October 29, 2015

Looking to the Most Environmentally-advanced City in the World

– Climate Change Strategies of Large Facilities in Tokyo –

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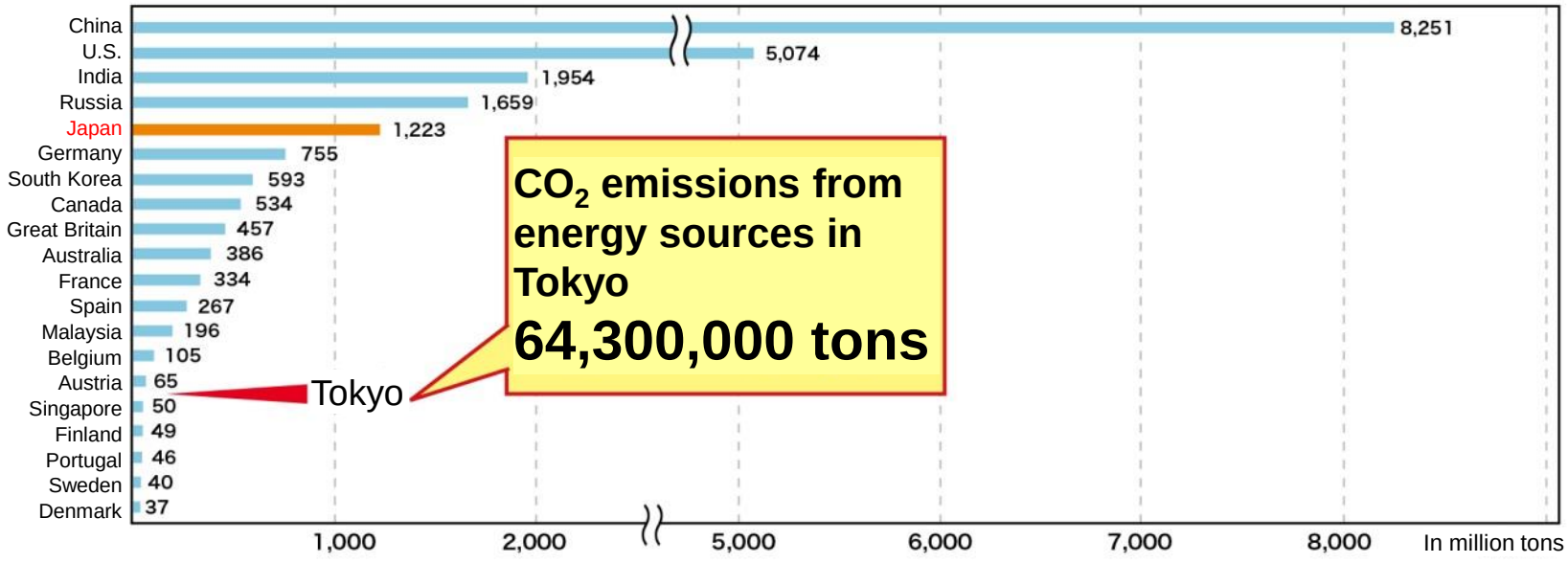
Tokyo Metropolitan Government Bureau of Environment

Tokyo

Data (2011)

Population: 13,000,000
Area: 2,200 km^2
GDP: US$1,169 billion
GHG: 65,000,000 tons

Source: IEA [CO_2 Emissions From Fuel Combustion Highlights (2014 Edition)]



* Excerpts of major countries (top 8 CO_2-emitting countries as far as Canada)

Outlook for Energy Consumption in Global Cities

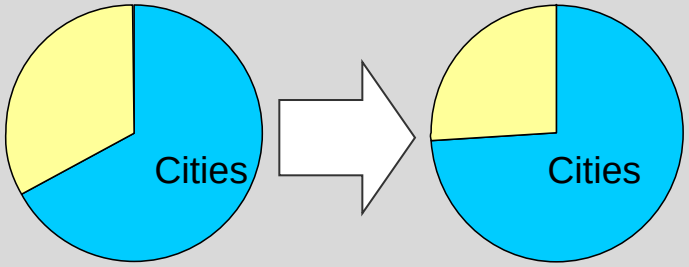
Urban Population and Greenhouse Gas Emissions

- Population concentration into the cities
  World's 54% → 66% (2050)

  (World Urbanization Prospects (United Nations))

- Share of greenhouse gas emissions from energy sources
  71% → 76% (2030)

  (World Energy Outlook 2008 (IEA))



Energy Consumption and CO_2 Emissions in Building Sector

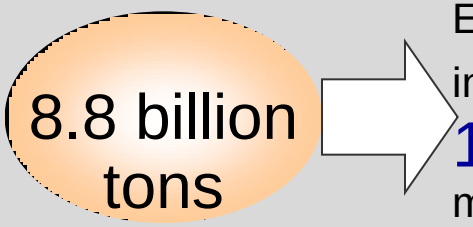
* The building sector includes housing, commerce and public services.

- Final energy consumption in the building sector

  32% of the world's energy use

  (AR5 WG III, 2014)

- CO_2 emissions from the building sector



Expected to increase by 50 to 150% by the middle of this century.

* In case of a baseline scenario (AR5 WGIII, 2014)

Formulation of Tokyo Metropolitan Long-term Vision (December 2014)

Urban Strategy 7

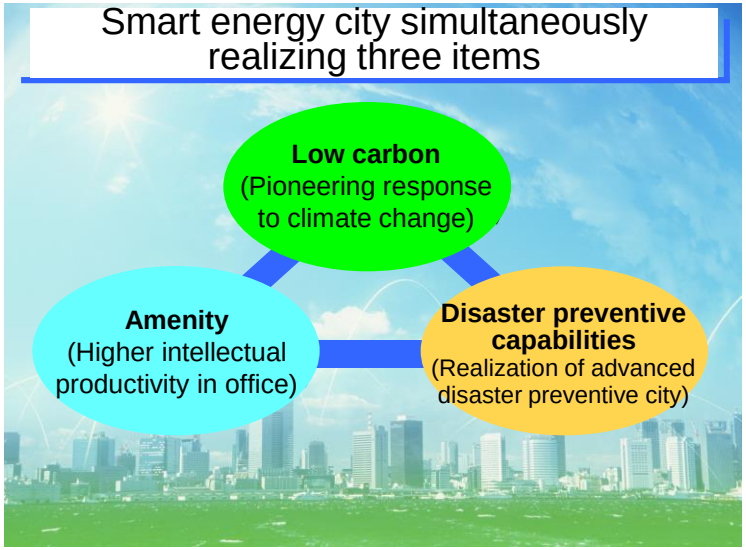
“Realization of a city passing a rich environment and full infrastructure onto the next generation”

Policy Guideline 20 “Creation of Smart Energy City”

Promotion of energy conservation and energy management

Promotion of introduction of renewable energy

Expansion of use of hydrogen energy



(1) Smart energy conservation and power saving by maximum use of energy conservation technologies and know-how

+

(2) Expanded use of low-carbon self-distributed energy

+

(3) Optimum supply-demand control by energy management

Setting of New Energy Conservation Goal

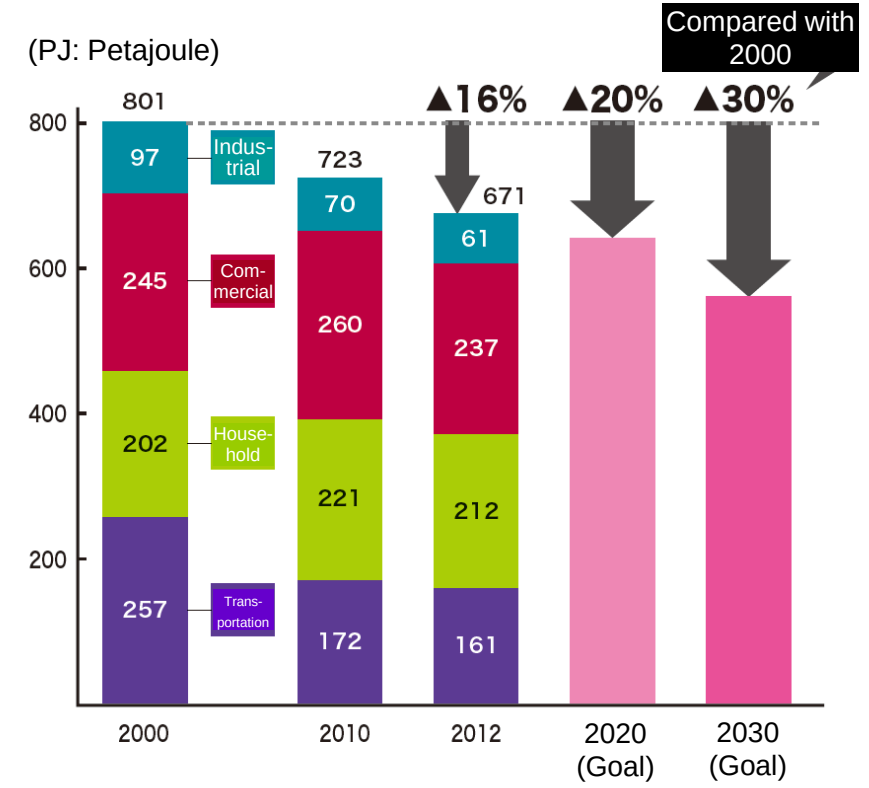
(Future vision)

Continuously reduced energy consumption by further progress of energy conservation and diffusion of energy management in Tokyo.

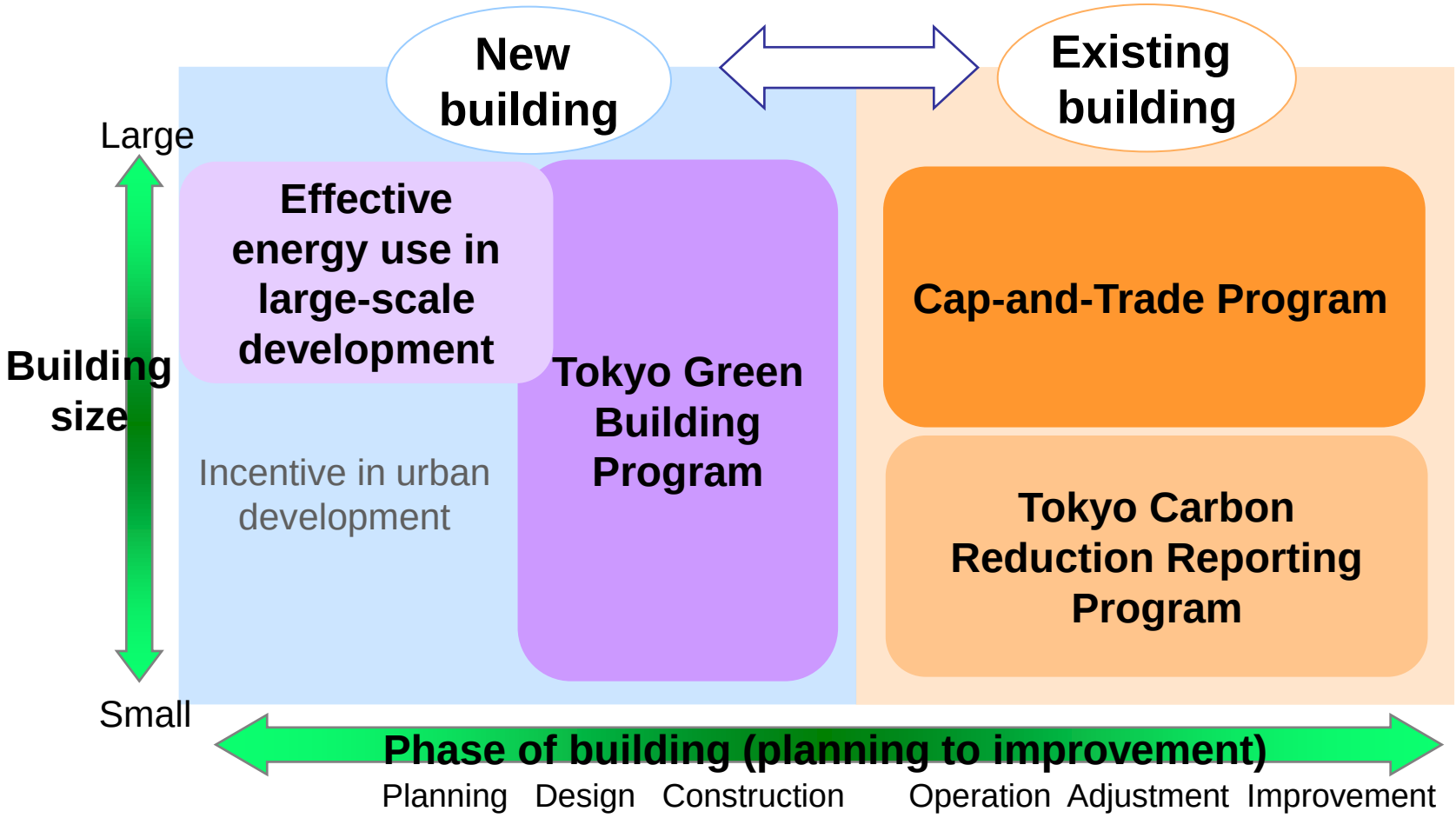
(Policy goal)

Reduced energy consumption 20% by 2020 and 30% by 2030 (compared with 2000).

