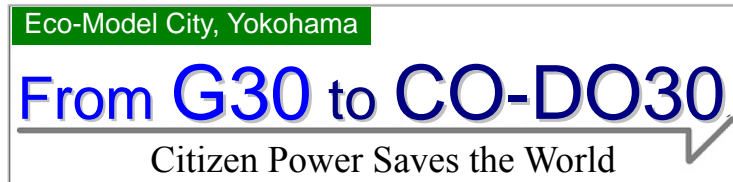


Yokohama CO-DO30 Road Map

(Eco-Model City Action Plan)

Summary

Realizing large-city zero-carbon life with citizen power
by sharing knowledge, expanding options, and promoting action



March 2009

City of Yokohama

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1. Road Map

- Summarizes **measures to be addressed by the City of Yokohama to achieve a medium- to long-term reduction target on greenhouse gas emissions** determined in the Yokohama Climate Change Prevention Policy (CO-DO30).
- Particularly shows **measures to be defined and examined between FY2009 and 2013**.

Future vision to be achieved in 2025 and after

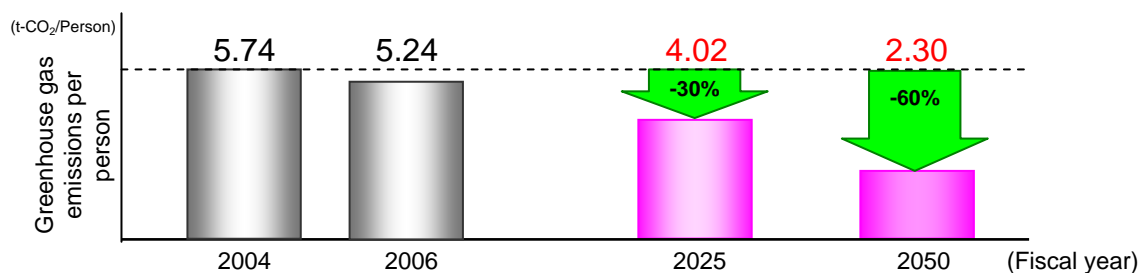
The following actions will take root in our daily lives and work.

- **Use energy efficiently**
- **Adopt energy with less greenhouse gas emissions**, such as **renewable energy** (including solar and wind power) and **untapped energy** (including exhaust heat from plants, river water, and geothermal power)

Then, we will **disseminate such a vision of Yokohama as an eco-model city to the world**.

Greenhouse gas emission reduction target (per citizen; comparison with FY2004)

- **Aim to achieve 2.30 t-CO₂ (60% reduction) by FY2050.**
- **For the time being, aim to achieve 4.02 t-CO₂ (30% reduction) by FY2025.**

