

Low Emission
Buildings TOP30

Tokyo Initiative

Measures taken by TMG
to become a low carbon city
&

Low Emission Buildings TOP30



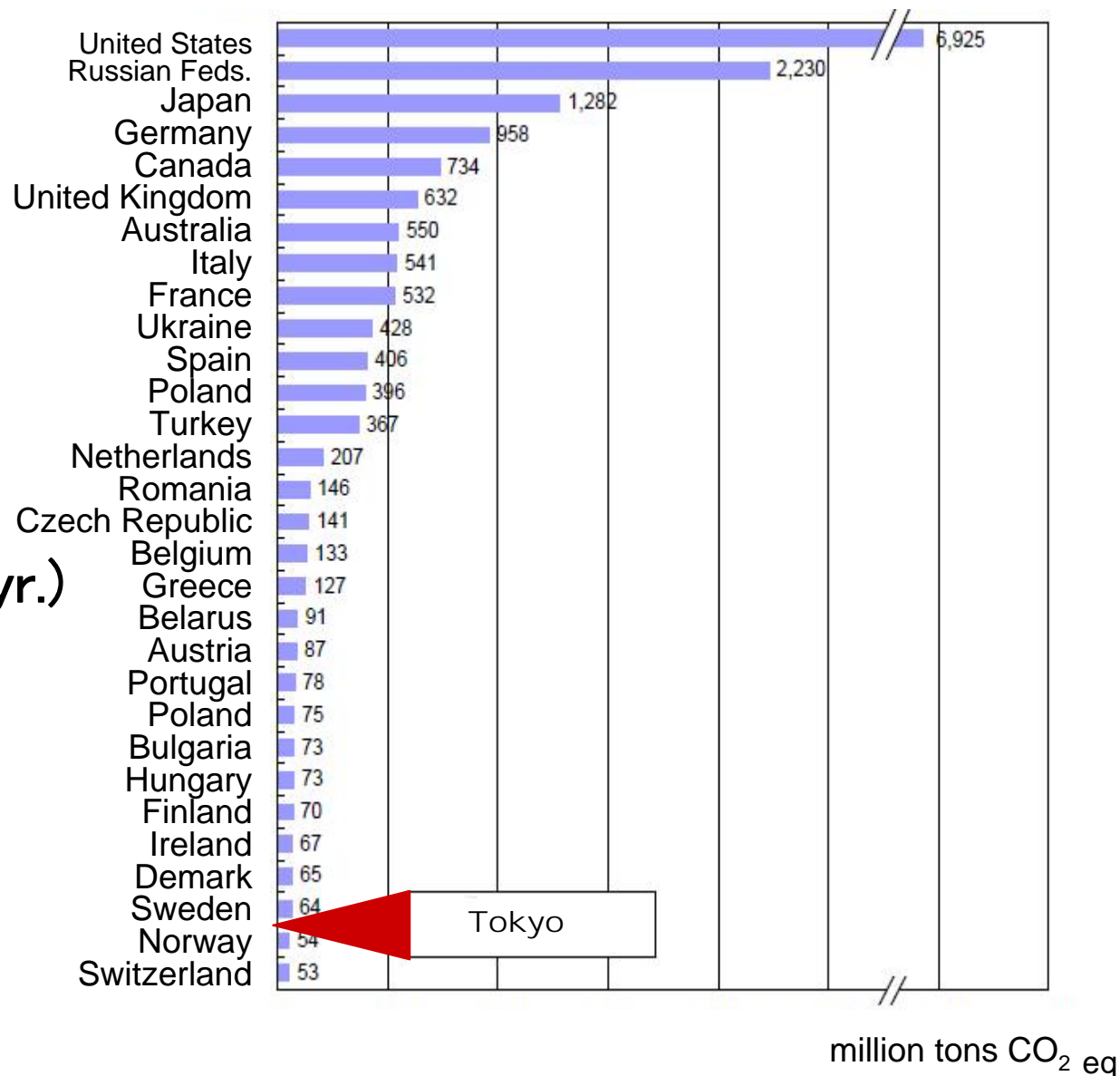
Kenji Suzuki
Bureau of Environment
Tokyo Metropolitan Government

An aerial photograph of a dense urban landscape, likely Tokyo, featuring numerous skyscrapers and a large green park area in the center. A semi-transparent white rectangular box is overlaid on the lower portion of the image, containing the title text.

