Kyoto food in season” whereby people wait for the season and eat local foods, and eco-cooking measures of “shopping”, “cooking” and “cleaning up” that are environmentally-friendly, thus reducing the amount of energy used in the production, distribution and cooking of foods.

- Building a recycling society system
  1) Promotion of efforts to reduce containers and packaging
     Placing importance on the promotion of waste reduction at the source, specifically regarding shopping bags, trays, plastic bottles, and other containers/packaging materials, which have become the symbol of mass production, mass consumption, and mass disposal.
     Building new frameworks, including ordinances that promote shopping that involves less containers and packaging as well as events which minimize container and packaging waste. Kyoto City will promote these efforts in partnership with citizens and businesses.
     Further, considering the possibility of including new measures related to overall waste reduction in addition to containers and packaging when establishing ordinances.

  2) Promotion of the use of waste-derived biomass energy, including BAIO KEIYU (light oil) and that generated from the “Urban Oilfield” Development Project
     Actively utilizing waste-derived biomass energy through the use of biodiesel fuels, the “Urban Oilfield” Development Project, BAIO KEIYU (light oil), and the study of the possibility of commercializing compact biogas technology.

  3) Collecting energy from biomass waste, including food scraps and used cooking oil
     In conjunction with continuously operating a facility for converting waste cooking oil into fuel where used cooking oil is refined into biodiesel at the South Clean Center’s Number 2 Plant, which has been newly rebuilt, striving for improved efficiency in conventional electric power generation by garbage incineration, and generating biogas power with food scraps thus optimizing the collection of energy from waste.
Concrete policies and measures

An enjoyable walking city that gives priority to people and public transport

Vision of society to aim for

- Bursting with the charm of user-friendly public transport and walking, realizing “Kyoto, enjoyed by walking” which values a way of life where people walk and gives priority to people and public transport.
- Through various control measures including a limit on car use, reducing the total volume of traffic, replacing the cars on the road with eco-vehicles* such as electric cars.

<table>
<thead>
<tr>
<th>Index of reduction effect</th>
<th>Fiscal 2010 results</th>
<th>Fiscal 2020 target</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Private car ownership in Kyoto</td>
<td>508,000 cars</td>
<td>475,000 cars</td>
</tr>
<tr>
<td>(2) Car fuel efficiency (sales based)</td>
<td>18.7 km/L</td>
<td>21.5 km/L</td>
</tr>
<tr>
<td>(3) Electric and plug-in vehicles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of hybrid vehicles</td>
<td>130 cars</td>
<td>60,000 cars</td>
</tr>
</tbody>
</table>

* These terms are in the glossary on page 25.
Measures for "existing public transport" (improving the convenience of existing public transport)

- Improving the convenience of buses in the western part of Kyoto
- Upgrading the square in front of Kyoto station's Minamiguchi exit
- Improving the convenience of public transportation by offering the Kyoto Freepass, an in-city mass transit pass
- Promoting the incorporation of barrier-free design at stations
- Development to widen park-and-ride and the implementation of traffic measures at tourist sites
- Review of countermeasures for public transport in inconvenient areas
- Development of a traffic information and telecommunications system

"Urban development" measures (urban development giving priority to pedestrians)

- Widening the pedestrian walkway and restricting traffic on Higashi-odori
- Widening the pedestrian walkway on Shijo-dori and giving priority to public transport
- Investigative review of new public transport systems (LRT, next-generation streetcars, and BRT, Bus Rapid Transit system)
- Establishment and operation of the Kyoto Future Transportation Innovation Research Institute
- Implementation of a year-round park-and-ride
- Carpark policies
- Clarification of the positioning of taxi traffic and review of effective use
- Discussions on measures for restricting cars entering tourist destinations and other areas
- Review of the equity of traffic conditions (providing services to public transport users in commercial institutions)
- Further spread of car sharing
- Enhancing the bicycle-friendly environment

"Lifestyle" measures (switching to a lifestyle that values an enjoyable life on foot)