Change and goal of energy consumption in Tokyo



Tokyo Metropolitan Programs Focused on Energy Consumption of Buildings



Introduction of Cap-and-Trade Program

- Target: Approx. 1,300 facilities (mostly commercial facilities)
- Planning period:
  - 1st planning period From FY2010 to FY2014
  - 2nd planning period From FY2015 to FY2019
- Mandatory reduction rate:
  - 1st planning period 6 or 8%
  - 2nd planning period 15 or 17%

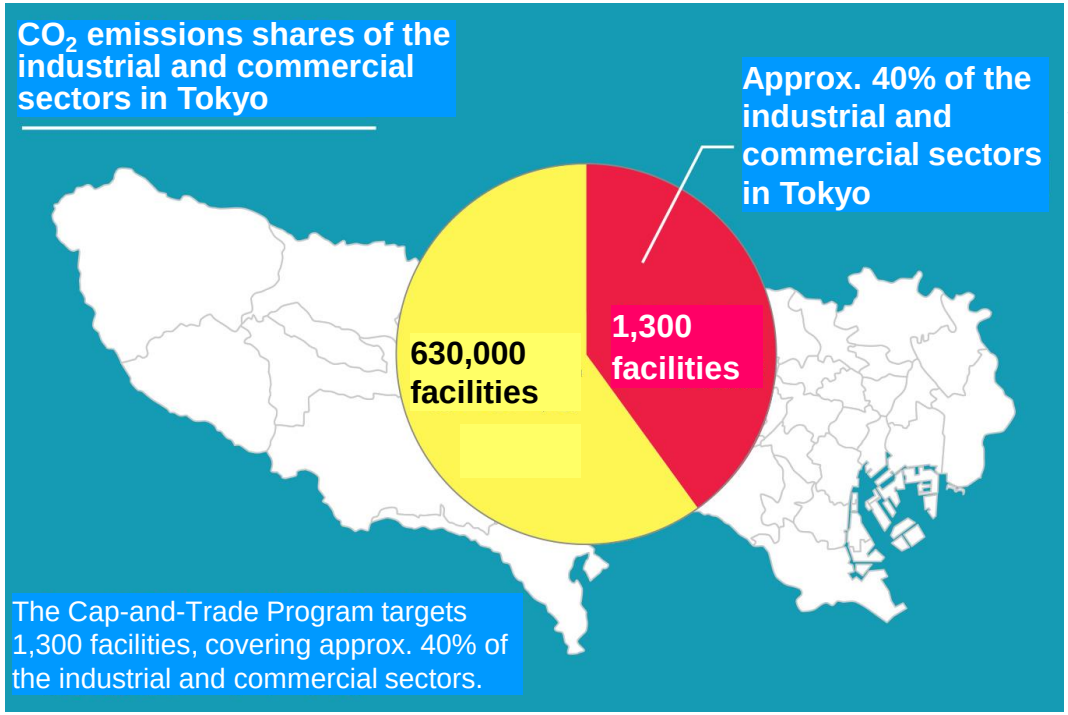
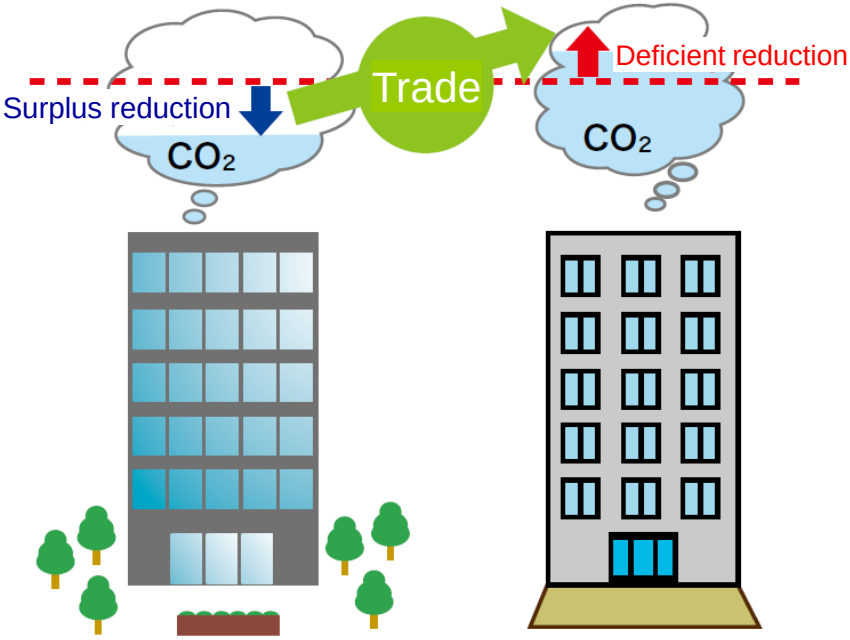


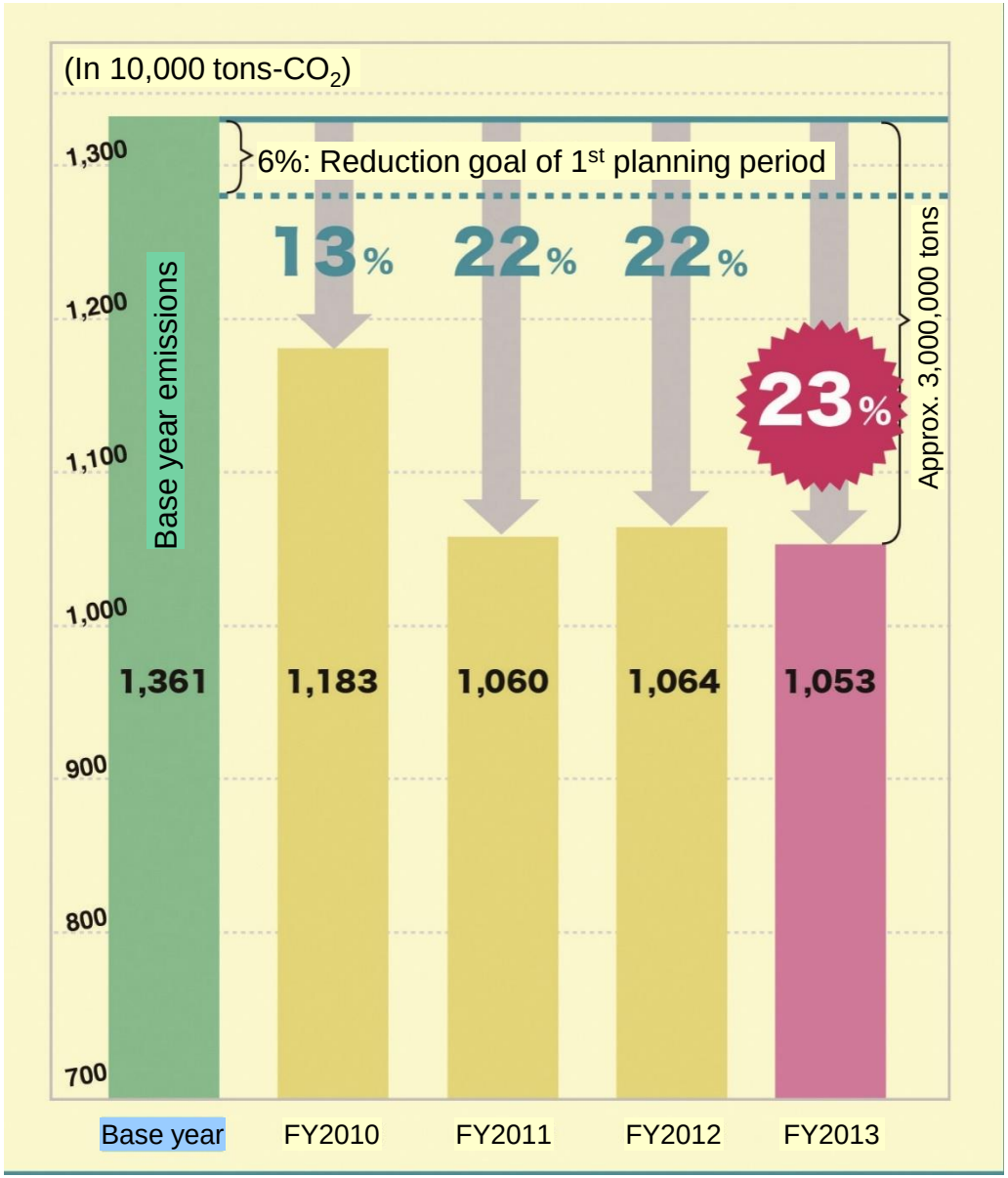
Illustration of the emission trading



Building with higher reduction than mandatory reduction rate

Building with deficient reduction

Program Results: Total CO_2 Emissions of Target Facilities



- Continued FY 2011 reduction just after the Great East Japan Earthquake.
- Higher reduction than the previous year at approx. 60% facilities.
- Total surplus reduction in the 1st planning period (estimation): Approx. 9,500,000 tons.

Program Results: Reduction by Each Facility

Comparison between the annual reduction rate and mandatory reduction rate of each facility:

◎Ninety percent of the target facilities reduced more than their mandatory reduction rate.