1. Tokyo Climate Change Strategy

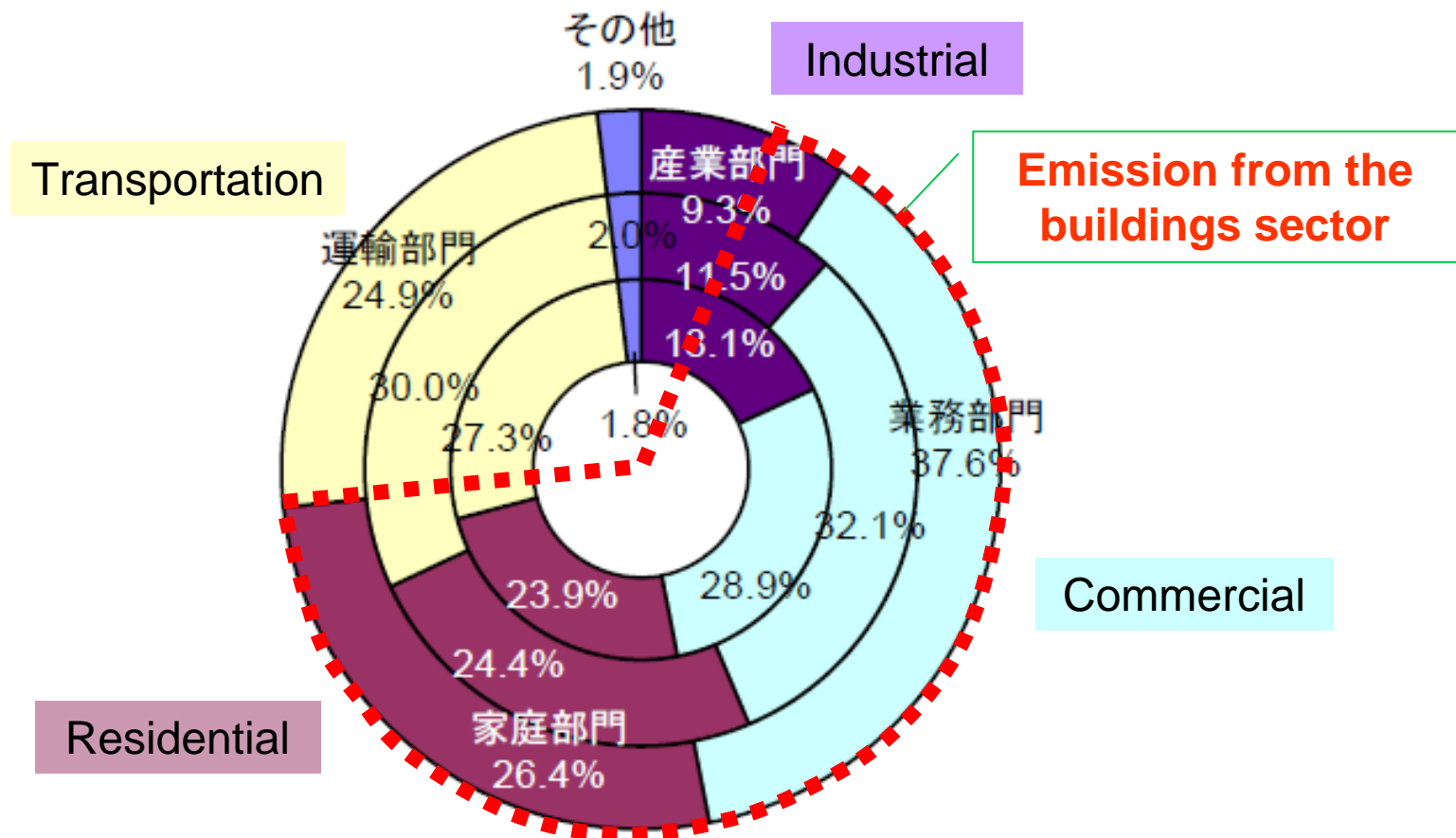
GHG Emissions in TMG area

63 million tons
CO₂ eq (08 fiscal yr.)



Source: UNFCCC, GHG emissions of Annex I parties

Increasing Commercial and Residential Sector = Buildings Sector



CO₂ emissions in TMG area by sector
Inner circle: 1990
Middle circle: 2000
Outer circle: 2007

Tokyo Climate Change Strategy Basic Policy

1 Responsibility as the enormous energy consumer

Annual emissions in Tokyo area is comparable to those from Scandinavian countries.