- Popularization and education in educational institutions, symposiums, events and commercial institutions
- Mobility management using advertising media
- Policies to encourage "citizens" to rethink their transport options
- Policies to encourage "tourists" to rethink their transport options

Shift to eco-vehicles

- Review of offering incentives for the installation of charging facilities in places like apartment blocks, private carparks and commercial institutions
- Promotion of programs requiring specified businesses to replace a certain percentage of its cars with eco-vehicles
- Promotion of programs requiring car dealers to report on the number of eco-vehicles sold
- Facilitation of the introduction of electric and hybrid buses
Forest regeneration and giving important value to “culture of wood” city

Vision of a society to aim for

• Becoming familiar with the forest and returning the riches of the forest to the city, thus proactively tackling the fostering of culture and stimulation of industry by regenerating forests which make up three-quarters of the municipal area.

• While widely using timber produced from within the Kyoto area, facilitating the construction of new housing utilizing the wisdom of Kyo-Machiya type housing and, together with building a cycle of sustainable timber use, promoting the formation of Kyoto-style scenery.

• Realizing a city where, surrounded by lush green, people can feel the warmth of the trees near them in their daily lives.

Index of reduction effect

<table>
<thead>
<tr>
<th>(1) Usage of wood pellets produced from within the Kyoto area</th>
<th>Fiscal 2010 results</th>
<th>Fiscal 2020 target</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 tons</td>
<td>3,500 tons</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(2) Area of forest (naturally regenerated forest + cultivated forest)</th>
<th>Fiscal 2010 results</th>
<th>Fiscal 2020 target</th>
</tr>
</thead>
<tbody>
<tr>
<td>29,200 ha</td>
<td>30,100 ha</td>
<td></td>
</tr>
</tbody>
</table>
Use of timber produced from within the Kyoto area

- Promotion of programs requiring locally-produced timber to be used in large emission buildings
- Setting an example by using timber produced from within the Kyoto area for public facilities (Promotion of the Basic Policy on Using Timber in Kyoto City’s Public Buildings, etc.)
- Promoting the spread of buildings with high environmental performance assessment by "CASBEE Kyoto"
- Preservation and creation of low-carbon scenery
- Promotion of the spread of "Heisei Kyo-Machiya type housing"

- Formulation and promotion of the Biomass Industrial City Plan
- Use of wood-derived biomass energy and creating related industries
- Facilitation of the spread of wood pellet heaters, boilers and absorption water chillers
- Proactive use of wood pellets in public buildings
- Grants provided for thinned wood supply and demand

- Development of an information for timber stock produced from within the Kyoto area
- Assessment of wood-mileage*

Appropriate preservation of forests

- Cultivation of healthy and diversified forests
- Promotion of guidelines to maintenance and revitalize forest landscape around Kyoto city
- Fostering and securing personnel to be responsible for the maintenance of the forests

- Promotion of integrated management
- Promotion of efficient forestry management and cost reduction

- Increase in supporters of reforestation
- Development of environmental learning activities using forests, including satoyama

Urban development that uses water, flora and wind

- Promotion of programs requiring greenery for large greenery buildings
- Promotion of greening public facilities
- Enhancement of grants provided for afforestation of privately-owned land
- Promotion of land privatization by civic collaboration

- Effective use of farmland by the maintenance of community gardens
- Building of a water and flora network
- Promotion of water-use measures

* These terms are in the glossary on page 25.
City of energy creation and community recycling

Vision of a society to aim for

- The creation of clean energy using sunlight and solar heat will flourish in all parts of the city, and biomass, including rubbish, and rivers will fulfill the role of regionalized energy sources.