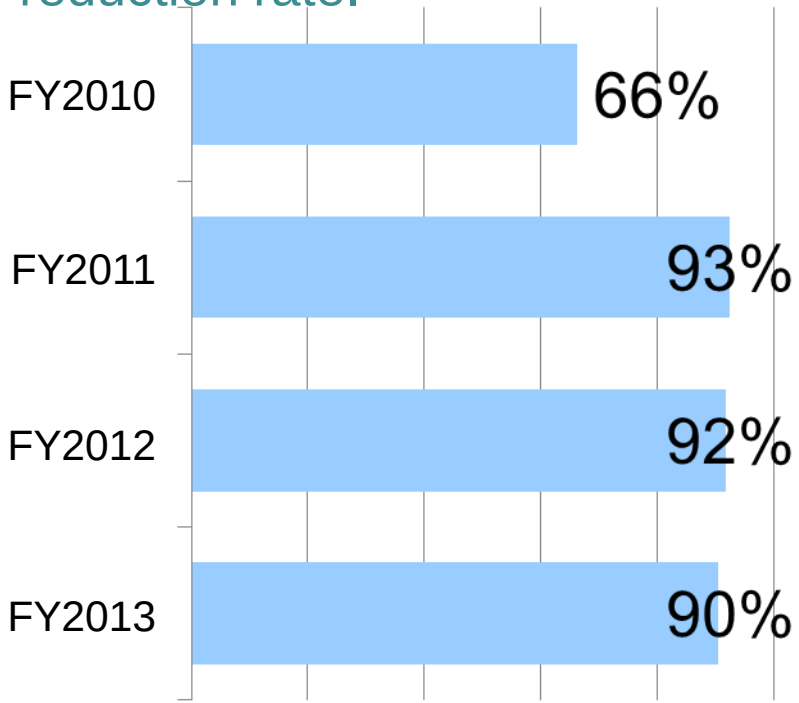


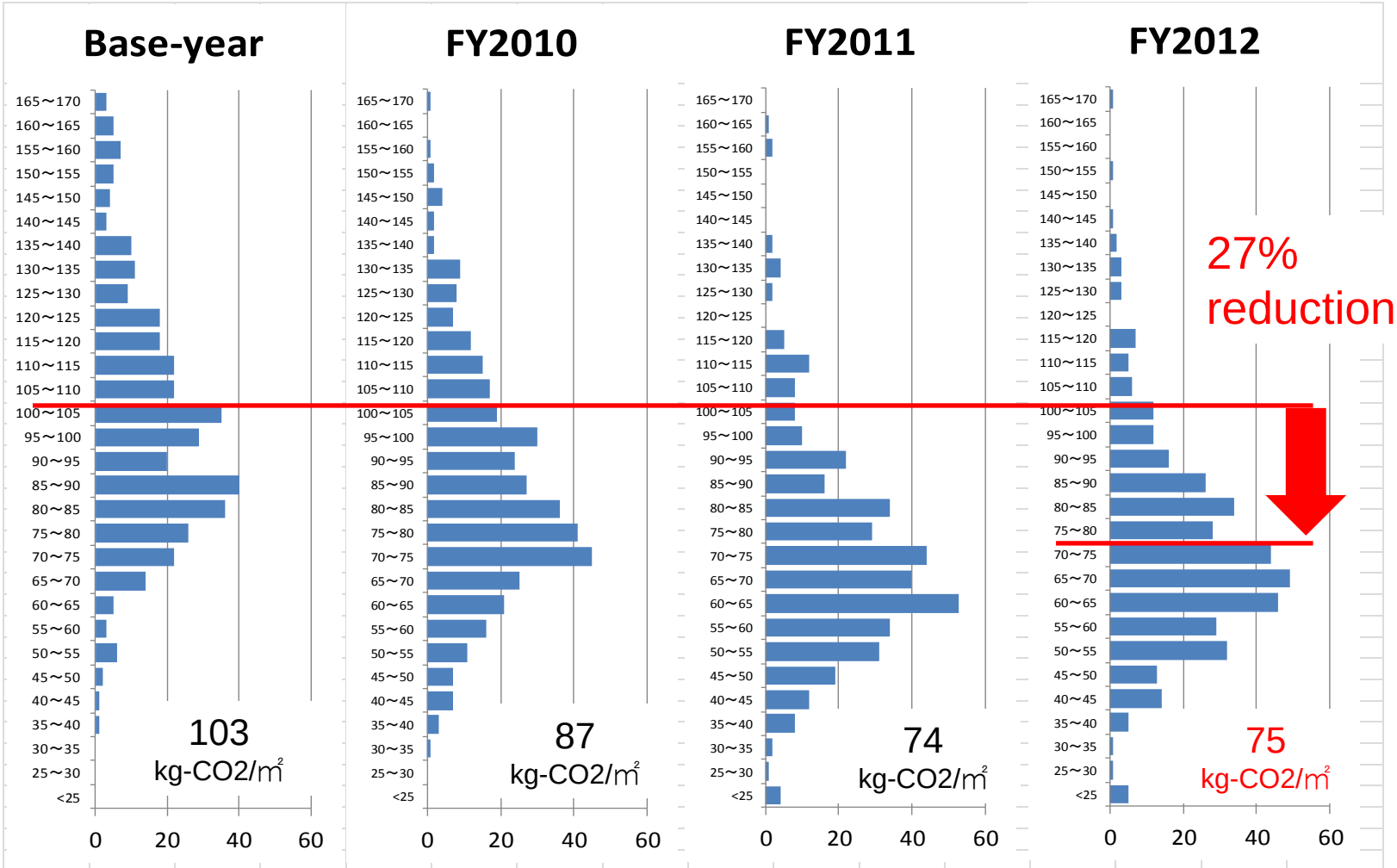
Fig. Ratio of Facilities Successful in Reducing More than Mandatory Reduction Rate (8 or 6%) in 1st Planning Period

Program Results: Change of CO_2 Emission Intensity

CO_2 emission intensity also decreased greatly.

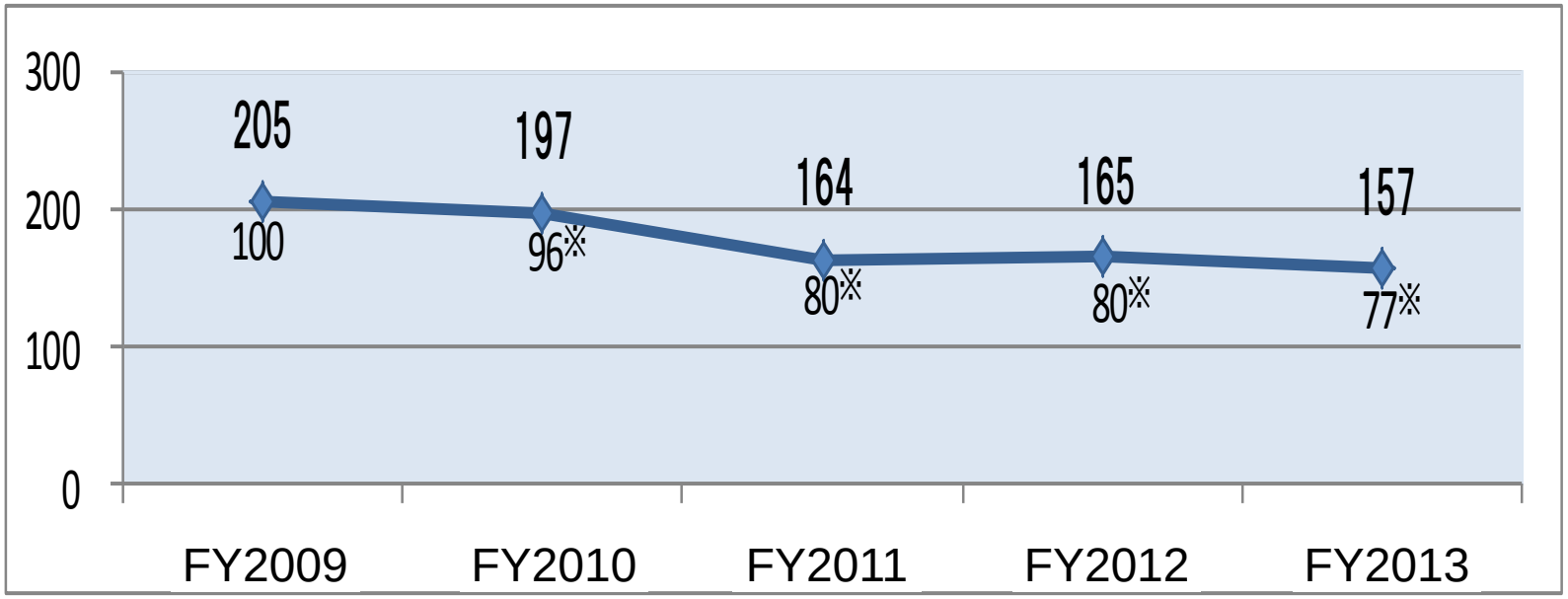
◎ From 103 kg-CO_2/m² to 75 kg-CO_2/m² (Offices)

Secular change of CO_2 emission intensity (Offices)



Energy Conservation by Facilities Such as Specified Tenants

・At the facilities such as specified tenants, FY2013 energy consumption intensity was improved 23% over FY2009.



* Values assuming change of FY2009 energy consumption intensity to be 100.

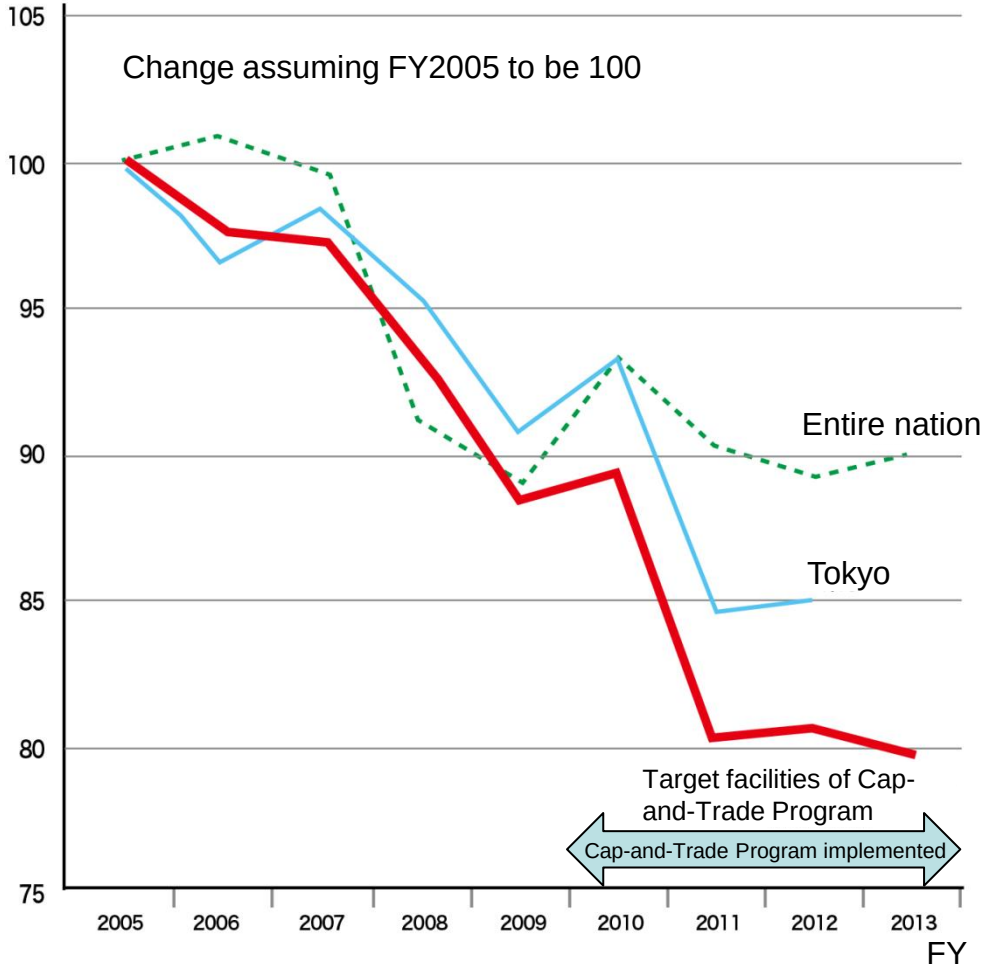
Fig. Change of Energy Consumption Intensity at Facilities Such as Specified Tenants

Program Results

Comparison of Secular Change with Entire Nation and Tokyo

◎ The target facilities realized reduction continuously and greatly.

Secular change of CO_2 emissions, etc. (Comparison with entire nation)



- Secular change of national final energy consumption (industrial and commercial sectors) (FY 2005 value = 100)
- Secular change of Tokyo's final energy consumption (industrial and commercial sectors) (FY 2005 value = 100)
- Secular change of CO_2 emissions at the target facilities of the Cap-and-Trade Program (FY 2005 value = 100) (CO_2 emission factor fixed)

Tokyo Climate Change and Sustainable Energy Strategy

Further Promotion of Climate Change Strategy for Creation of Smart Energy City

Photo http://www.tokyo-skytree.jp/news/lighting/

Tokyo Metropolitan Government Bureau of Environment Website:
www.kankyo.metro.tokyo.jp

Tokyo Metropolitan Government Bureau of Environment Facebook:
www.facebook.com/Environment.TMG

The following slides are used for a panel discussion.

As a Familiar Existence to the Facility Owners, What Policy Should the Tokyo Metropolitan Government Take for Promotion of the Energy Conservation Measures of the Large Facilities in Tokyo?

Evolution of Large Facility Measures

Stepping up the system in light of the reality of the facilities

2002-2004

Hop

Start a plan submission system

- Plan submission system
- Voluntary goal
- Many facilities have difficulty preparing effective energy conservation measures
- Many facilities have no effective promotion structure
- Publication by the facility owners

2005-2009

Step

Add an assessment and publication mechanism

- Plan submission system + Assessment and publication mechanism
- Voluntary goal
- Tokyo Metropolitan Government suggests the measures and helps raise the level of basic measures through guidance and advice
- Structure mainly centering around the equipment personnel
- Publication by the facility owner and Tokyo Metropolitan Government

2010-

Jump

Introduce the Cap-and-Trade Program

- Total emissions reduction obligation and emission trading scheme
- Reduction obligation
- Realization of energy conservation measures from a medium- and long-term viewpoint
- Structure integrating the management, equipment personnel, tenant facility owners, etc.
- Publication by the facility owner and Tokyo Metropolitan Government

Interview survey of the target facility, exchange of opinions and analysis of reality

What Developed the Energy Conservation Measures for the Target Facilities?