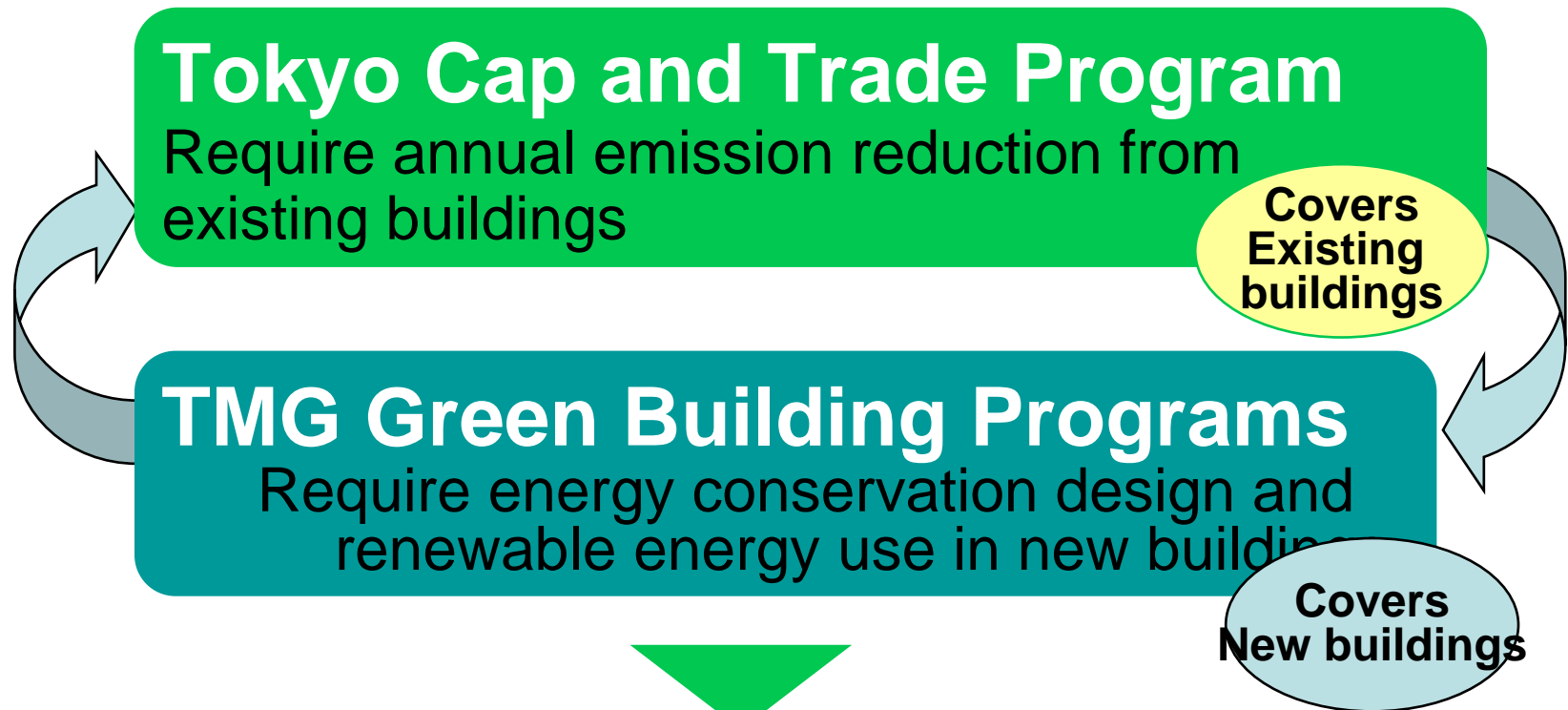
2 Importance to reduce emissions from urban buildings

Promoting measures in the buildings sector is the key to reduce emissions from urban areas

