

Tokyo Cap-and-Trade Program (for large facilities)

Introducing the world's first urban cap-and-trade scheme

In April 2010, the Tokyo Metropolitan Government (TMG) introduced Tokyo Cap-and-Trade Program, which sets mandatory CO₂ emissions reduction targets for large facilities.

This program is not only the first cap-and-trade scheme in Japan but also the world's first urban cap-and-trade scheme that covers the commercial sector as well, including office buildings that are often concentrated in megacities.



Top-level facilities



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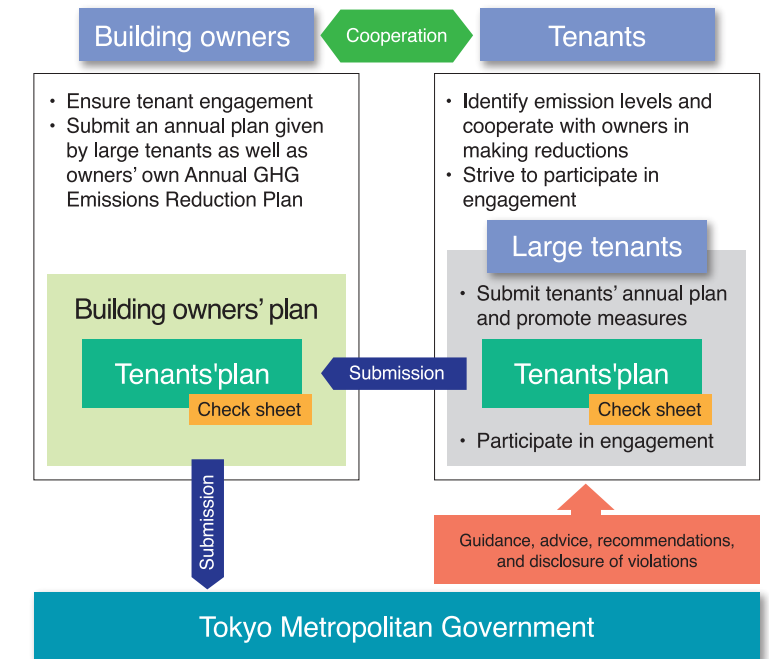
Certification of top-level facilities

In the Tokyo Cap-and-Trade Program, facilities demonstrating outstanding performance in emissions reduction as well as in the introduction, use, and management of energy efficient equipment are certified as top-level facilities. These facilities receive lower compliance factors according to their rate of progress and are used as indicators for energy efficiency measures when a building is designed or upgraded.

- Covered facilities** number approximately 1,300 facilities whose annual energy consumption is greater than 1,500 kL of crude oil equivalent. They have obligation to submit annual GHG emission reduction plan to TMG.
- There are five-year **compliance periods** to allow for flexible actions based on individual facility owner's equipment replacement plans.
- Emission allowances** are defined as base-year emissions * (1 - compliance factor **) * 5 years.
 - ***Base-year emissions** are the average of any three consecutive fiscal years between 2002 and 2007, which enables facilities to incorporate the results from their emissions-reduction efforts in past years.
 - ****Compliance factor** is 6% for factories, etc. or 8% for offices, etc. in the first compliance period. The factor is 15% or 17% respectively in the second compliance period.
- Compliance:** In addition to reducing emissions at their own facilities, facilities can meet their obligation by means of emissions trading (i.e. procuring excess credits from other covered facilities and offset-credits, such as renewable energy credits).
- Enforcement:** If mandatory emissions reduction targets are not met, an Order for Action will be issued to compel non-compliant facilities to reduce 1.3 times the amount of the target shortfall. In the case of non-fulfillment of this requirement, the facility will be fined and the violation made public. In addition, they will have to pay for offset credits procured to cover the shortage.

Encouragement of energy efficiency measures for tenants

In leased buildings, energy efficiency measures cannot necessarily be achieved by owners' efforts alone. To realize emissions reduction across the whole building, cooperation between owners and tenants must be ensured. Therefore, the Tokyo Cap-and-Trade Program mandates that tenants in covered facilities cooperate with building owners in pursuing energy efficiency measures in order to encourage energy efficiency in leased buildings.