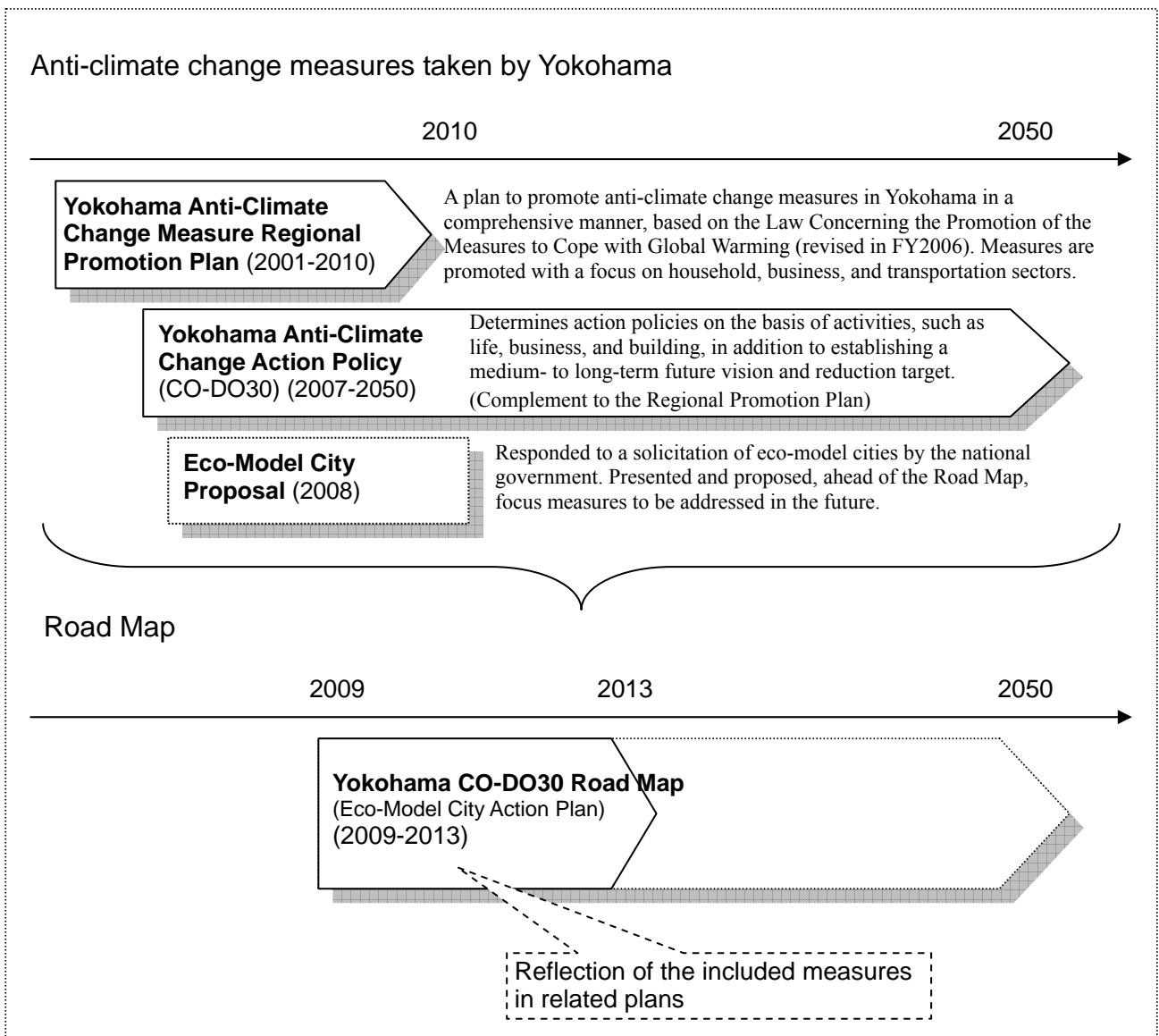


* Data of two years ago is the latest because estimates of emissions are calculated based on national statistical information, etc.

Use of renewable energy (comparison with FY2004)

- **Achieve a ten-fold increase by FY2025.**

- **Yokohama** will take actions for **anti-climate change measures with a focus on measures listed in the Road Map**.
- Anti-climate change policies in the Road Map, as well as existing ones, will be **reviewed regularly, and enhanced according to the circumstances** because policies for realizing anti-climate change are being **developed from day to day in Japan and other countries, and there is almost no precedent**.
- **Plans related to anti-climate change measures** (environment, town development, etc.), formulated in the future by Yokohama, will be **based on the content of the Road Map**.
- Also, the Road Map serves as an **action plan as well** to work toward the realization as an **Eco-Model City** (certified by the national government in July 2008).



2. Framework of the Road Map

(1) Basic idea toward a reduction of emissions

- **Clarify measures and procedures to be addressed by Yokohama City, and take action in cooperation with citizens and companies.**

To realize a low-carbon society, it is important to take action based on trust while having the government, municipalities, citizens, businesses, NGOs, and other entities sharing a vision for a low-carbon society and clarifying their roles.

Yokohama clarifies measures to be addressed as a fundamental municipality most closely connected with citizens, and takes action on such measures in cooperation with entities consisting of the city, including citizens and companies.

- **Position the five years until FY2013 as the initial action period leading to a large CO₂ reduction in the future, and start various measures in various sectors.**

To ensure a large reduction in the future, it is important to not only **increase the awareness** of citizens and companies as a conventional effort to encourage their activities but also implement measures that lead to a CO₂ reduction in various sectors, such as **improving systems**, including various regulations and incentive measures which **require a long time to take root in society**, and **improving the foundation** toward low-carbon town development.

Therefore, the **five years from FY2009 to 2013** will be positioned as the **"Measure base & concept improvement period (initial action period)"** in which various measures start toward a large reduction in the future, and we **develop actions**.

Furthermore, not only **measures to be commercialized** but also **measures to be examined toward commercialization** in the future will be incorporated into the Road Map, and we will bring them into shape toward commercialization in the course of examination.