<table>
<thead>
<tr>
<th>Index of reduction effect</th>
<th>Fiscal 2010 results</th>
<th>Fiscal 2020 target</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Output of solar power generating installations</td>
<td>13,600 kW</td>
<td>224,000 kW</td>
</tr>
<tr>
<td>Number of home and residential solar power generating installations</td>
<td>approx 2,300</td>
<td>approx 25,000</td>
</tr>
<tr>
<td>(2) Amount of other imported renewable energy</td>
<td>approx 480 TJ</td>
<td>approx 888 TJ</td>
</tr>
</tbody>
</table>
Expansion of the introduction of renewable energy

- Promotion of "DO YOU KYOTO? credit" institution
- Promotion of programs that require implementation of renewable energy in large emission buildings
- Assessment in institution to plan reduction of CO2 emissions from employers
- Promoting the spread of buildings with high environmental performance assessment by "CASBEE Kyoto" (reprinted)
- Formulation and promotion of the Biomass Industrial City Plan (reprinted)
- Use of wood-derived biomass energy and creating related industries (reprinted)
- Promotion and awareness raising for efficient use of thermal energy
- Promotion of the introduction of solar power and other renewable energy sources as well as batteries and other equipment in disaster-prevention activity centers, evacuation centers, and other locations in coordination with national policy.
- Strengthening of ties with related businesses to boost the implementation of renewable energy

- Grants and other support continued to be provided for the installation of solar power systems, solar thermal systems, and other such equipment
- Development of the Institution to Generate Electric Power by Civic Collaboration
- Facilitation of the spread of wood pellet heaters, boilers and absorption water chillers (reprinted)
- Review of the mandatory introduction of renewable energy for new houses
- Promotion and awareness raising for efficient use of thermal energy (reprinted)
- Establishment of a one-stop contact point regarding the installation of renewable energy systems, etc.
- Strengthening of ties with related businesses to boost the implementation of renewable energy (reprinted)

- Active introduction of renewable energy in public buildings and dissemination of information about such energy (Tightening of the Low-Carbon Specifications for Public Buildings in Kyoto City, and use of roof rental programs and the Institution to Generate Electric Power by Civic Collaboration)
- Promotion of “Urban Oilfield” development project
- Promotion of “BAIO KEIYU” (light oil) practical application project
- Promotion of the introduction of small-scale hydropower
- Expansion of the use of biodiesel refined from used cooking oil
- Attachment of a biogas generating facility when the Number 2 Plant at the South Clean Center was newly rebuilt
- Effective use of sewage sludge (methane)

Energy management in the community

- Creation of new projects through the Smart City KYOTO Research Group. The themes of these projects, which are conducted in collaboration between the industrial, academic, and public sectors, include “disaster prevention, energy, and information and communication technologies”
- Promoting the revitalization of the Okazaki community with a focus on the visualization and optimization efforts using renewable energy and energy management systems
- Facilitation of land use for an eco-compact city
Environmentally-friendly lifestyle

- Everybody undertaking environmentally-friendly measures as a matter of course, thus establishing a “Kyoto Model lifestyle”, which values a food culture of consuming local produce that coexists with nature and has a sense of the season.
- In addition, making use of local original ideas, “eco” is transmitted from the community close to each citizen.

### Vision of a society to aim for

**Index of reduction effect**

<table>
<thead>
<tr>
<th>(1) Number of home appliances replaced</th>
<th>Fiscal 2010 results</th>
<th>Fiscal 2020 target</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>—</td>
<td>★</td>
</tr>
<tr>
<td>(2) Number of high-efficiency hot water heaters</td>
<td>48,000</td>
<td>395,000</td>
</tr>
<tr>
<td>(3) Number of self-professed eco-drivers</td>
<td>71,000 people</td>
<td>253,000 people</td>
</tr>
<tr>
<td>(4) Credited* reduction (Residential)</td>
<td>(Started operation in fiscal 2011)</td>
<td>2,500 tons</td>
</tr>
<tr>
<td>(5) Number of durable high-quality housing units / low-carbon buildings certified (newly-built single houses)</td>
<td>1,281</td>
<td>8,600</td>
</tr>
<tr>
<td>(6) Number of CASBEE Kyoto assessment notifications (Newly/expanded houses with an area of 2,000 m² or more)</td>
<td>—</td>
<td>460</td>
</tr>
<tr>
<td>(7) Number of buildings meeting new energy-saving standards (Houses with an area equal to or more than 300 m² and less than 2,000 m²)</td>
<td>67</td>
<td>750</td>
</tr>
<tr>
<td>(8) Number of residential fuel cells installed</td>
<td>152</td>
<td>24,640</td>
</tr>
<tr>
<td>(9) Number of houses improved using energy-efficient renovation grant program</td>
<td>—</td>
<td>8,400</td>
</tr>
</tbody>
</table>