3 Enable Tokyo to grow in the coming carbon restrain age

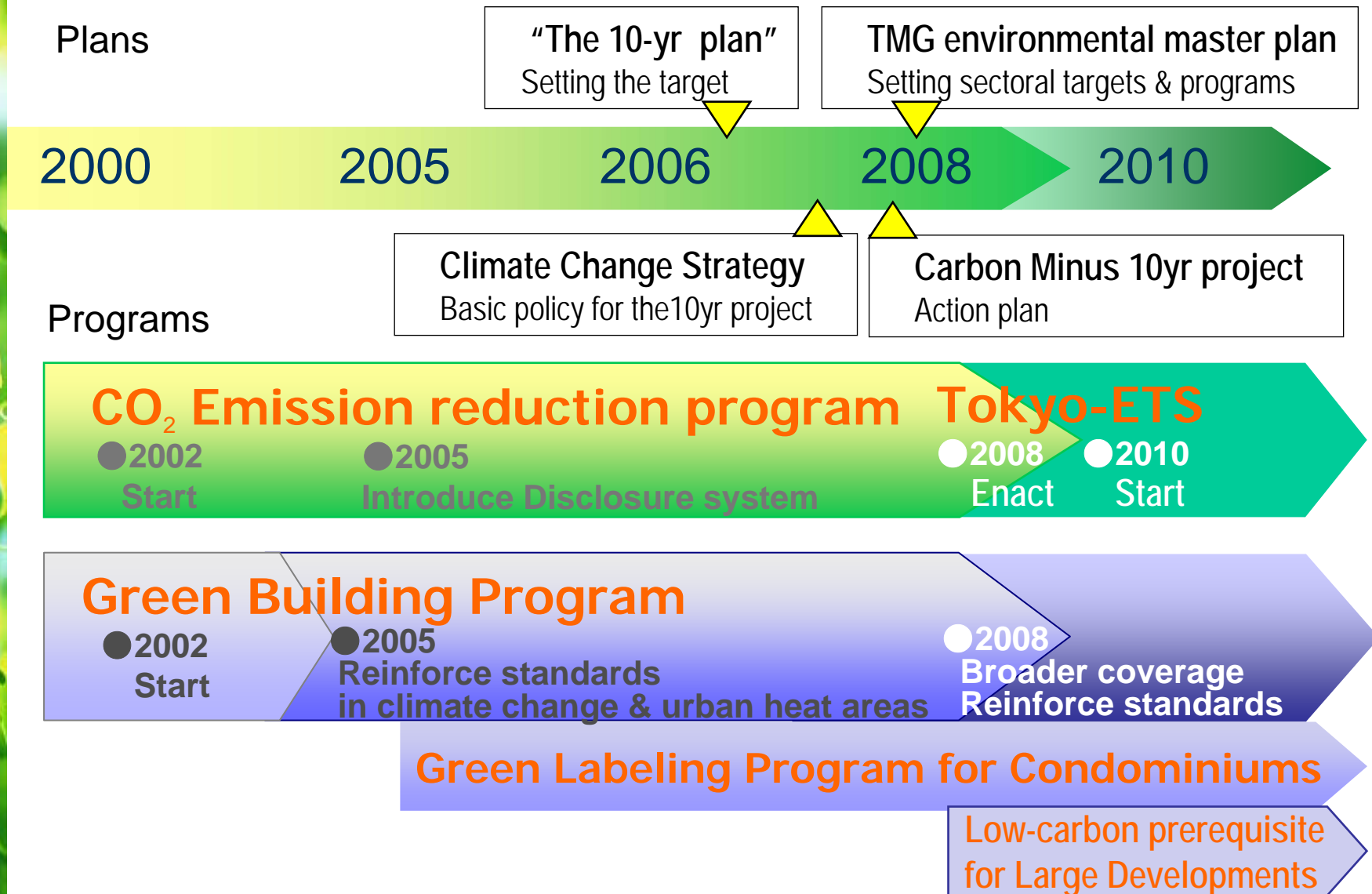
Taking an advantage of the early shift to a low carbon city to realize sustainable growth of Tokyo

Framework of Measures for the Buildings Sector



Not aiming to restrain urban business activities and development, but promoting the **shift toward greener, low carbon buildings**

Policy Development



An aerial photograph of a dense urban landscape, likely Tokyo, featuring numerous skyscrapers and a large green park area in the foreground. A semi-transparent white rectangular box is overlaid on the bottom portion of the image, containing the text.