FY2009-2013: Measure base & concept improvement period

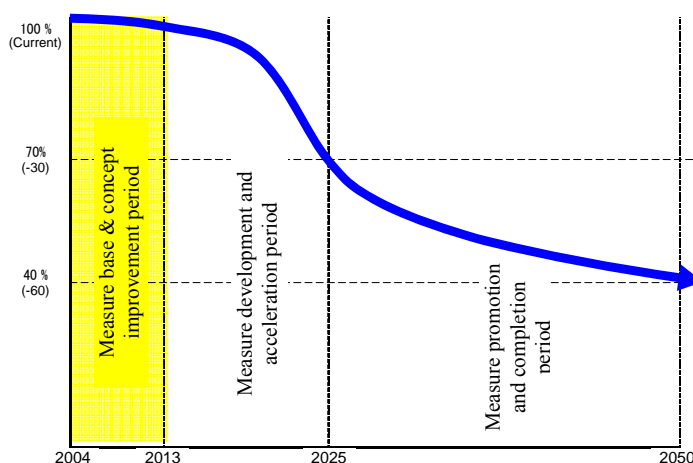
Focus on measures regarding improvement of systems and structures required for development of measures, as well as start of action by various entities with increase of awareness in a wide range through promotion and education to citizens and companies.

FY2014-2025: Measure development and acceleration period

Review measures in the "Measure base improvement period" in a comprehensive manner from the perspective of the progress and social changes, and develop them to more effective measures. Then, accelerate action in a concerted effort with citizens, companies, and administration with increased awareness.

FY2026-2050: Measure promotion and completion period

Correct measures in the "Measure base & concept improvement period" from the perspective of reduction effects and social changes, and steadily promote the measures in addition to completing a structure of policies.



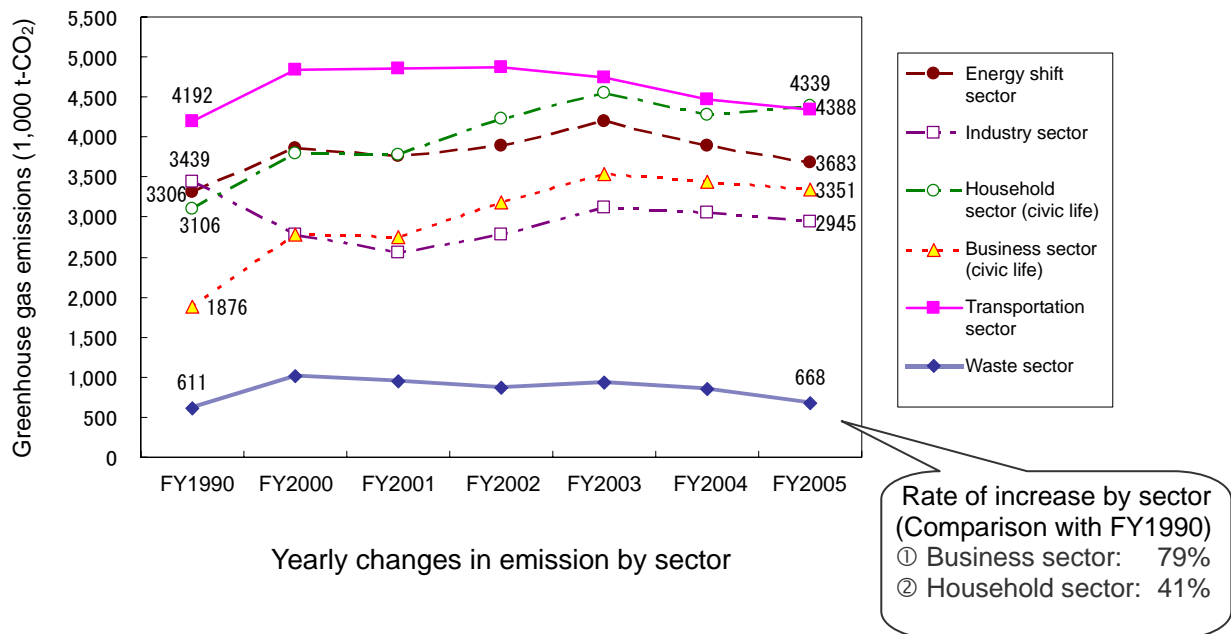
* Achievement of the reduction target determined in the Regional Promotion Plan as a precondition
Emission per person in FY2010: 4.96 t-CO₂