★ 700,000 refrigerators, 1.6 million air conditioners, 1.95 TVs, LED lighting adoption rate of 78%
### Facilitation of the Spread of Eco-Life

- **Fun, stylish eco**
  - Spread of Kyoto Style based on effective use of morning
  - Widespread education through the active use of various media
  - Promotion of efforts on "DO YOU KYOTO? Day"
  - Promotion of efforts using the power of students of "Kyoto – a university city, a student city"
  - Promotion of eco-driving
- **Healthy through eco**
  - Spread of an environmentally-friendly diet by promoting the consumption of locally produced agricultural and marine products and "Kyoto food in season"
  - Maintaining walking space and a bicycle-friendly environment
- **Learn about eco**
  - Promotion of environmental education that encourages children to think about the future of the Earth's environment on their own
  - Strategic publicity conducted in a comprehensive and easy-to-understand manner through various media and opportunities, aimed at raising awareness for the global warming countermeasures implemented in a wide range of fields and for their effects
  - Development of eco learning centered around MIYAKO ECOLOGY CENTER
  - Education on energy and human resource development

### Facilitation of Eco Activities in the Community

- **Promotion of eco activities throughout the community**
  - Expansion of the Establishment of environment-friendly community "eco gakku" in which members of communities work together on eco-friendly activities
  - Establishment of a new "eco-community" including eco shopping malls and eco universities
  - Promotion of "DO YOU KYOTO? credit" institution (reprinted)
  - Promotion of eco activity support schemes in each ward

### Facilitation of the Spread of Environmentally-Friendly Housing

- **Promotion of low-carbon housing**
  - Grants and other support provided for making existing houses more energy efficient
  - Discussions on regulations and ways to lead the public into building new energy-efficient houses
  - Establishment of advisory institution to create eco-house
  - Promoting the spread of buildings with high environmental performance assessment by "CASBEE Kyoto" (reprinted)
  - Facilitation of the spread of "Heisei Kyo-Machiya type housing" (reprinted)
  - Promotion of efficient energy use by spreading the use of cogeneration systems* (combined heat power systems) and other resources
- **Promotion of “visualization” of energy usage**
  - Expansion of energy-saving testing in homes
  - Review of an expansion of energy-saving label institution
  - Review of the system for recording the environmentally-friendly performance of existing houses
  - Promotion of total energy usage reduction as well as reduction and shift in peak-hour energy use through the visualization of energy demand made possible by implementing HEMS and other systems

* These terms are in the glossary on page 25.
Visions of a society to aim for

- Boasting the latest technology, Kyoto’s environmental industries play a leading role in the spread of resource- and energy saving, long-life, recyclable goods and services, thus contributing greatly to vibrant community development and a reduction in carbon worldwide through a virtuous cycle between the environment and the economy.
- Expanding the adoption of highly energy-efficient equipment, together with actively contributing to social actions environmentally, businesses have become a major force in leading a low-carbon city.

Index of reduction effect

<table>
<thead>
<tr>
<th>Description</th>
<th>Fiscal 2010 results</th>
<th>Fiscal 2020 target</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Total volume of emissions in the large emitters system report (industrial, transport, commercial)</td>
<td>—</td>
<td>Industrial 36,200 tons</td>
</tr>
<tr>
<td></td>
<td>(Started operation in fiscal 2011)</td>
<td>Transport 15,100 tons</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Commercial 123,200 tons</td>
</tr>
<tr>
<td>(2) Credited reduction (industrial, commercial)</td>
<td>—</td>
<td>7,500 tons</td>
</tr>
<tr>
<td></td>
<td>(Started operation in fiscal 2011)</td>
<td></td>
</tr>
<tr>
<td>(3) Number of CASBEE Kyoto assessment notifications (Newly/expanded non-residential buildings with an area of 2,000m² or more)</td>
<td>—</td>
<td>460</td>
</tr>
<tr>
<td></td>
<td>(Started operation in fiscal 2011)</td>
<td></td>
</tr>
<tr>
<td>(4) Number of buildings meeting new energy-saving standards (Non-residential buildings with an area equal to or more than 300 m² and less than 2,000 m²)</td>
<td>93</td>
<td>940</td>
</tr>
</tbody>
</table>
**Promotion and development of environmental industries**