(Introduction Results of the Cap-and-Trade Program)

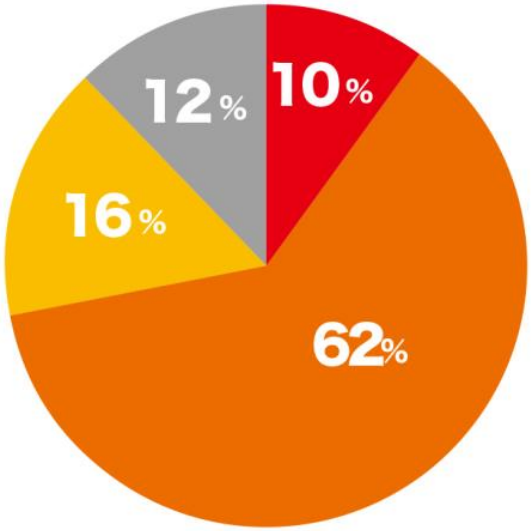
- Awareness, sense of values, etc. of the target facilities

Program Results

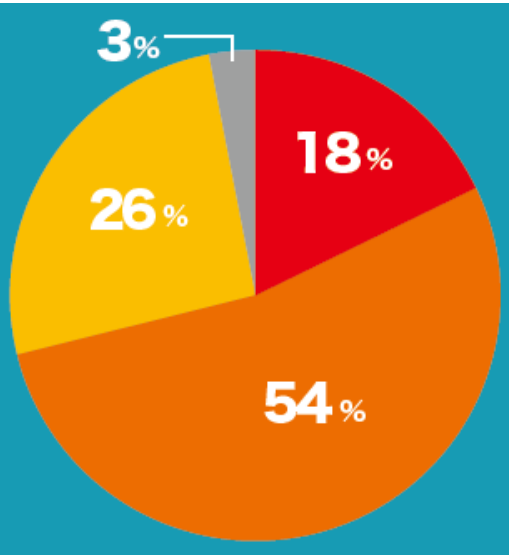
Awareness of management is enhanced by introduction of the Cap-and-Trade Program.

Q: Has the management's concern about change of CO_2 reduction been enhanced?

- **Enhanced very much: 10%**
- **Enhanced: 62%**
- **Already enhanced: 16%**
- **Unchanged (not enhanced): 12%**



Program introduction encouraged more than 70% of the facilities to actively adopt high-efficiency equipment.



Q: When renewing the equipment, has the management been more active in adopting high-efficiency equipment?

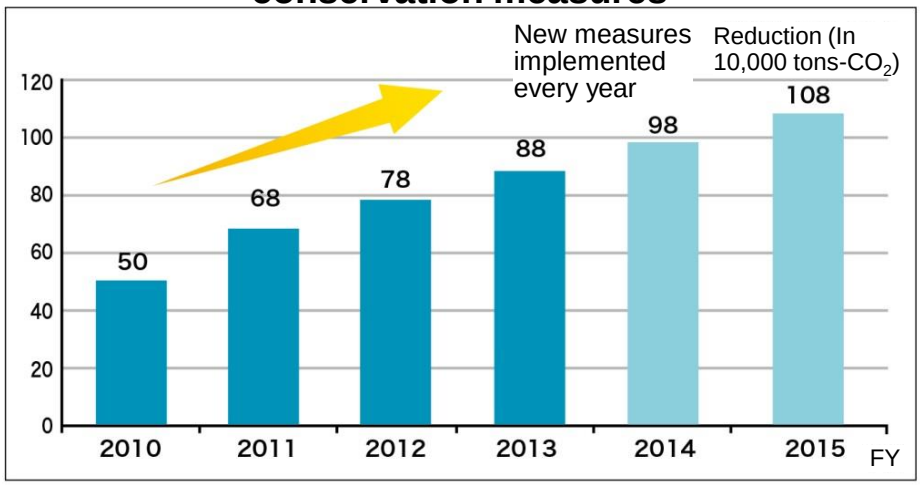
- Very much more active: 18%
- More active: 54%
- Already active: 26%
- Inactive (does not adopt): 3%

Source: Questionnaire on total emissions reduction obligation and emission trading scheme (conducted in 2014)

Program Results

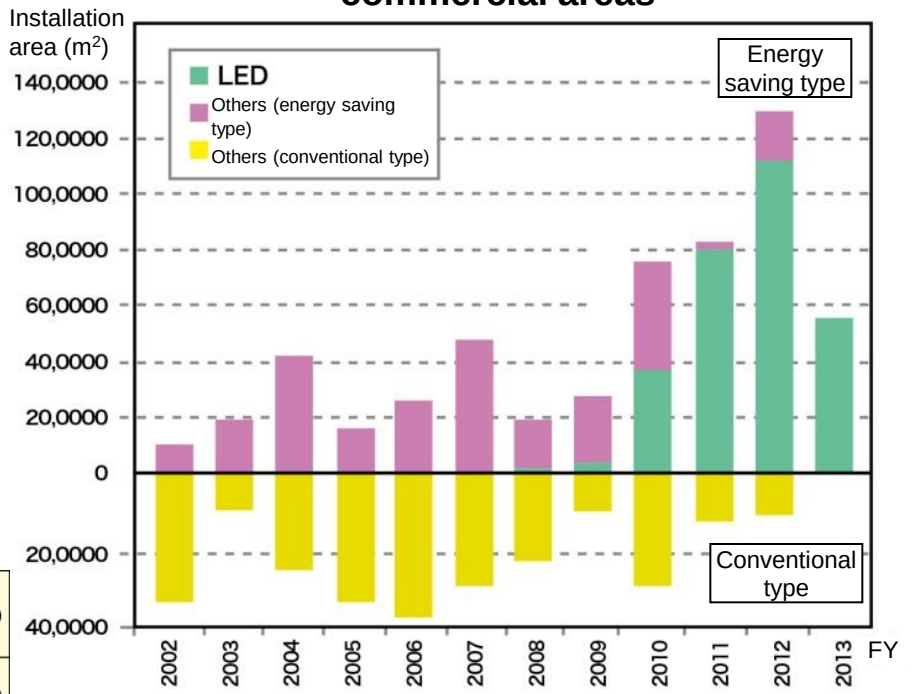
◎ New energy conservation measures are annually planned and implemented by the target facilities.

Planning and implementation of energy conservation measures



Energy conservation measures	Count	t-CO_2
Introduction of high-efficiency lighting and energy conservation control	1,154	71,700
Introduction of high-efficiency air-conditioning pump and energy conservation control	349	28,100
Introduction of high-efficiency heat source equipment	312	133,100
Introduction of outdoor air cooling system	288	19,900
Introduction of high-efficiency air-conditioner	286	27,900
Introduction of high-efficiency fan	234	12,000
Optimization of air-conditioning start-up time when starting use of room	128	10,500
Optimization of living room temperature and cool business attire in summer	82	10,000

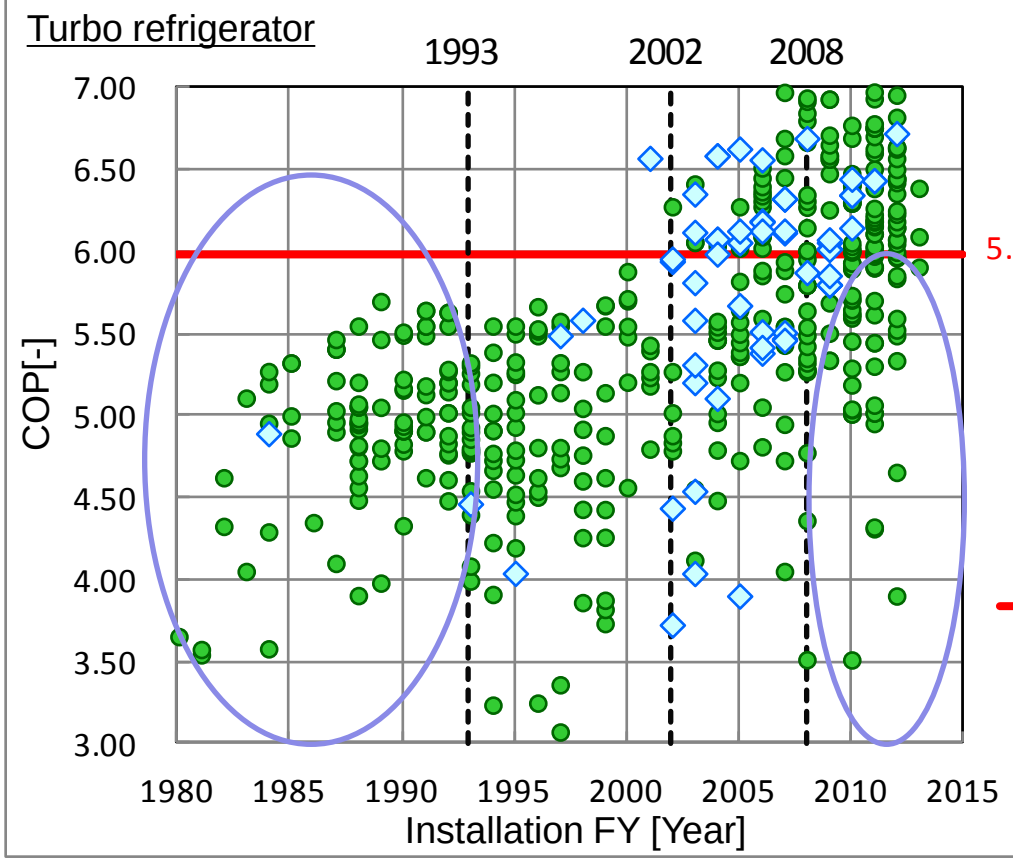
Installation of lighting equipment in commercial areas



Introduction of high-efficiency equipment and energy conservation improvement → Emphasis on running

Program Results

Comparison between Top-level Turbo Refrigerator Installed Facilities and Other Facilities



○Other than top-level facilities, etc.

	FY2002 to FY2007	FY2008 onward
n (quantity)	73	163
No. of high-efficiency equipment	23	95
	32%	58%

○Top-level facilities, etc.

	FY2002 to FY2007	FY2008 onward
n (quantity)	40	20
No. of high-efficiency equipment	21	14
	53%	70%

<Totalization conditions>

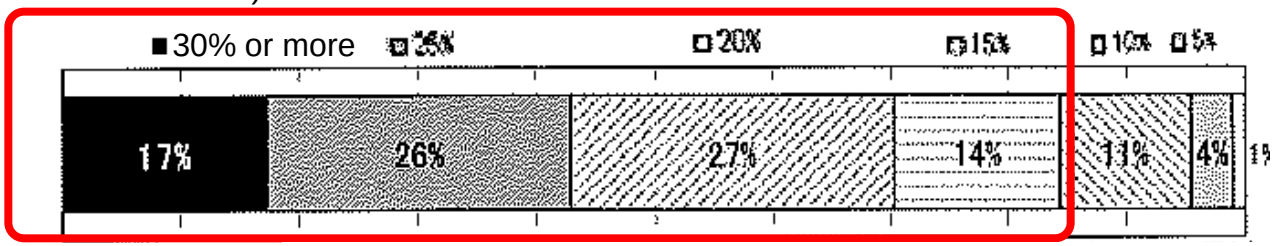
* Of the Division-I check lists (FY2012 results) submitted in FY2013, totalization of 925 facilities which had a description of a heat source rating COP (boiler efficiency), etc.
* Taking account of the installation FY, the values considered abnormal are excluded.
* The years 1993, 2002, when the “Tokyo Carbon Reduction Reporting Program” was introduced, and 2008, when the “Tokyo Cap-and-Trade Program” was introduced, are indicated with broken lines as 20-year-lapse timings after equipment installation.