Diagram of emission reductions

➤ **Focus on a reduction of CO₂ emitted from civic life.**

In Yokohama, a large city in which 3.65 million citizens live and a further increase of population is expected with economic growth, it is **not easy to reduce CO₂ emitted from households and business activities**, which has been addressed as an issue. However, even under such circumstances, the Eco-Model City, Yokohama, is required to **show a direction (model) toward the reduction and lead Japan and even the world to take action.**

Therefore, Yokohama places a particular **focus on the reduction of CO₂ emitted from civic life.**



Source: FY2007 Study Report on the Anti-Climate Change Measure Progress (Environmental Planning Bureau, City of Yokohama)

(2) Overall framework of action

- **Take action in the following three sectors: household, business, and transportation, as well as with the following four measures: promotion of renewable energy, city hall, city and green, and cooperation on anti-climate change.**

We will take action in the following **three sectors: household, business, and transportation (traffic)** after making a review based on sector-specific characteristics of greenhouse gas emitted from Yokohama; plans and policies that have been implemented so far: and eco-model city proposals.

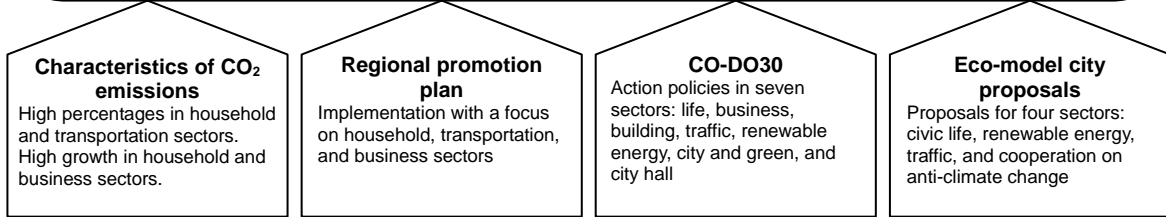
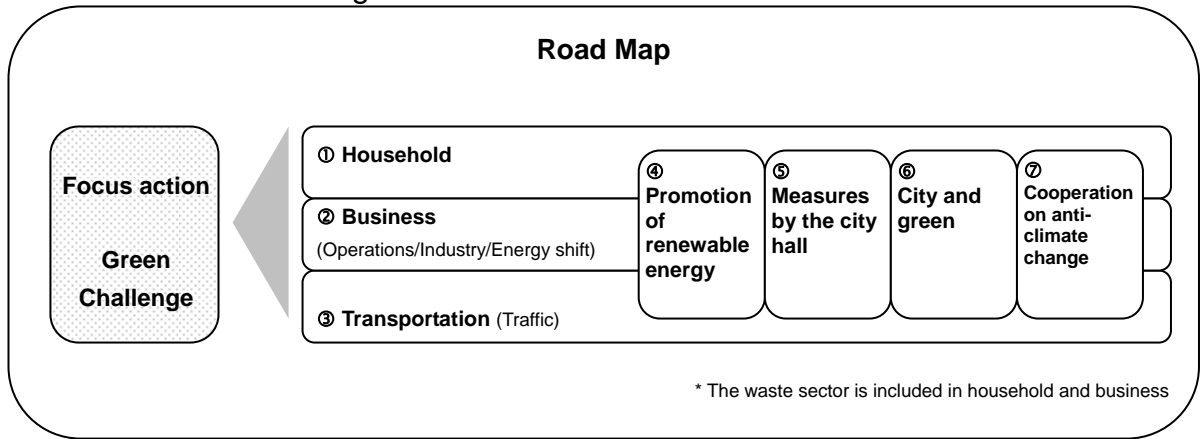
Furthermore, we will add the following **four measures** in promoting action: **promotion of renewable energy that contributes significantly to CO₂ reduction** in each sector; **measures by the city hall** in which the **Yokohama City Hall** takes the initiative **as a business office that accounts for approximately 4% of total emissions in the city**; and **city and green measures**, as well as **cooperation on anti-climate change**, implemented from the **perspective of anti-climate change**, such as town development, cooperation with cities and farming/mountain villages, and establishment of a city network with advanced cities in Japan and other countries.