Emission allowances

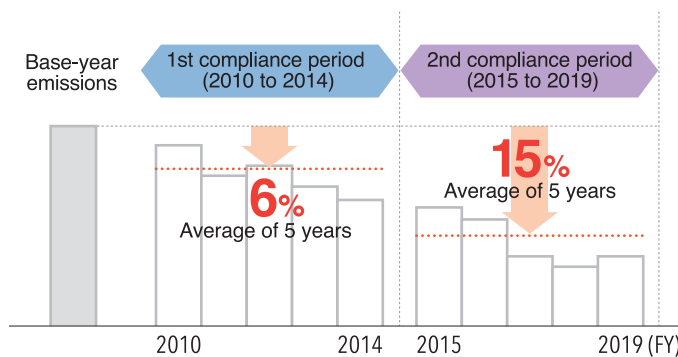
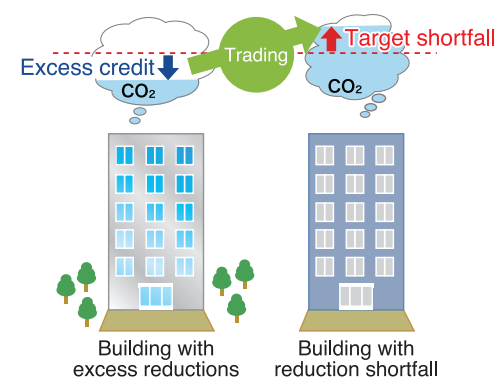
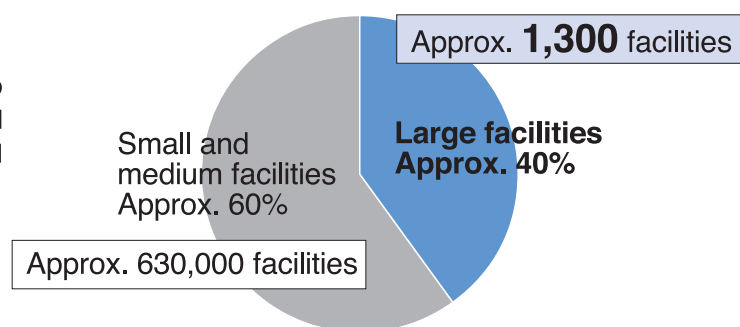


Illustration of emission trading



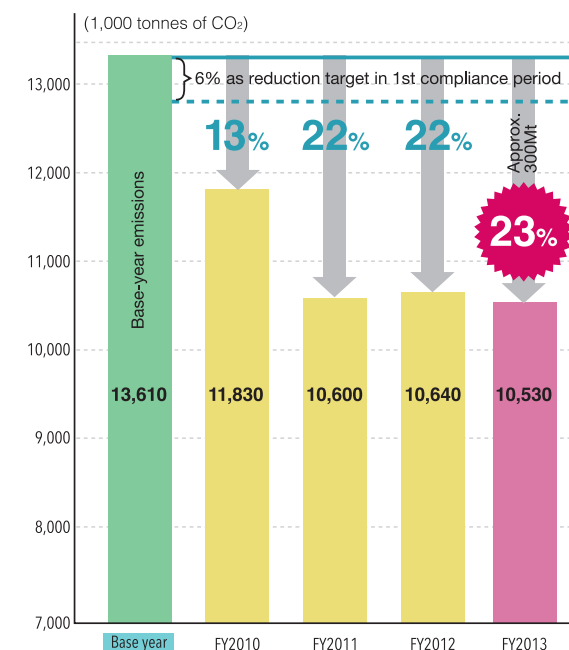
CO₂ emissions from industrial and commercial sectors in Tokyo

Approximately 1,300 facilities covered by the Tokyo Cap-and-Trade Program are responsible for around 40% of total CO₂ emissions from all industrial and commercial facilities in Tokyo.