Program Results

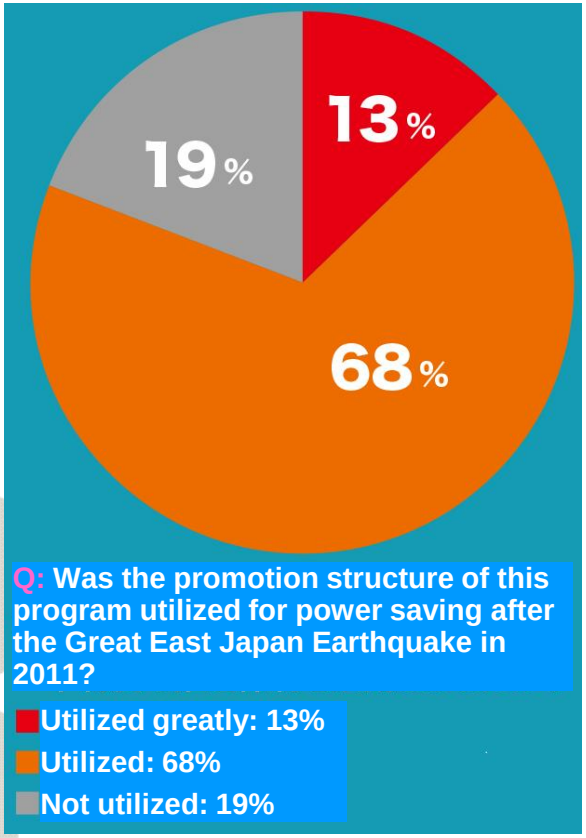
Response to Power Saving (Max. Power Demand) after Great East Japan Earthquake

[Reduction Ratio of Max. Service Power Compared with 2010 Summer]

Max. service power was “reduced by 15% or more” at 80% of the facilities.
(* There are some facilities beyond the scope of Article 27 of the Electricity Business Act.)



(Survey results by Tokyo Metropolitan Government (December 2011))



Owing to “preparation of the promotion structure” and “participation by the tenant facility owners”;
“Power saving went smoothly because there was already a cooperative addressing structure before the Great East Japan Earthquake, holding a tenant meeting twice annually.” (Voice of a tenant building owner)

Because a “list of devices, etc. had been prepared” in order to respond to this program;
“An accurately calculated effect of reduction greatly helped planning of power saving measures, resulting in smooth power saving.” (Voice of a plant owner)

Building of Good Power Saving Relations between the Owner and Tenants

87/1,300 Certified Top-level Facilities

Facilities with excellent promotion structure, equipment introduction and operation management

FY2014 certified facilities

Eitai Diamond Building

Nihonbashi Muromachi Nomura Building

Muromachi Higashi Mitsui Building

Look to the top level when newly building or reconstructing.

Daiichi Sankyo Company, Limited, Shinagawa R & D Center

Sumitomo Mitsui Banking Corporation, Main Office Building

<Sample measures of certified facilities>

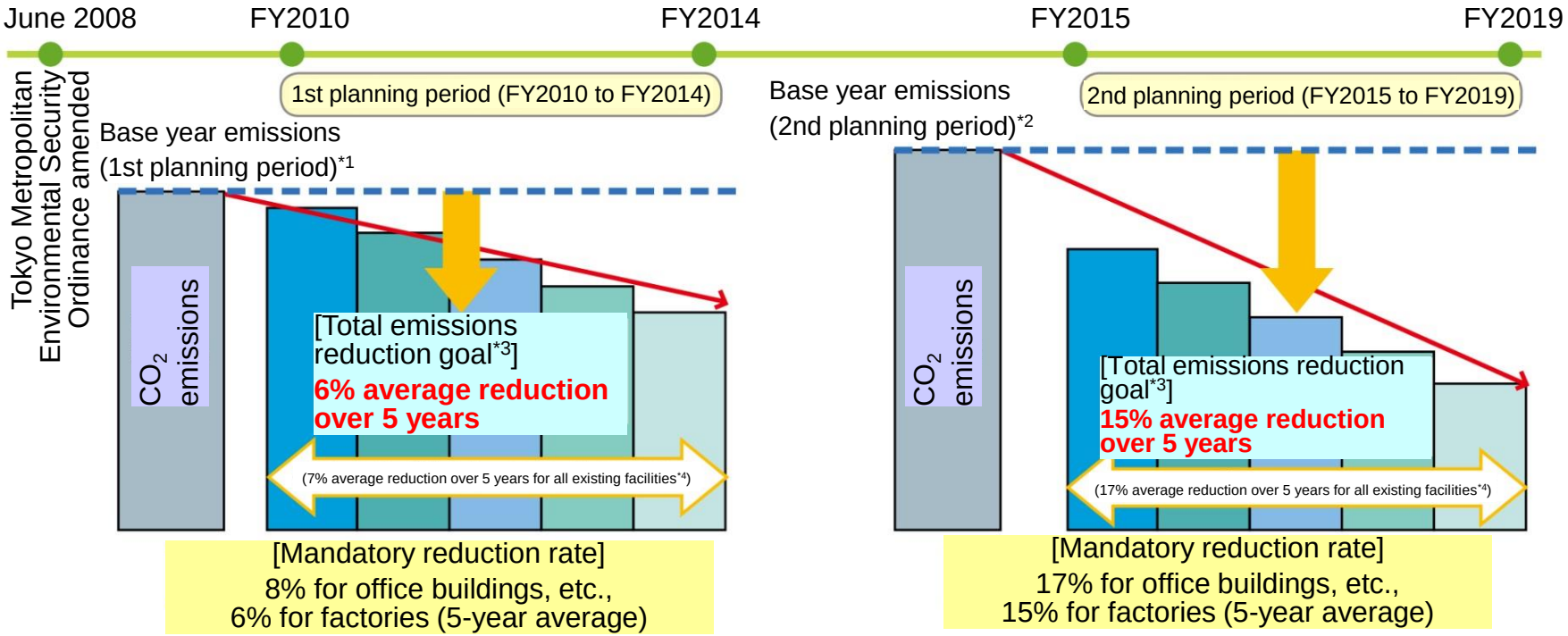
- **Introduction of high-efficiency heat source equipment**
- **Improvement of operation by commissioning**
- **Solar power generation system**
- **Light duct system utilizing natural lighting**
- **High-efficiency cogeneration**

What Measures Were Taken by the Tokyo Metropolitan Government to Help Large Facilities Promote the Energy Conservation Measures?

- Obligation
- Standardization (Base)
- Index (Benchmark)
- Disclosure of information (Publication)
- Support of the target facilities, and so on

Overview of Cap-and-Trade Program

- Planning period: 1st planning period — From FY2010 to FY2014
  2nd planning period — From FY2015 to FY2019
- Mandatory reduction rate: 1st planning period — 6 or 8%
  2nd planning period — 5 or 17%



Responsibilities of Tenant Facility Owners

● To promote effective reduction of greenhouse gas, both the owner and tenant facility owner are requested to address the issue.

Considering the owner as mainly responsible for the obligation, the tenant is subjected to the following duties.

◆ **All the tenants are obligated to cooperate with the facility owner's reduction measures.**

◆ **The facility owners such as specified tenants* are obligated to prepare and submit their original strategic plans and promote the measures based on the plans.**

* Requirements for the facility owners such as specified tenants

- **Facility owners using a floor area of 5,000 m^2 or more as of the end of the previous fiscal year**
- **Facility owners whose electric consumption for the previous one fiscal year (from April to the end of March) was 6,000,000 kWh or more.**

Certification Criteria for Top-level Facilities

●The currently feasible highest-level energy conservation measures are set based on the results of surveying the latest energy conservation buildings and interviewing the manufacturers.
●The criteria is to be utilized as a reference index for design when constructing new building or implementing large-scale improvement.
●Energy conservation tuning in the operation phase, such as the promotion structure and the operation management, is also a requirement.

Design Phase	
○ **Load control**	→ "Improved building skin performance (high-performance glass Low-e, etc.)" "Internal load control (high-efficiency lighting LED, etc.)" "Outdoor air load control (outdoor air rate control, etc.)"
○ **Utilization of natural energy**	→ "Natural lighting, natural ventilation, outdoor air cooling, etc."
○ **High-efficiency equipment system**	→ "Introduction of high-efficiency system (radiation heating-cooling system, etc.)" "Introduction of high-efficiency equipment (high-efficiency heat source, high-efficiency motor, etc.)" "Adequate capacity division of equipment" "Introduction of energy conservation control (variable flow rate control, etc.)"
○ **Utilization of renewable energy**	→ "Utilization of solar power generation and solar heat, and so on."
Operation Phase	
○ **High-efficiency operation**	→ "Implementation of commissioning and tuning, and so on"
○ **Building of the energy conservation measures promotion structure**	→ "Establishment and opening of CO_2 reduction promotion conference, and so on"

Illustration of Top-level Facilities

◎II3a.1 Introduction of high-efficiency heat source equipment (DHC installed)

+II3a.23 Introduction of medium-temperature cold water based system

+II3a.26 Introduction of regional use of energy

+II3a.18 Introduction of high-efficiency cogeneration

○II1.3 Introduction of renewable energy and unused energy system

◎II3c.1 Introduction of high-efficiency lighting equipment

◎II3c.3 Introduction of initial luminance correction control for lighting

◎II3c.4 Introduction of zoning control for lighting

○II3c.8 Introduction of daylight based illumination control

○II3c.9 Introduction of occupant detection control by motion sensor for lighting

◎III1c.1 Mitigation of luminance conditions for other than living room

＋III1c.5 Mitigation of luminance conditions for office

○II2.1 Introduction of high-performance building skin

＋II2.4 Introduction of insolation control and schedule control for blind

◎I4.3 Setting of CO_2 reduction goal, planning of CO_2 reduction measures, and summarization and assessment of results

◎I4.6 Preparation and implementation of improvement measures, and verification of effect

○I4.7 Implementation of commissioning (verification of performance)

◎II3b.1 Introduction of high-efficiency air-conditioner

◎II3b.2 Introduction of high-efficiency package type air-conditioner

○II3b.8 Introduction of variable air volume system for air-conditioner

○II3b.12 Introduction of outdoor air cooling system

○II3b.13 Introduction of outdoor air volume control by CO_2 concentration

+II3b.20 Introduction of total heat exchanger

◎III1b.1 Optimization of air-conditioning start-up time when starting use of room

◎III1b.3 Optimization of temperature of living room

◎III1b.4 Intermittent operation of fan

○III1b.8 Implementation of cool and warm business attire campaign

○III1b.13 Discontinuation of fan operation in elevator machine room and electric room during summer

○II1.2 Introduction of natural ventilation based system

■ The above illustration mainly shows the scores as to assessment items of assessment score of 0.5 or higher. A bar under the assessment item shows a weighting factor by height and an assessment score (0 to 1) by length. (◎ : Mandatory item, ○ : General item, +: Score-adding item)

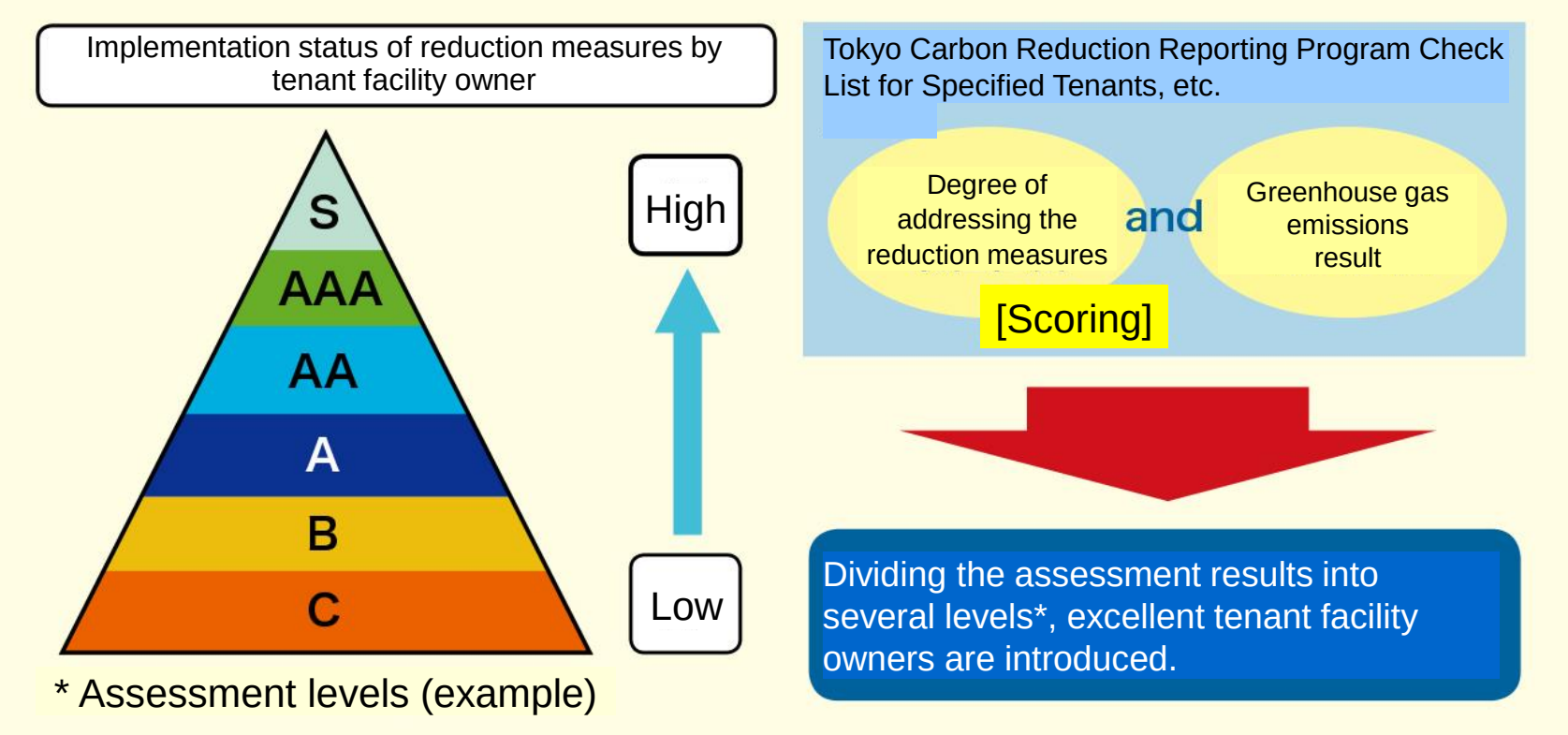
Tenant Assessment and Publication Program