- **Promote the "Eco-Model City, Yokohama: Green Challenge" as a focus (pioneering) action.**

Measures for household and business activities in which the amount of emissions is significantly increasing, as well as **measures for a ten-fold increase in renewable energy** that contributes to CO₂ reduction in every sector, will be summarized **as a package**, and **promoted intensively in a concerted effort with citizens, companies, and administration** as the **"Eco-Model City, Yokohama: Green Challenge."**

The pioneering action and its outcome will lead to the **promotion of the overall actions** listed in the Road Map.

Diagram of the overall framework of action



(3) Focus action

Eco-Model City, Yokohama: Green Challenge

Characteristics of Yokohama

The large number of citizens
(3.65 million) and houses
Concentration of companies
(110,000 companies)

If Yokohama changed,
Japan and the world
would change.

Challenge Target

30% reduction of greenhouse
gas emission per person by
FY2025

CO₂ reduction from three perspectives

① Living

Change lifestyles, and effectively reduce CO₂ emitted
from civic life.

② Work

Expand environmentally friendly business, and vitalize
regional economy.

③ Energy

Start toward a ten-fold increase in renewable energy.

Green Challenge ① Living: Effective reduction of CO₂ emitted from civic life

Do not sell or purchase non-energy-saving home appliances.

Select energy-saving products when purchasing home
appliances and lighting equipment.

- Indicate energy-saving labels at all stores.
- Request to refrain from selling non-energy-saving
products
- Implement regulations if the sales continue.

Eliminate waste in the bathroom.

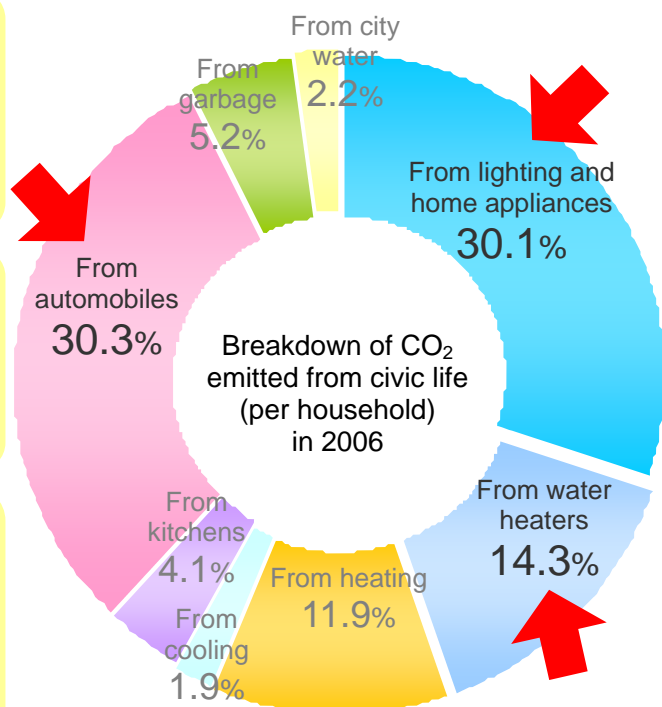
Use a bath and hot water by considering energy
efficiency.

- Subsidies for installation of a solar water heater
- Campaign for replacement to a highly efficient water
heater
- "Use a public bath" and "Stop reheating" campaigns

Use vehicles wisely.

Reduce energy used for privately-owned cars.

- Promotion of eco-driving (environmentally friendly
driving)
- Mobility management (shift in transportation to the use
of public transportation, bicycle, and foot)
- Improvement of convenience in public transportation
- Promotion of such fuel-efficient vehicles as electric
vehicles



Source: Greenhouse Gas Inventory Office

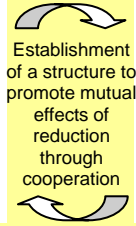
Green Challenge ② Work: Vitalization of regional economy through the expansion of environmentally friendly business

Promote energy-saving economic activities in all 110,000 companies in Yokohama

Thorough implementation of energy-saving at companies with large emissions (mainly large companies)

Reinforcement of the Climate Change Prevention Measure Planning System

- Expansion of the scope to include all companies with large-scale emissions
- Assessment and announcement by the city regarding reduction results by companies



Promotion of energy-saving at small- and medium-sized companies

Enabling voluntary participation in the Planning System

- Enabling voluntary participation in the Planning System
- Free dispatch of energy-saving advisors
- Implementation of low-interest loans

Yokohama as accumulation of environmental business, advanced technology, and use model - Yokohama Green Valley -

Accumulation of environmental and energy business and technology

Support for environmental technology, as well as commercialization and entrepreneurship