- Creation and promotion of green-innovation in partnership with Kyoto Prefecture and the business community through the Kyoto Consortium for Industrial Development as well as in joint efforts of the entire Kyoto community through the Kyoto Industrial Eco-energy Promotion Organization
- Promotion of new innovative projects leveraging the national government’s competitive funds, including the Super Cluster Program and the Regional Innovation Strategy Support Program
- Promotion of a Kyoto version of SBIR to create new added-value industries
- Formulation and promotion of Kyoto City’s Vision for the Promotion of its Green Industry outlining the direction of policies designed to draw on Kyoto’s strengths

**Support of business expansion**

- Formulation and promotion of Kyoto City’s Vision for the Promotion of its Green Industry outlining the direction of policies designed to draw on Kyoto’s strengths (reprinted)
- Facilitation of the "visualization" of environmental value by using a carbon footprint calculator
- Facilitation of green purchases
- Creation and promotion of green-innovation in partnership with Kyoto Prefecture and the business community through the Kyoto Consortium for Industrial Development as well as in joint efforts of the entire Kyoto community through the Kyoto Industrial Eco-energy Promotion Organization (reprinted)

**Facilitation of carbon reduction in businesses**

- Promotion of "DO YOU KYOTO? credit" institution (reprinted)
- Assistance in introducing high-efficiency equipment
- Low-interest loans for environmentally-friendly activities
- Improvement of a system to foster, advise and test personnel who promote low-carbon economic activities
- Establishment and driving of the Kyoto BEMS Promotion Consortium for the achievement of energy and electricity conservation in the commercial sector, in joint efforts by the industrial, academic, and public sectors
- Promotion of total energy usage reduction as well as reduction and shift in peak-hour energy use through the visualization of energy demand made possible by implementing HEMS and other systems
- Facilitation of the spread of CFC-free appliances (including industrial-use refrigerators and refrigeration equipment)

**Facilitation of carbon reduction in small and medium-sized businesses**

- Introduction of the comprehensive evaluation system in the institution to plan the reduction of CO₂ emissions from employers and additional reduction measures in the event of a poor assessment rating
- Promotion of programs that require the implementation of environmental management systems
- Promotion of public facility management
- Tightening of the Low-Carbon Specifications for Public Buildings in Kyoto City

**Facilitation of carbon reduction in big businesses**

- Promotion of "DO YOU KYOTO? credit" institution (reprinted)
- Establishment of a new "eco-community" including an eco shopping malls and eco universities (reprinted)
- Promotion of environmentally-friendly tourism
- Promotion of carbon offsetting for conferences and events
- Establishment of promoting institution to reduce CO₂ emissions from Kyoto city hall

**Creation and cycle of environmental value**

- Promotion of "DO YOU KYOTO? credit" institution (reprinted)
- Establishment of a new "eco-community" including an eco shopping malls and eco universities (reprinted)
- Promotion of environmentally-friendly tourism
- Promotion of carbon offsetting for conferences and events
- Establishment of promoting institution to reduce CO₂ emissions from Kyoto city hall
Garbage reduction

Reducing the amount of garbage

At home

Reuse

In shops and factories

Vision of a society to aim for

- The spread of products in line with the creation of reduced-garbage lifestyles and business activities as a social system
- The use of people’s own shopping bags is becoming commonplace, thus minimizing the need for containers and packing material together with a sharp decrease in plastic goods.