In order to upgrade the energy conservation measures of the tenant facility owners;

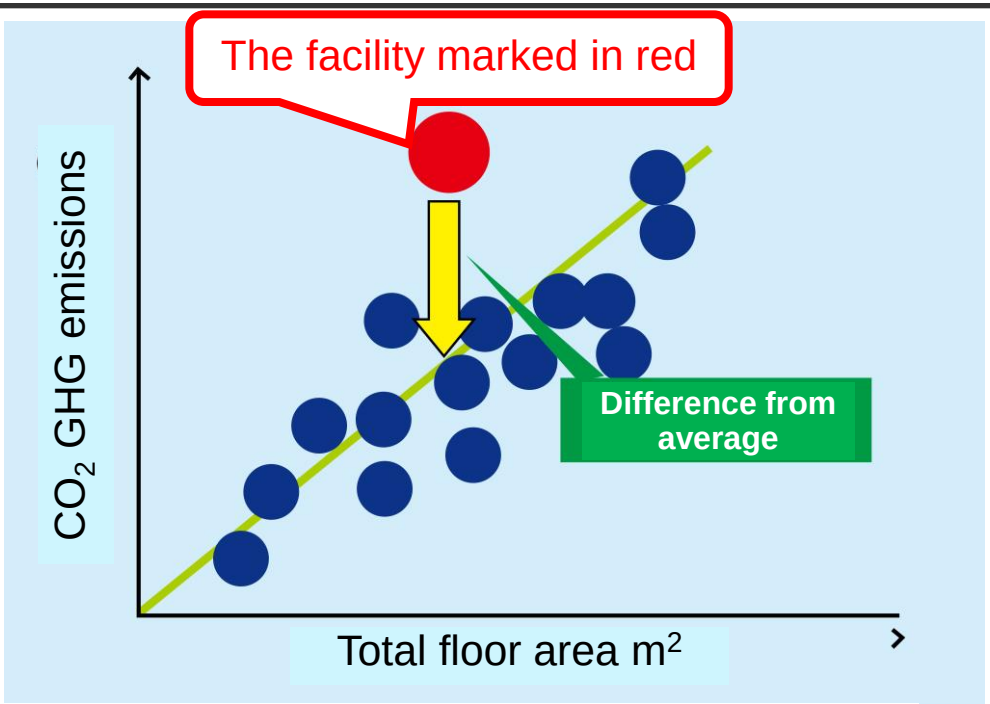
(1) The measures for office, lodging, commercial and DC tenants are presented.

(2) The status of addressing the measures is scored.

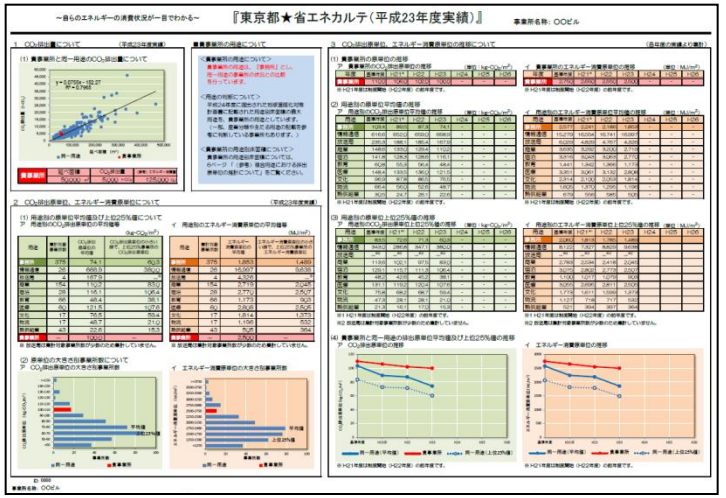
(3) The tenant is assessed according to the obtained score and an assessment result is published.



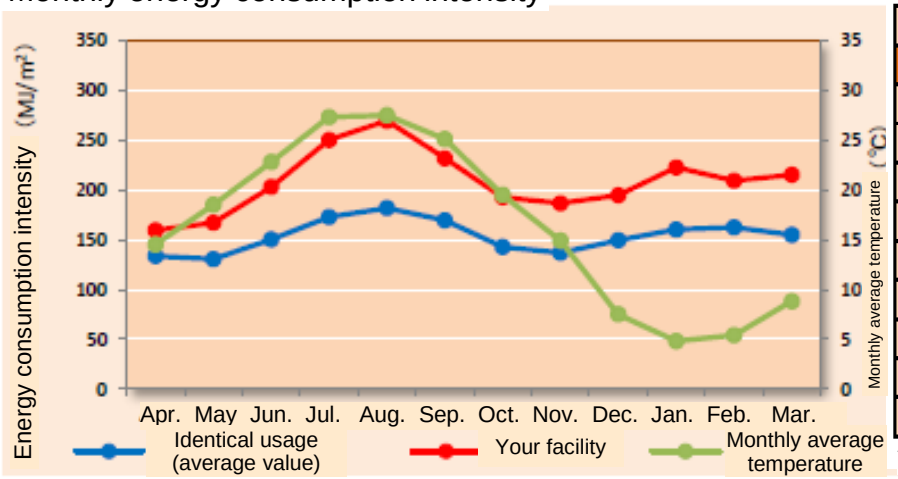
Feeding Back Energy Conservation Record to All Facilities



<Tokyo Energy Conservation Record>



Monthly energy consumption intensity



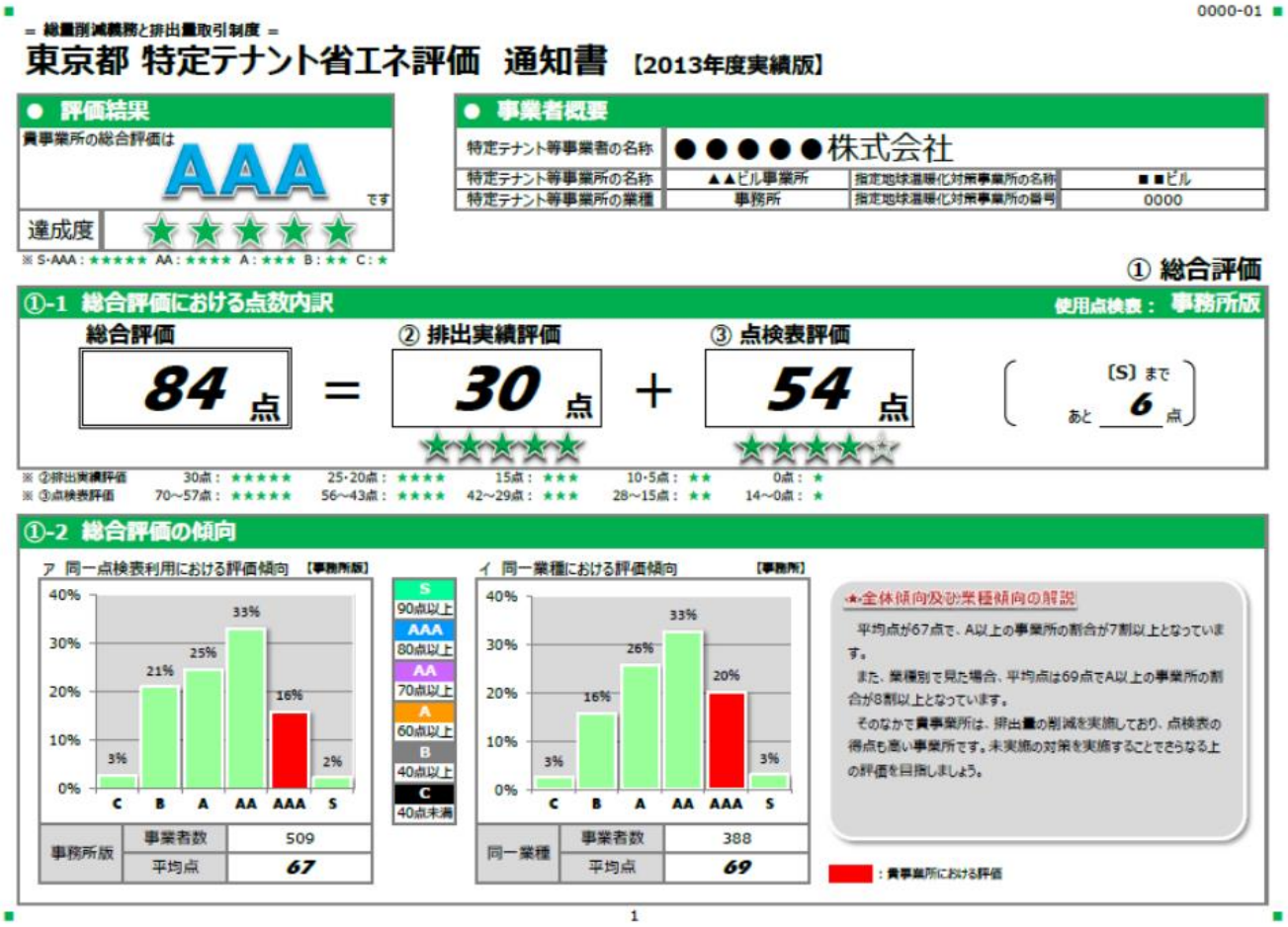
Change of average energy consumption intensity value by usage (Unit: MJ/m²)

Usage	Base FY	2009*	2010	2011	2012	2013	2014
Office	2,577	2,241	2,186	1,853	-	-	-
Information communication	15,279	16,554	16,741	16,997	-	-	-
Broadcast station	6,029	4,829	4,767	4,326	-	-	-
Commercial	3,635	3,292	3,200	2,719	-	-	-
Lodging	3,316	3,043	3,063	2,770	-	-	-
Education	1,441	1,342	1,366	1,173	-	-	-
Medical	3,351	3,061	3,132	2,808	-	-	-
Culture	2,314	2,100	2,053	1,814	-	-	-
Logistics	1,605	1,370	1,295	1,196	-	-	-
Heat supply	679	556	585	505	-	-	-

* FY 2009 is the previous year of starting the program (FY2010).

Providing Energy Conservation Assessment Notification for All Specified Tenants

(1) Capable of grasping the achievement status of energy conservation measures at one's own facility.
(2) Capable of understanding which measure to begin with.
(3) Capable of comparing with other facility of the same trade.