- Focused support on environmental technology development by small- and medium-sized companies
- Establishment of support methods for commercialization and entrepreneurship
- Provision of information on environmental products and technologies by establishing the Yokohama Green Purchase Network

Establishment of a model for advanced use of energy

Use of renewable and untapped energy at the bay area

- Concentrated implementation of renewable-energy equipment (using sewage sludge and garbage, mega solar, etc.) at city facilities
- Establishment of a model effectively using energy between facilities
- Aiming for promotion of low carbon in the entire region in the future

Green Challenge ③ Energy: Start toward a ten-fold increase in renewable energy

Social means

Mutual understanding of the direction and vision toward a ten-fold increase

- Announcement and PR of the ten-fold increase simulation
- Mutual understanding of "no realization through conventional methods, need for drastic measures"

(Reference) Test calculation for the ten-fold increase

Installation of solar power generators at almost all public facilities → Need for initiatives in implementation

Introduction of solar light and heat equipment required in half of the houses

Introduction in 10,000 new houses per year → Need for mandatory introduction

Introduction in 10,000 existing houses per year → Need for strong support measures, etc.

Expansion of promotion with local power - Neighborhood community halls/Solar power generation model business

- Aiming for installation of solar light equipment at neighborhood community halls
- Social experiment of a fixed-price purchase system as a key to promotion
- Model using neighborhood community halls as a base for promoting solar power, etc.

Business means (Public initiatives)

- Development of a strong support system
 - Accumulation of know-how from installation to maintenance
 - Action for revenue improvement (support measures for cost reduction, fixed-price purchase (social experiment), etc.)
- Model implementation (including the use of the Green Electricity Fund Yokohama Project)

Economic means

- Expansion of subsidies for installation, use of environmental value
- Fixed-price purchase: "Request to the national government" or "examination of developing an own system" based on results of the social experiment
- Formation of an open distribution market (model establishment of a public consultation center)
 - (Example: Functions of diagnosis, consultation, trade fair, estimate, assessment, etc.)

Regulatory means

- Step-by-step development: mandatory provision of information, mandatory examination, and mandatory implementation
 - Implementation of mandatory provision of information (at housing exhibition halls) and mandatory examination (for certain size) (Development of support tools and kits for examination, etc.)
 - Examination toward mandatory implementation in new houses

Establishment of the Yokohama Green Power

Aim to establish it after implementing the following model businesses and conducting research and examination.

- Public facilities/Power generation business
- Environmental value utilization business
- Distribution market efficiency business
- Other

(4) Promotion measures

➤ **Promote the development of human resources and opportunities to support and accelerate promotion.**

To steadily promote measures listed in the Road Map, it is **important** for **all entities in the city**, including citizens and companies, to **voluntarily provide consideration, participation, cooperation, and action**. We will promote measures, such as **human resources development, including environmental education**, and **opportunities development for close cooperation**, in order to support and accelerate the promotion.

Examples of measures to support and accelerate promotion

Human resources development

- Development of leaders for anti-climate change
 - Establishment of the Yokohama Eco School (YES)
- Support for action on environmental education
 - Implementation of eco school model business

Opportunities development

- Development of opportunities for environmental activities
 - Environmental point business (demonstration experiment using Y + 150)
 - One Zero-carbon Project in One Ward (development in 18 wards in the city)
- Establishment and operation of the Traffic Policy Promotion Council
 - Discussions on traffic policies responding to anti-climate change

➤ **Promote measures in cooperation with citizens, people in Japan and the world, and advanced cities in Japan and other countries.**

Climate change is a common issue in the world across city and regional borders. Therefore, it is important to **produce good effects from measures taken widely in a concerted effort with cities in Japan and other countries** while **promoting measures regionally** in cooperation with every entity in the city.

Yokohama promotes **measures in cooperation with farming and mountain villages in Japan**, including conservation of forests of riverhead with Doshi Village (source of a river) in Yamanashi Prefecture, from the perspective of anti-climate change. Furthermore, we **form a network with cities in Japan and other countries and people who live there**, sharing anti-climate change technology and advanced measures, and **work together to resolve issues on a global scale**.

Cooperation with farming/ mountain villages

- Development of a structure of carbon offsetting using forest maintenance
 - Establishment and examination of a study group with Yamanashi Prefecture, Doshi Village, Nagano Prefecture, etc.