2. Major Programs

Tokyo Cap& Trade Program

Tokyo Green Building Program

Mandatory emission reductions & Emission trading program

The world's first **urban cap and trade** program to cover office buildings

Target: 1,300 facilities

Facilities with annual energy consumption of 1,500 kl or more (crude oil equivalent)

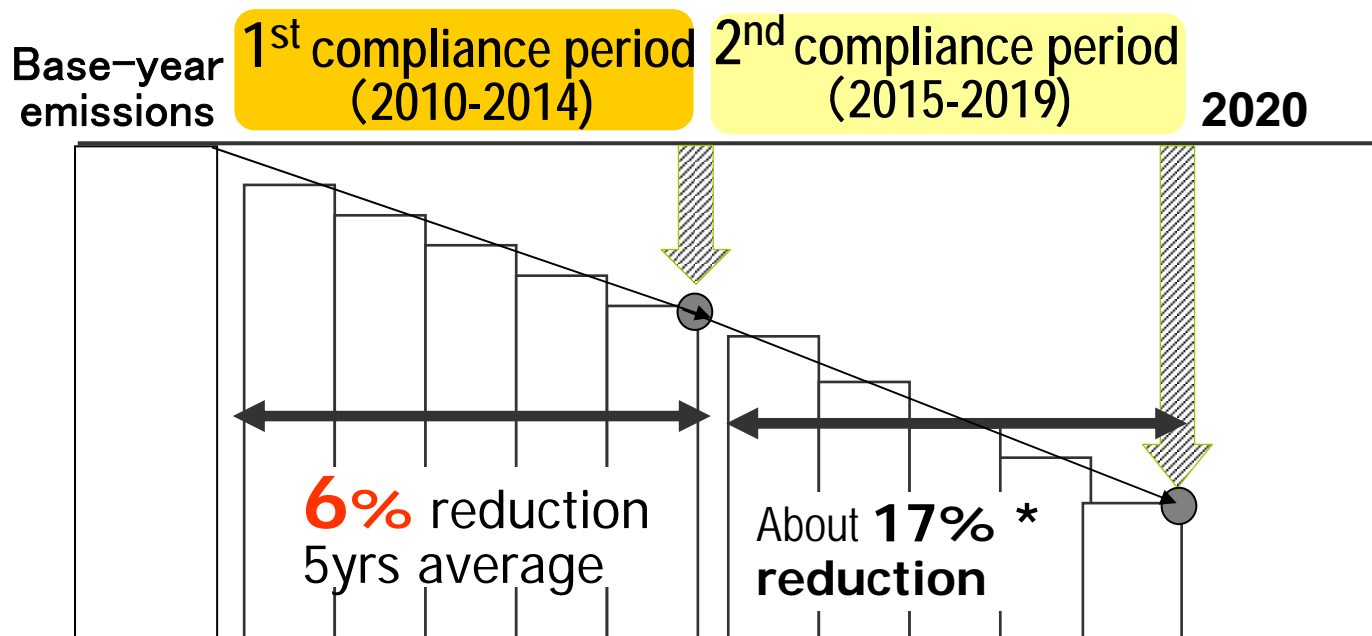
- Approx. 1000 commercial & institutional buildings
- Approx. 300 industrial facilities



Covers approx. 40% of commercial & industrial sectors' emissions

Cap Setting

To achieve the Tokyo's emission reduction target "By 2020 25% reduction from 2000", the necessary reduction in industry & commercial sector is 17% reduction



*

Current estimation.

The Cap for the 2nd compliance period will be fixed by the end of the 1st compliance period

Allowance allocations

Emission Allowance (5yrs)

$$= (\text{Base-year emissions} - \text{Obligation reductions}) \times 5 \text{ years}$$

Obligation reductions

$$= \text{Base-year emissions} \times \text{Compliance factor}$$

Base-year emissions : Average emissions of three consecutive years between 2002 to 2007

Category		Compliance factor
I -1	Commercial buildings, District cooling & heating facilities (plants)	8%
I -2	Commercial buildings using EHC	6%
II	Factories, etc.	6%
Top level	A facility already achieved high energy efficiency is certified as a: Top Level / Near-top level Facility	½ or ¾ of the compliance factor