Index of reduction effect

<table>
<thead>
<tr>
<th></th>
<th>Fiscal 2010 results</th>
<th>Fiscal 2020 target</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Amount of plastic incinerated at the municipal disposal facility</td>
<td>46,000 tons</td>
<td>26,000 tons</td>
</tr>
<tr>
<td>Amount of waste received at the municipal disposal facility</td>
<td>497,000 tons</td>
<td>387,000 tons</td>
</tr>
<tr>
<td>Amount of waste incinerated and disposed at the municipal disposal facility</td>
<td>470,000 tons</td>
<td>361,000 tons</td>
</tr>
</tbody>
</table>
### Do not put out waste to start with

- "Don't buy or make" things that will be thrown out before long
- Expansion of treaty to reduce plastic shopping bags (Expansion of refusing plastic shopping bags across the whole city)
- Promotion of efforts to reduce containers and packaging
- "Eco shopping mall businesses" that aim for waste reduction and a revitalization of shopping malls
- Utilization of the KYOTO Eco Money*

### Garbage is a resource, recycling wherever possible

- Promotion of recycling by thoroughly separating garbage
- Promotion of community-based measures utilizing community strength
- Promotion of measures specific to a "student and tourist city"
- Strategic publicity conducted in a comprehensive and easy-to-understand manner through various media and opportunities, aimed at raising awareness for the global warming countermeasures implemented in a wide range of fields and for their effects (reprinted)
- Promotion of thorough recycling and sorting of paper waste such as scrap paper
- Promotion of providing businesses with information on detailed approaches for specific industries
- Strengthening the collection monitoring systems in clean centers and enforcing the refusal to collect unsorted recyclable garbage and improper items
- Expanding collection points for various types of recyclable garbage
- Promotion of composting food scraps and fallen leaves throughout the region
- Transformation of events into eco-friendly events through the Eco-Friendly Event Implementation Guidelines

### Safe disposal and making the most of garbage

- Maximizing the harnessing of energy from garbage
- Appropriate disposal of garbage to reduce the environmental load
- Promotion of “Urban Oilfield” development project (reprinted)
- Promotion of “BAIO KEIYU” (light oil) practical application project (reprinted)
- Attachment of a biogas generating facility when the Number 2 Plant at the South Clean Center was newly rebuilt (reprinted)
- Development and operation of garbage disposal facilities, considering economic efficiency

*These terms are in the glossary on page 25.
Progress management

1 Promotion system

(1) Financial enrichment by cross-sectional cooperation within agencies and the Kyoto Citizen Environmental Fund

◆ Centering around the Kyoto city Global Warming Prevention Headquarters, we will promote global warming countermeasures with the collective effort of all agencies.
◆ We will implement assessment from a global warming countermeasure perspective in drafting the budget.
◆ Utilizing the Kyoto Citizen Environmental Fund, which was established with an estimated income from contributions to global warming countermeasures and business offsetting, we will implement the adoption and spread of new energy, the development and spread of low-carbon equipment, related research and technological development and forest maintenance.

(2) Establishment of a third party committee

◆ Establishing the third party committee, “committee for global warming countermeasure promotion”, which is made up of citizens and businesses, environmental conservation group representatives and academics, we will implement inspection and assessment of global warming countermeasures from a specialist viewpoint.
◆ Combining government statistics, surveys of citizen behavior, and other information with the scientific knowledge possessed by academics, non-profit organizations, and the like to check and evaluate the third party committee’s efforts and to prepare basic data and other materials necessary for visualizing the efforts and their results.

(3) Collaboration between citizens, businesses and private organizations

◆ Proactively utilizing the participation organization of citizens, businesses and the government, “MIYAKO agenda 21 forum” (the local Agenda 21 in Kyoto City), we will comprehensively promote various measures based on partnerships.

(4) Collaboration between the nation, other cities and Kyoto prefecture.