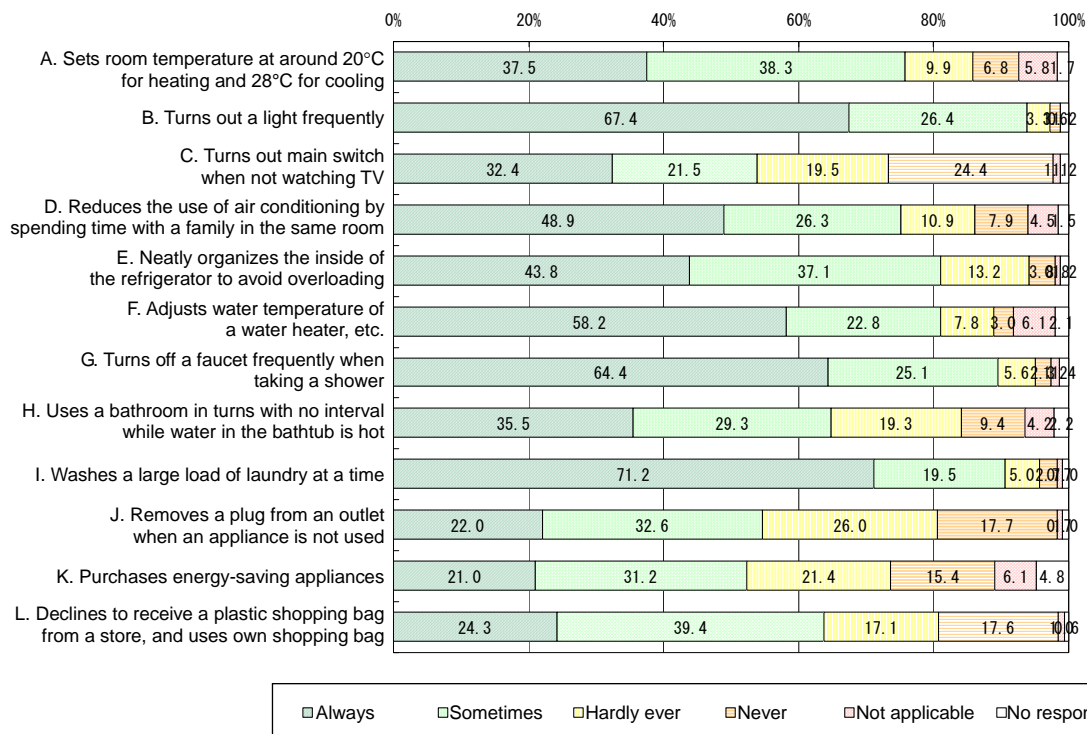
Cooperation with cities and regions in Japan and other countries

- Cooperation with and support of advanced cities
 - Participation in the Large Cities Climate Leadership Group (C40)
 - Cooperation between cities in Japan and other countries through activities in the Summit of the Metropolitan Network of 8 Prefectures and Cities and the Council of the Low Carbon Cities

➤ **Verify the status of action every year, and review business.**

We **verify the status of action every year regarding measures** listed in the Road Map, continuously conducting a questionnaire survey to grasp the status of action taken by citizens and companies, as well as a survey to grasp the amount of greenhouse gas emissions. This verification work is conducted **based on opinions, etc. from various people, including external experts**, because anti-climate change policies are being developed from day to day in Japan and other countries.

Furthermore, business is reviewed based on the results of verification for continued implementation of the business in the next and subsequent years.



[Reference] Energy-saving and eco-life practices

Source: FY2007 Study Report on the Anti-Climate Change Measure Progress (Environmental Planning Bureau, City of Yokohama)

Column

The city hall also makes every effort to realize a low-carbon society!