Emission Trading & Offset Credits

Tokyo Cap & Trade Program

Emissions trading	Trading Amount: Reduction exceeding the obligation Emission reduction exceeding the yearly obligation is allowed to be traded from the 2nd year.
Offsets --Credits	<ol style="list-style-type: none">1. Emission reductions from small and midsize facilities within the Tokyo area<ul style="list-style-type: none">* Emission reduction by energy-saving measures2. Renewable Energy Certificates<ul style="list-style-type: none">* Solar energy (heat and power), wind energy, etc.3. Emission reductions outside the Tokyo area<ul style="list-style-type: none">* Sellers will be assumed to be covered under the Tokyo Cap-and-Trade Program, and reduction exceeding the reduction obligation would be counted as offset credit* Can only buy up to 1/3 of base year emissions

Green Building Program

Tokyo Green Building Program

Rating and Disclosure System To improve environmental performance of new buildings

Covered: Newly planned buildings over 5,000 sq. meters

Purpose: To create a real estate market where greener buildings are valued more

Requirement:

Building owner is required to employ eco-friendly design and to submit a “Building Environmental Plan” outlining the building’s environmental performance

Evaluation Items; Energy, Material, Greenery etc.

Rating: three rating grades (1-3)

Disclosure: Plan with ratings are displayed on TMG website



Covers about 40% of new buildings



TOKYO
METROPOLITAN
GOVERNMENT

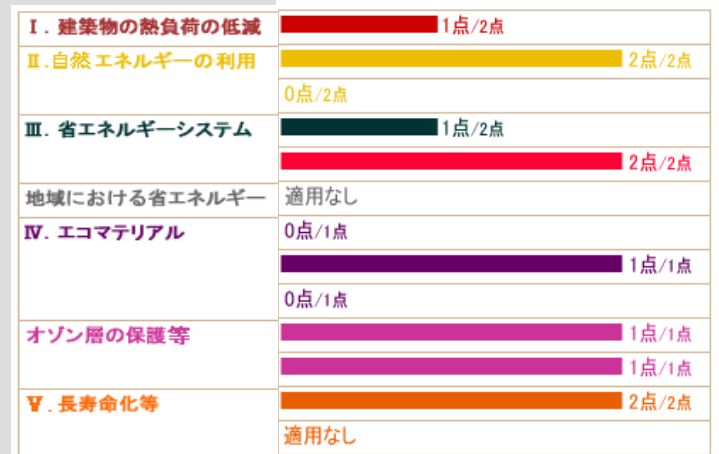
Tokyo Green Building Program



Category	Items
Energy	Heat load resistance of the building shell
	Use of renewable energy
	Energy Performance (Shells and equipments)
	Efficient operation systems
Resources, Material	Usage of eco-materials
	Protection of ozone Layers
	Longer building life expectancy
	Hydrological cycle
Natural environment	Greening (vegetation, landscape, etc.)bio-diversity
Heat-Island subject	Atmospheric heat waste
	Surface of ground and buildings
	Wind environment



● Charts display the rated results



建築物環境計画書制度



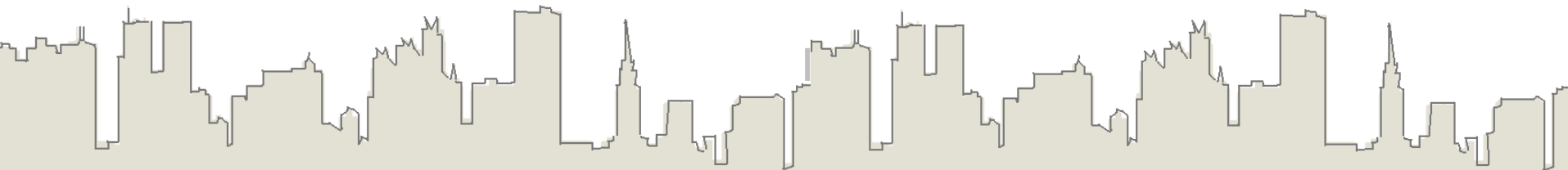
●Find buildings from a location map

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Energy performance certificate