0000-01

＝ 総量削減義務と排出量取引制度 ＝

東京都 特定テナント省エネ評価 通知書 【2013年度実績版】

● 評価結果

貴事業所の総合評価は AAA です

達成度 ★★★★★

※ S･AAA：★★★★★ AA：★★★★ A：★★★ B：★★ C：★

● 事業者概要

特定テナント等事業者の名称	●●●●●株式会社		
特定テナント等事業所の名称	▲▲ビル事業所	指定地球温暖化対策事業所の名称	■■ビル
特定テナント等事業所の業種	事務所	指定地球温暖化対策事業所の番号	0000

① 総合評価

①-1 総合評価における点数内訳　使用点検表：事務所版

総合評価		② 排出実績評価		③ 点検表評価		
84 点	＝	30 点	＋	54 点		【S】まで あと 6 点
		★★★★★		★★★★☆		

※ ②排出実績評価　30点：★★★★★　25･20点：★★★★　15点：★★★　10･5点：★★　0点：★
※ ③点検表評価　70～57点：★★★★★　56～43点：★★★★　42～29点：★★★　28～15点：★★　14～0点：★

①-2 総合評価の傾向

ア 同一点検表利用における評価傾向 【事務所版】

S 90点以上 / AAA 80点以上 / AA 70点以上 / A 60点以上 / B 40点以上 / C 40点未満

事務所版	事業者数	509
	平均点	67

イ 同一業種における評価傾向 【事務所】

同一業種	事業者数	388
	平均点	69

★全体傾向及び業種傾向の解説

平均点が67点で、A以上の事業所の割合が7割以上となっています。
また、業種別で見た場合、平均点は69点でA以上の事業所の割合が8割以上となっています。
そのなかで貴事業所は、排出量の削減を実施しており、点検表の得点も高い事業所です。未実施の対策を実施することでさらなる上の評価を目指しましょう。

：貴事業所における評価

1

Holding Presentation Session of Excellent Facility Cases, Various Seminars, etc.

- Sharing the information of excellent facility cases.
- Providing know-how of energy conservation process and operation improvement.

What are the Potential Fields for Energy Conservation at Large Facilities in Tokyo?

(1) Introduction status of the “heat source equipment” by model and installation year

The following has totalized the information on the heat source equipment mentioned in the check list in terms of “model,” “installation year,” “type of heat source,” “heat source capacity” and “quantity.” Cooling-heating combined heat source equipment is counted in both cold and hot heat sources for totalization (same as the entry method in the check list).

<Totalization results>

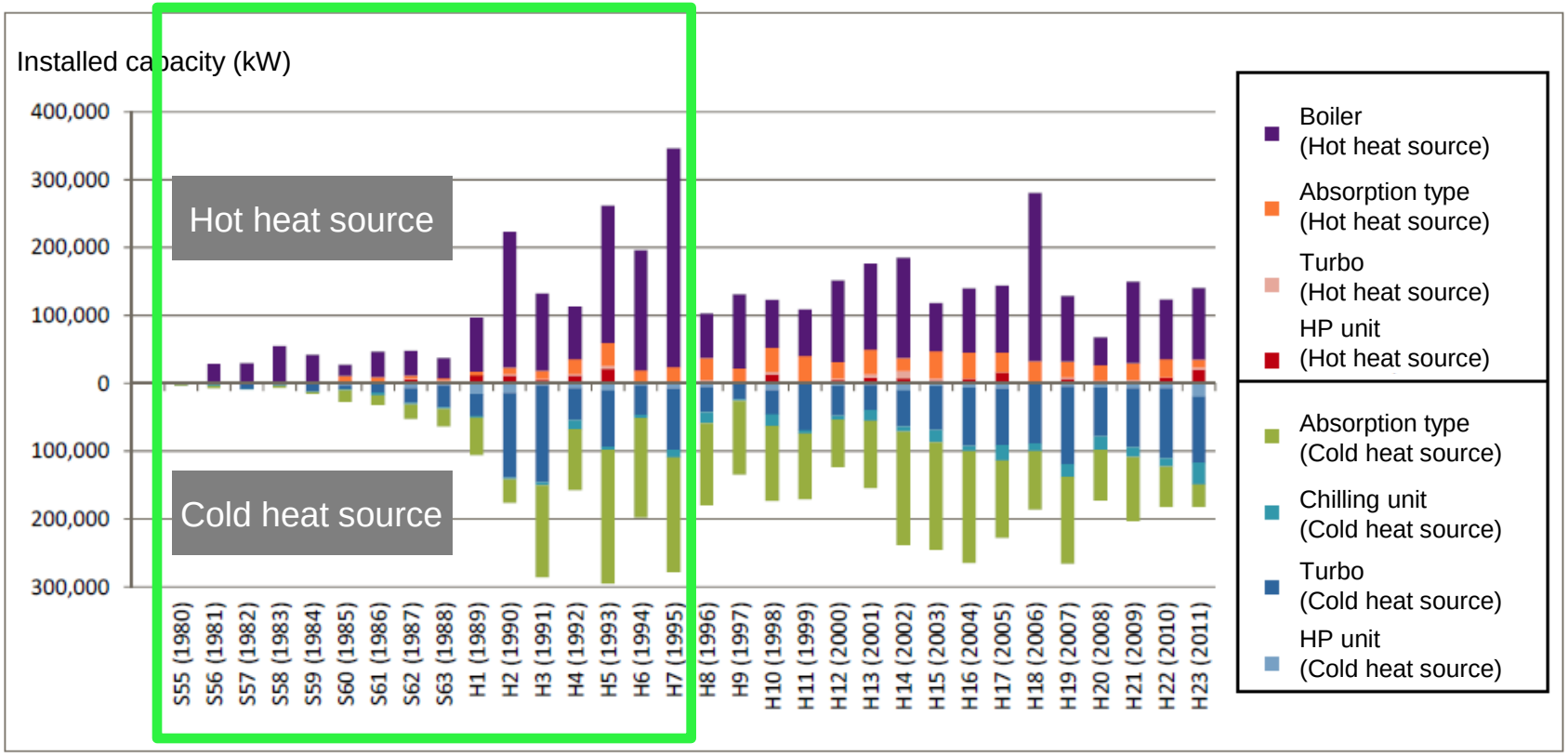


Fig. 1. Introduction Status of “Heat Source Equipment” at Division-I Facilities by Model and Installation Year (Totalized from Check List)

* Of the Division-I check list (FY2011 results) submitted in 2012, 725 facilities which had a description of heat source installed capacity, etc. have been totalized.

Clarifying the Degree of Adopting the Energy Conservation Technologies

– Diffused energy conservation items addressed by many facilities –

Items to Be Addressed First

Those already addressed by more than half of the target facilities of the Credit-and-Trade Program

II. Items related to equipment performance
○ Heat insulation of the steam valve and flange
○ Introduction of variable flow rate control of the secondary air-conditioning pump
○ Introduction of temperature control of the elevator machine room
○ Introduction of temperature control of the electric room
○ Introduction of the high-luminance and light-storing guide lights
○ Introduction of the variable voltage and variable frequency control system for the elevator

Clarifying the Degree of Adopting the Energy Conservation Technologies

– Diffused energy conservation items addressed by many facilities –

Items to Be Addressed First

Those already addressed by more than half of the target facilities of the Credit-and-Trade Program

III. Items related to operation	
○ Management of the air ratio of the combustion equipment	○ Mitigation of the temperature of other than the living room
○ Adjustment of the cooling water temperature setting value of the refrigerator	○ Optimization of the setting temperature for the elevator machine and electric rooms
○ Adjustment of the cold/hot water outlet temperature setting value of the heat source equipment	○ Mitigation of the luminance conditions
○ Confirmation of heat insulation of cold/hot water piping, steam piping, etc.	○ Suspension of heating the bidet toilet seat during summer
○ Adjustment of valve opening	○ Suspension of the night-time power source for the water heater
○ Suspension of the heat source equipment, etc. during the heat source unrequired period	○ Discontinuation of hot water supply to the toilet/washroom or reduction of the hot water supply period
○ Optimization of the heat source start-up time when starting air-conditioning	○ Cleaning of the condenser and evaporator for the refrigerator
○ Optimization of the air-conditioning start-up time when starting use of the room	○ Cleaning and scale removal from the heat transfer surface of the combustion equipment
○ Optimization of the living room temperature	○ Filter cleaning of the air-conditioner, fan coil unit, etc.
○ Implementation of intermittent fan operation	

Clarifying the established technologies

Clarifying the Degree of Adopting the Energy Conservation Technologies

– Items adopted more by the top-level facilities –

Items to Be Addressed Next

Those adopted more by the top-level facilities and addressed by part of the target facilities of the Credit-and-Trade Program

I. General management items

○ Introduction of the building energy management system (BEMS), etc.

II. Items related to equipment performance

○ Introduction of the high-efficiency heat source equipment	○ Introduction of optimum start-up control of air-conditioning
○ Introduction of the economizer for the steam boiler	○ Introduction of CO or CO_2 concentration control by the parking lot fan
○ Introduction of the water supply system by the large temperature difference	○ Introduction of the high-efficiency lighting equipment
○ Introduction of the high-efficiency package type air-conditioner	○ Introduction of occupant detection control by the motion sensor for lighting
○ Introduction of outdoor air shut-off control during warming up	○ Introduction of time schedule control of lighting
○ Introduction of the variable air volume system for the air-conditioner	○ Introduction of the water-saving device for the flush toilet
○ Introduction of the vaporizing humidifier for the air-conditioner	○ Introduction of power regeneration control of the elevator
○ Introduction of proportional control of the fan coil unit	

Clarifying the Degree of Adopting the Energy Conservation Technologies

– Items adopted more by the top-level facilities –

Items to Be Addressed Next

Those adopted more by the top-level facilities and addressed by part of the target facilities of the Credit-and-Trade Program

III. Items related to operation
○ Optimization of the number of operating heat source equipment during partial loading
○ Mitigation of hot water temperature setting
○ Replacement by the energy conservation fan belt

Clarifying the technologies established at the top-level facilities in advance

Clarifying the Degree of Adopting the Energy Conservation Technologies

– Items adopted by some top-level facilities –

Items to Be Addressed Systematically

Those being adopted by some top-level facilities

II. Items related to equipment performance
○ Introduction of the high-efficiency cooling tower
○ Introduction of the high-efficiency air-conditioning pump
○ Introduction of variable flow rate control of the primary air-conditioning pump
○ Introduction of the variable flow rate control of the cooling water pump
○ Introduction of end differential pressure control of the secondary air-conditioning pump
○ Introduction of high-efficiency cogeneration
○ Introduction of the high-efficiency air-conditioner
○ Introduction of the high-efficiency fan
○ Introduction of the outdoor air cooling system
○ Introduction of the equipment not mixing cold air and hot air
○ Introduction of outdoor air volume control by CO_2 concentration
○ Introduction of the total heat exchanger
○ Introduction of the air-blowing and air-conditioning system by large temperature difference

Clarifying the Degree of Adopting the Energy Conservation Technologies

– Items adopted by some top-level facilities –

Items to Be Addressed Systematically

Those being adopted by some top-level facilities

II. Items related to equipment performance
○ Introduction of the high-efficiency kitchen ventilation system
○ Introduction of initial luminance correction control of lighting
○ Introduction of the high-efficiency transformer
○ Introduction of daylight based illumination control
○ Introduction of security interlocked control of lighting
○ Introduction of the high-efficiency water supply pump
○ Introduction of the natural refrigerant heat pump water heater
○ Introduction of the latent heat recovery water heater
○ Introduction of the automatic or dead slow escalator operation system
○ Introduction of high-efficiency refrigeration and chilling equipment
III. Items related to operation
○ Optimization of the perimeter setting temperature during winter

Energy conservation technologies expected to be diffused at the target facilities in the future

Clarifying the Degree of Adopting the Energy Conservation Technologies

– Items added to the 2nd planning period –

Items to Be Adopted in Future

Those newly added to the 2nd planning period (some of them)

Additional assessment items (some of them)
○ Heat insulation of the heat exchanger (added from the 2nd planning period)
○ Optimization of indoor luminance of the office (added from the 2nd planning period)
○ Introduction of security interlocked control of lighting (added to the existing assessment items)
○ Introduction of the desiccant air-conditioning system (added to the existing assessment items)
○ Introduction of the medium-temperature cold water based system (added from the 2nd planning period)
○ Introduction of the integrated heat source control system (added from the 2nd planning period)
○ Introduction of the fan and circulation fan creating sense of air flow (added from the 2nd planning period)
○ Energy conservation tuning of the package type air-conditioner (added from the 2nd planning period)