■ Promotion of low-carbon policies

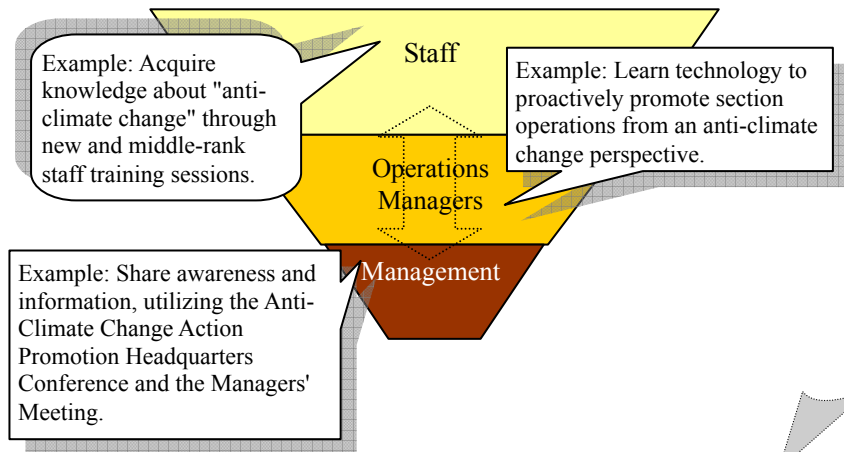
- ◇ Incorporate a perspective of anti-climate change into policies of the city.
 - Add items regarding environmental friendliness in guidance and guidelines for contracts, business execution, facility management, town development, etc.
 - List anti-climate change actions in the Ward Bureau Business Headquarters Operations Policy, etc.

■ Formulation of the new Yokohama City Hall Anti-Climate Change Action Plan!

- ◇ Collectively grasp and analyze the amount of energy used at public facilities, and provide the status of management and energy-saving menu for improvement. (Use of an energy chart)
- ◇ Formulate city hall-wide CO₂ reduction measures, including thorough use of solar light/heat and untapped energy; installation of energy-saving street lights, etc., introduction of fuel-efficient public vehicles, and use of green IT.
- ◇ Newly assign a supervisor in charge of energy management in response to the Energy Conservation Law.

■ Development of the foundation at workplace and human resources

- ◇ Improve awareness and knowledge of both management and staff through training, etc. about anti-climate change, and promote the development of human resources as the foundation of developing a low-carbon city hall.



3. Action Details Format of action details

Each measure listed in the next and subsequent pages is classified as follows: ① Action policies to achieve a target, ② Details of measures to be defined and examined in five years starting in FY2009, ③ Action road map, and ④ Classification of main measures. An example is shown below with how to view a table.

Action Policies		How to view a table	
1. Promote energy-saving houses.			
Promote new construction of energy-saving houses and energy-saving renovation of existing houses in order to reduce energy loss in houses associated with the use of air conditioning, hot water supply, etc.			
① Action policies			
Measures to be Defined and Examined/Road Map			
1. Promote energy-saving houses.			
Measures for new housing and buildings	Expansion of the range of buildings required to be registered in CASBEE Yokohama Expand the range of buildings required to be registered in the Yokohama Environmentally Friendly Building Plan. Furthermore, foster local architects who will review city operation systems and conduct assessments.		
	Notice of system changes/Review of operation systems Training of assessors/Coordination with related organizations	Expansion of the range of buildings required to be registered in the Yokohama Environmentally Friendly Building Plan. Furthermore, foster local architects who will review city operation systems and conduct assessments.	② Details of measures to be defined and examined
	Mandatory release of assessment results in advertising Require release of self-assessment results using CASBEE Yokohama so that citizens and others can easily select environmentally friendly condominiums, etc.		
	Notice of system changes/Review of operation systems Coordination with related organizations	Mandatory release of assessment results in advertising	
	Implementation of CASBEE for Home (Detached House) Implement the CASBEE for Home (Detached House), a detached house energy-saving assessment system in Yokohama, to encourage citizens to build energy-saving detached houses.		
	Training of assessors	Education and promotion to citizens	Implementation
			④ Type of measure classified

Classification of measures listed in the Road Map

Type of measure	Example of action	Type of measure	Example of action
1. Support	<ul style="list-style-type: none"> • Subsidies for partial costs of introduction • Tax reduction • Provision of information 	5. Organization	<ul style="list-style-type: none"> • Establishment of organizations with related institutions, etc.
2. System	<ul style="list-style-type: none"> • Regulations and obligations 	6. Concrete concept	<ul style="list-style-type: none"> • Formulation of plans and policies • Concrete measures at an examination level
3. Campaign	<ul style="list-style-type: none"> • Education to citizens and companies • Holding of lectures and seminars • Creation and distribution of pamphlets 	7. Initiative	<ul style="list-style-type: none"> • Action by the city hall • Business implemented under the initiative of the city hall (improvement of social infrastructure, etc.)
4. Model business	<ul style="list-style-type: none"> • Demonstration business on specific regions and targets • Assessment of business results, etc. • Social experiments (environmental value distribution of renewable energy) 		

* Classification is made as above at the present moment, but there may be addition or change to the classification in the course of promoting measures.