Low Emission Buildings **TOP30** in Tokyo

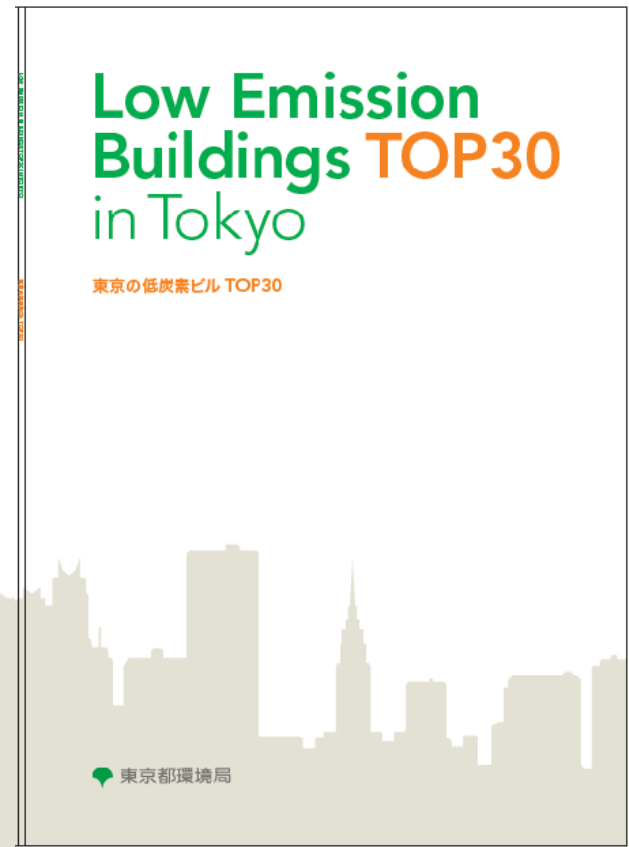


Selection of Low Emission Buildings TOP30

TOP30 buildings were selected in line with the policy measures of TMG.

Existing buildings section:
Highly valued in the C&T Program

New building section:
Based on the evaluation of the Green Building Program



TOP30 Existing Building Section

Top Level Facility Certification In the Tokyo Cap-and-Trade Program

Assessment category	Required	General	Extra credit
I. General Management Establishment of cooperative structures for energy conservations, energy management status	23	4	1
II. Energy Performance (building Shells and equipments) Energy efficiency of air conditioning, lighting, and other facilities, equipment efficiency (COP), etc.	26	39	45
III. Operations Indoor temperature and humidity management, facility maintenance and management, etc.	25	56	9
Total	228 items		

TOP30 New Building Section

Assessment of Energy Performance In the Tokyo Green Building Program

Assessment category	Criteria
I. Heat load resistance of the shell Heat insulation of walls and windows, measures for shielding them from sunlight, etc.	20% or higher reductions from PAL standard (the national standard)
II. Energy efficient equipments Introduction of energy saving measures in the facilities (air conditioning, lightings, ventilation, water heating, and elevators)	30% or higher ERR standard (aggregation of the national standard)
III. Efficient operation systems Measurement and energy management system for optimal operation	Level 2 or higher Ex; Introduction of certain level of BEMS
IV. Use of renewable energy On-site installation of renewable energy including PV and solar heat system	Amount of renewable energy introduced Ex; 30kW in the case of PV

TOP30 Building List

東京の低炭素ビルTOP30 所在地マップ

EXISTING BUILDING

- 1 Dentsu Shiodome Head Office Building
- 2 Ginza Mitsui Building
- 3 Hibiya International Building
- 4 Meiji Yasuda Seimei Building and Meiji Seimei Kan Building
- 5 Mitsubishi Shoji Building
- 6 Marunouchi Building
- 7 Nihonbashi Mitsui Tower
- 8 Otsuka Corporation Head Office Building
- 9 Roppongi Hills
- 10 Sapia Tower
- 11 Shin-Otemachi Building
- 12 Sony City
- 13 Tokyo Midtown
- 14 Toranomon Towers Office
- 15 Kokuryu Shiba Koen Building

Alphabetical order

NEW BUILDING

- 16 Chiyoda Ward Koujimachi Junior High School
- 17 Fujimi Mirai Kan
- 18 JP Tower (tentative name)
- 19 Kasumigasaki Common Gate Central Government Building No.7
- 20 Kyobashi 3-1 Project (tentative name)
- 21 Marunouchi 1-4 Project New Building (tentative name)
- 22 Marunouchi Park Building
- 23 Shimizu Corporation New Headquarters Construction Project
- 24 Shopping Center at 1-1 block in the first south area of Musashi-Koganei Station
- 25 Sony Corporation Sony City Osaka
- 26 Takenaka Corporation Tokyo Main Office
- 27 Tokyo Metropolitan Matsuzawa Hospital
- 28 Toyosu Cubic Garden
- 29 Obayashi Corporation Technical Research Institute Main Building (Tecno-Station)