◆ Proactively making policy recommendations to the national government as an ordinance-designated city and municipality.
◆ Proactively driving the undertakings of the Union of Kansai Governments, which contributes to the development of the Kansai Region.
◆ Proactively collaborating with Kyoto Prefecture in a partnership that will focus on the promotion of programs based on the Code of Global Warming Countermeasures, which is a joint code between Kyoto City and Kyoto Prefecture, and advancing programs while achieving higher synergy.
◆ Spreading Eco-Model Cities’ best practices to the rest of the country and to the world, in collaboration with other Eco-Model Cities and related government agencies.
◆ Promoting active efforts made in collaboration with other cities to fulfill the city’s responsibility as a major energy consumption area. This will be done through interactions at, for example, the Renewable Energy Council for Designated Cities, which aims to accelerate the spread and expansion of renewable energy through collaboration between businesses and organizations mainly in big cities.

(5) International collaboration and dispatch

◆ We will deepen collaboration between municipal governments all over the world, implementing information exchange and joint research for a solution to the problems municipal governments are facing.
◆ While striving for collaboration between universities and research facilities, we will utilize these international networks and, as a development model for a sustainable low-carbon society, send the wealth of knowledge acquired through the promotion of measures to the world.

2 Progress management policies

◆ Tracking progress and making evaluations based on the Index of Reduction Effect and the Low-Carbon Index.
◆ Enriching and enhancing policies which conform to the trends of the socio-economic situation and related policies
◆ Investigation and assessment by compiling and releasing an annual report
Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood-millage</td>
<td>Carbon dioxide emissions associated with the transport of timber calculated on the distance from where it is produced to where it is used.</td>
</tr>
<tr>
<td>Eco-vehicle</td>
<td>The types of eco-vehicle referred to in this plan include electric cars, plug-in hybrid cars, hybrid cars, compressed natural gas cars, fuel cell cars and LPG cars.</td>
</tr>
<tr>
<td>Eco-drivers</td>
<td>People who practice “eco-driving”, earth-friendly fuel-saving driving, and publicize it by word of mouth.</td>
</tr>
<tr>
<td>Residential fuel cells</td>
<td>Household devices that generate electricity through a chemical reaction between oxygen in the air and hydrogen produced from city gas.</td>
</tr>
<tr>
<td>Carbon offset</td>
<td>The idea of offsetting the emissions created in daily life and economic activity despite efforts to reduce them by investing in reduction activities to an amount equal to that which is emitted.</td>
</tr>
<tr>
<td>Environment management system</td>
<td>Systems and procedures within factories, businesses and administrative agencies to deal with achieving the self-established environmental policies and targets when businesses promote voluntary measures for environmental preservation.</td>
</tr>
<tr>
<td>CASBEE Kyoto</td>
<td>A system for appropriately assessing and encouraging Kyoto-style environmentally-friendly buildings.</td>
</tr>
<tr>
<td>Kyoto Eco Money</td>
<td>Points earned for bringing your own bottle to use at restaurants, donating clothes that are no longer worn, etc.</td>
</tr>
<tr>
<td>Kyoto Consortium for Industrial Development</td>
<td>The consortium was established in March 2011 by organizations of the Kyoto community, namely, Kyoto Prefecture, Kyoto City, Kyoto Chamber of Commerce and Industry, and Kyoto Industrial Association, to jointly promote the development of small- and medium-sized enterprises.</td>
</tr>
<tr>
<td>Kyoto Industrial Eco-energy Promotion Organization</td>
<td>Established in July 2012 by Kyoto Prefecture, Kyoto City, Kyoto Chamber of Commerce and Industry, and Kyoto Industrial Association, with the goal of creating green- and energy-related industries in Kyoto; making small- and medium-sized enterprises more environmentally friendly and energy efficient; and demonstrating and spreading new green and energy technologies, etc.</td>
</tr>
<tr>
<td>Credit</td>
<td>Evidence of a reduction in greenhouse gas emissions that is tradable between countries and between companies.</td>
</tr>
<tr>
<td>Credit system</td>
<td>A system to certify the reduction and absorption generated by implementing global warming countermeasures as carbon credits to further facilitate the reduction and absorption of emissions within the country, utilizing a carbon offset system.</td>
</tr>
<tr>
<td>Traffic information and telecommunications system</td>