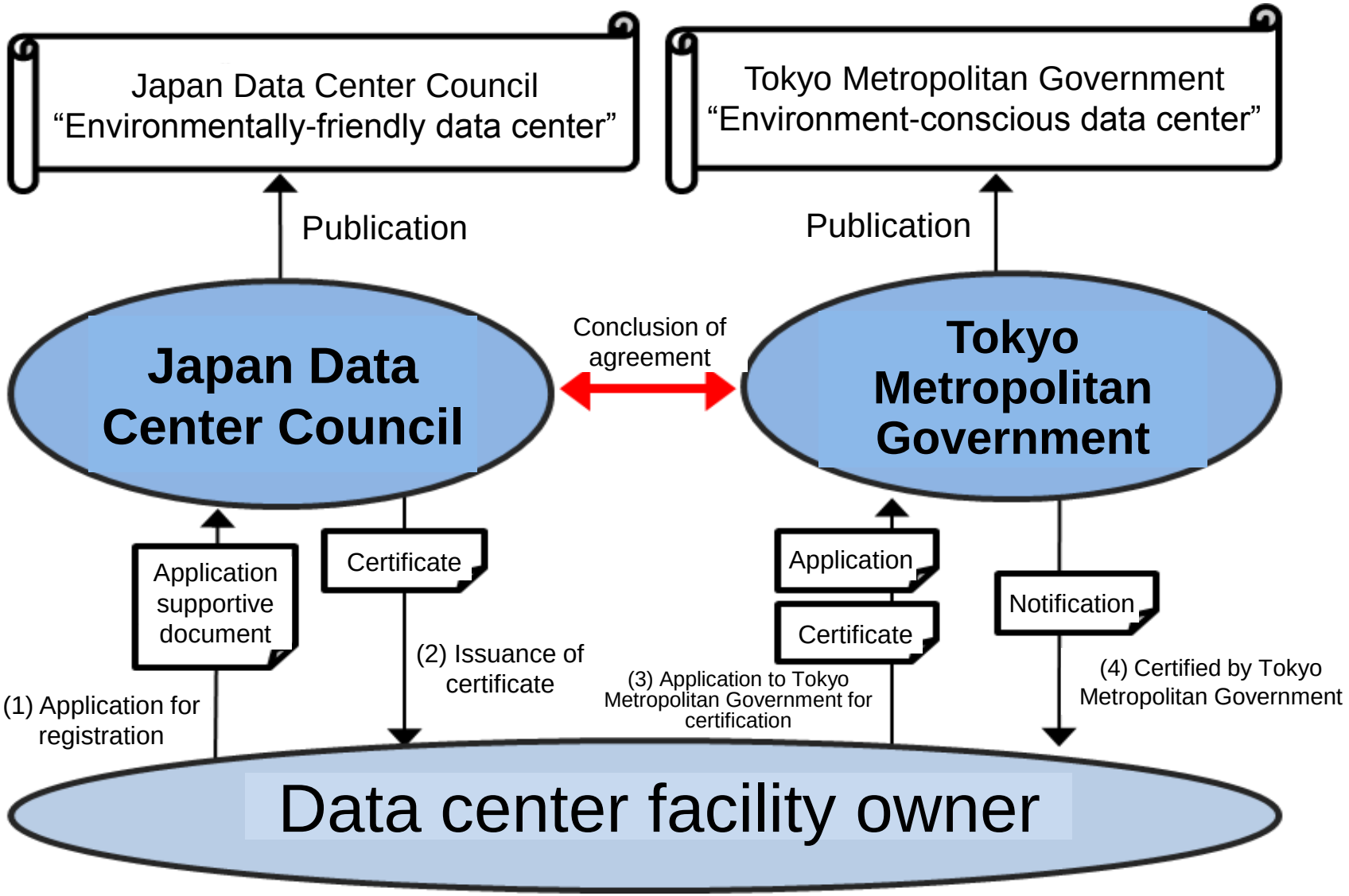
The items newly added from the 2nd planning period present the latest energy conservation technologies, etc.

What Do You Think About the Future Climate Change Strategy of the Tokyo Metropolitan Government?

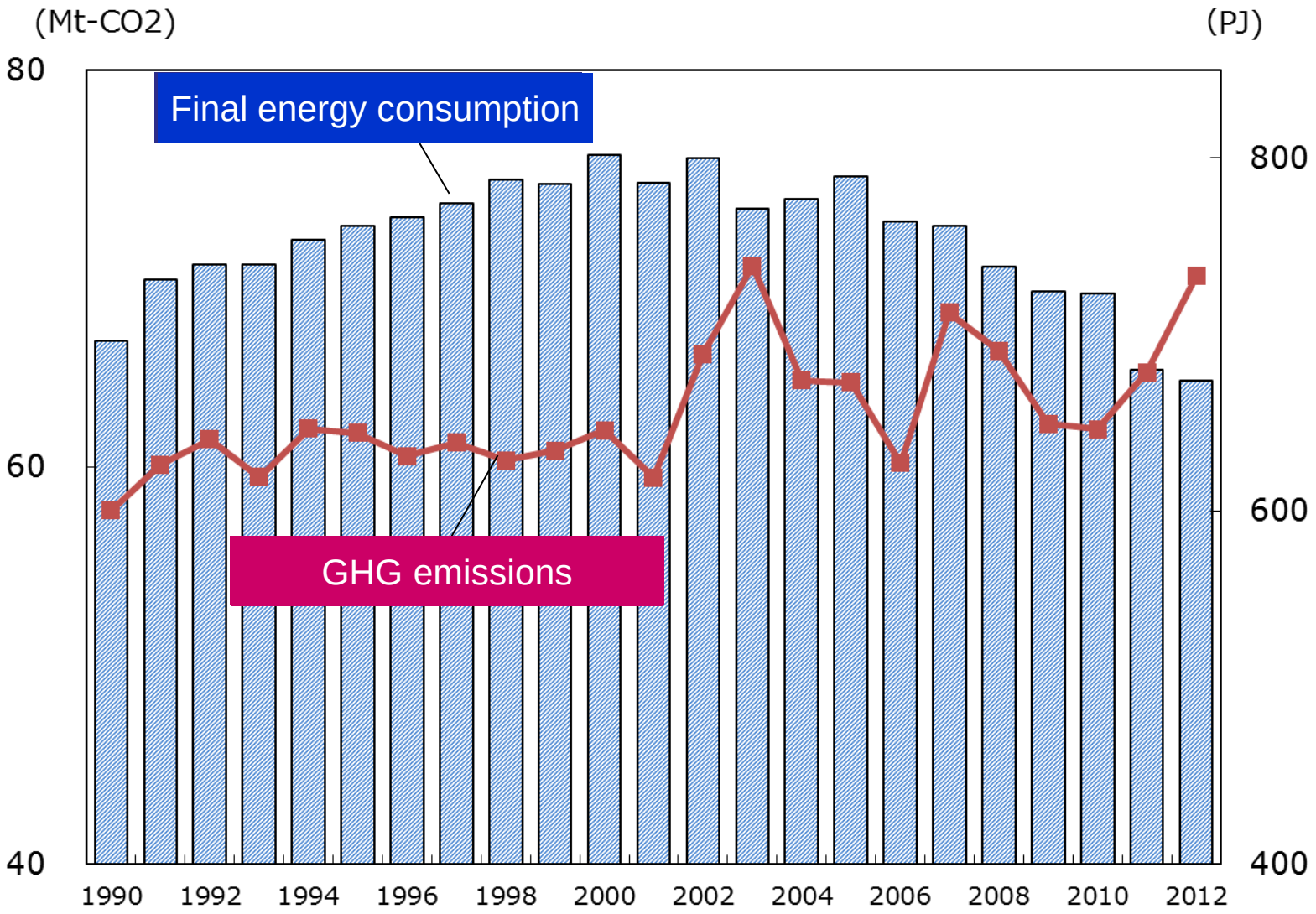
Agreement between JDCC and Tokyo Metropolitan Government

- May 14 (Thursday), 2015
- An agreement signing ceremony was held at the Metropolitan Government Office.

Data Center Certification Scheme

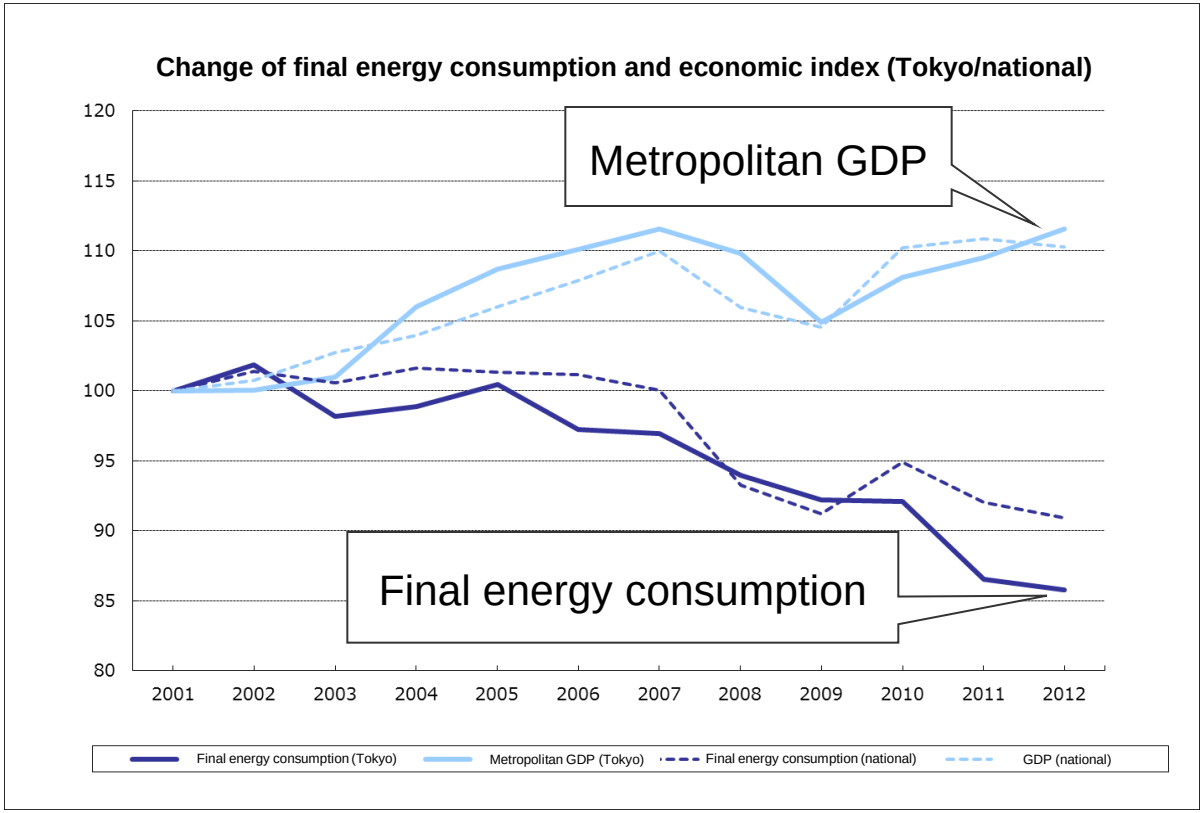


Change of Energy Consumption and GHG Emissions in Tokyo



Energy Consumption and Economic Growth in Tokyo

In Tokyo, economy grows while reducing energy consumption.



Looking to the Most Environmentally-advanced City in the World

September 2013: C40 & Siemens City Climate Leadership Awards (at London)
・Commends a municipality carrying out a remarkable climate change strategy. It was highly assessed that CO_2 emissions had been reduced by 23% in the second year after starting the Cap-and-Trade Program.

June 2014: UNFCCC Expert Meeting (at Bonn)
・At the UN Climate Change Conference, Tokyo's experiences were presented in a place for sharing the approach cases for raising the 2020 reduction goals.

September 2014: UN Climate Summit (at New York)
・A video message was put on the screen in approval of an appeal from the World Bank at a summit conference in order to promote climate change negotiations among nations.

December 2011: COP17 Government Leadership Award (at Durban)
・Commends a municipality taking the measures for remarkable city planning, low-carbon buildings, etc. The world's first establishment of the urban type Cap-and-Trade Program was highly assessed.

Responses to international conferences, etc.
- FY2014
- FY2013
- FY2012
- FY2011