<td>A system that improves convenience, providing transport information including the scheduled arrival time at destinations and transfer information as well as the latest tourist information for the area around the destination within the bus, thus improving convenience.</td>
</tr>
<tr>
<td>Cogeneration system</td>
<td>A system that takes the heat produced when generating electricity with a power generator and uses it to heat water or to make steam. Because electricity is generated where it will be used, there is no loss of energy associated with transport, such as in electricity transmission. It can also effectively capture and use waste heat, which is discarded in the traditional power generation method.</td>
</tr>
<tr>
<td>Renewable energy</td>
<td>Inexhaustible energy that does not hinder environmental conservation, and can be captured from sources including sunlight, solar heat and biomass.</td>
</tr>
<tr>
<td>Large emitter system</td>
<td>A plan, report, and assessment system that large emitters compile and submit to the council in order to reduce emissions (mandatory).</td>
</tr>
<tr>
<td>Super cluster program</td>
<td>The national government’s program designed to build a globally competitive super cluster through wide-range collaboration. Building on the achievements of science and technology promotion measures in each area thus far, the government leads the selection, concentration, and finding of the best match according to the needs of society, etc.</td>
</tr>
<tr>
<td>Smart city</td>
<td>A type of community that uses information and communication technologies toward the goal of building a system for optimizing demand and supply of energy for the entire community and for solving the community's disaster-prevention, traffic, and other challenges.</td>
</tr>
<tr>
<td>buildings meeting new energy-saving standards</td>
<td>Buildings that meet energy-efficiency standards set in accordance with the Act on the Rational Use of Energy.</td>
</tr>
<tr>
<td>Regional Innovation Strategy Support Program</td>
<td>The national government’s program aimed at developing systems that will enable regions to take the initiative in creating innovation through research conducted in regions in collaboration between the industrial, academic, and public sectors, regional research and development centers developed for advanced interdisciplinary research areas, etc.</td>
</tr>
<tr>
<td>Durable high-quality housing and low-carbon buildings</td>
<td>Durable high-quality housing ensures a certain level of performance, having satisfied standards set by the national government in areas including quake-resistance and energy efficiency. It is designed to remain in a good state for a long period of time. Low-carbon buildings meet energy-efficiency standards set by the national government and provide a certain level of performance.</td>
</tr>
<tr>
<td>Biogas</td>
<td>Combustible gas that is a type of renewable energy that can be created by fermenting organic waste such as food scraps and livestock manure. The main component is methane.</td>
</tr>
<tr>
<td>Biodiesel fuel (BDF)</td>
<td>An alternative liquid fuel to fuel (light oil and heavy oil) that operates diesel engines, and is largely manufactured from vegetable oil, including rapeseed oil and palm oil, and used cooking oil.</td>
</tr>
<tr>
<td>Biomass Industrial City Plan</td>
<td>A plan with an aim to develop an environmentally friendly community that can withstand disasters. This community is to be built around the biomass industry through the development of a comprehensive system that ensures economy in a range of processes, from material production to collection/transport to production/use. The national government selects plans submitted by regional and local governments.</td>
</tr>
<tr>
<td>HEMS / BEMS / CEMS</td>
<td>Systems for optimizing supply and demand of energy within houses, buildings, and communities. Information and communication technologies are used to create a network of houses, buildings, and other energy-consuming devices in a community and to visualize and automatically control energy usage.</td>
</tr>
<tr>
<td>Wood biomass</td>
<td>A renewable biologically-derived organic resource (excluding fossil fuel) made from timber.</td>
</tr>
<tr>
<td>Wood pellets</td>
<td>Fine solid fuel created by compressing timber by-products such as timber from forest-thinning and sawdust. Can be used as fuel for pellet heaters, pellet boilers and absorption refrigerators.</td>
</tr>
<tr>
<td>Mobility management</td>
<td>Measures to encourage the mobility (transport movement) of individuals, organizations and the community to voluntary change to more preferable direction for society, utilizing various transport policies.</td>
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</table>
This pamphlet is a summary of the Kyoto city program of global warming countermeasure.