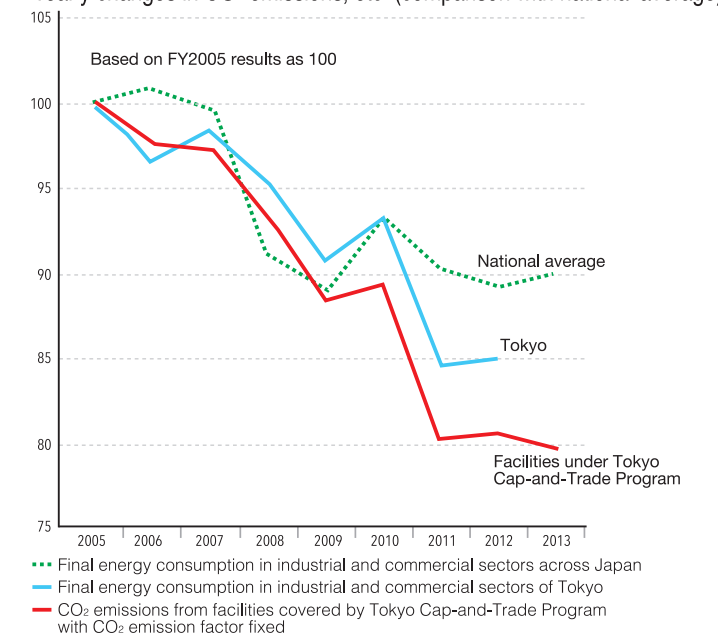


Achievements

- In FY2013, total CO₂ emissions of covered facilities were reduced by 23% as shown below left. Approximately 90% of facilities outperformed the compliance factor and from among them "half carbon buildings" emerged with CO₂ emissions intensity less than half that of the base year.
- Power saving and energy efficiency has been rooted in covered facilities, resulting in CO₂ reductions that are double the national levels as shown below right.
- Since the commencement of this program, facility owners have become more interested in CO₂ reductions and more aggressive in incorporating energy efficient equipment.



Yearly changes in CO₂ emissions, etc. (comparison with national average)



Carbon Reduction Reporting Program (for small and medium facilities)

Encouraging energy efficiency at 630,000 small and medium facilities in Tokyo

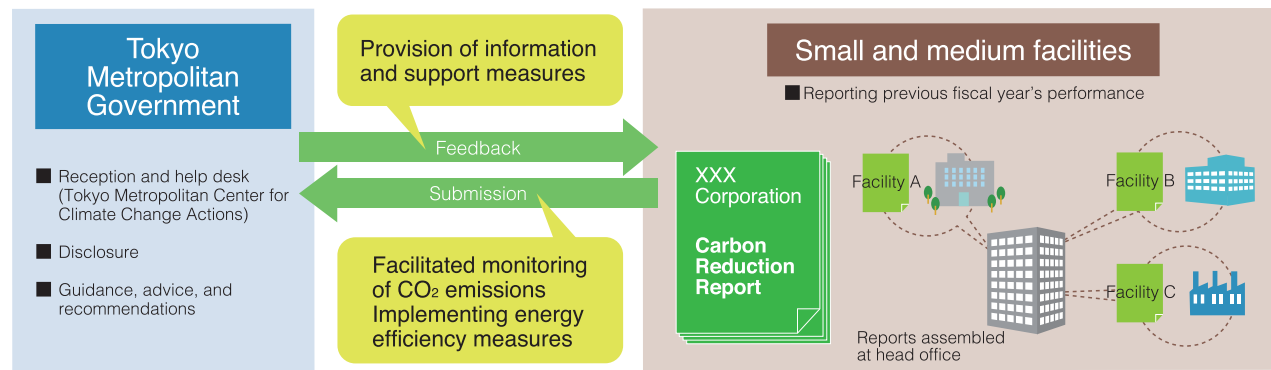
Through this program, small and medium facilities can easily calculate their own CO₂ emissions and get ready to take specific energy efficiency measures.



Office buildings in Tokyo

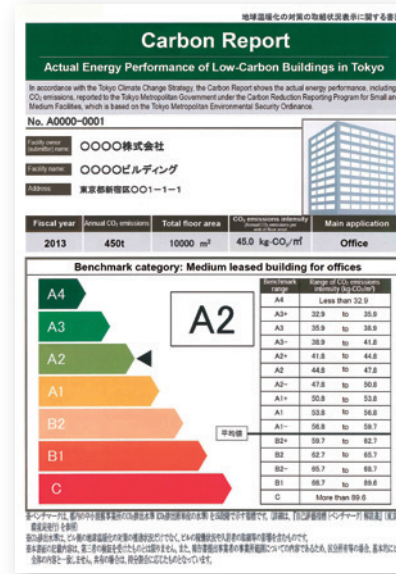
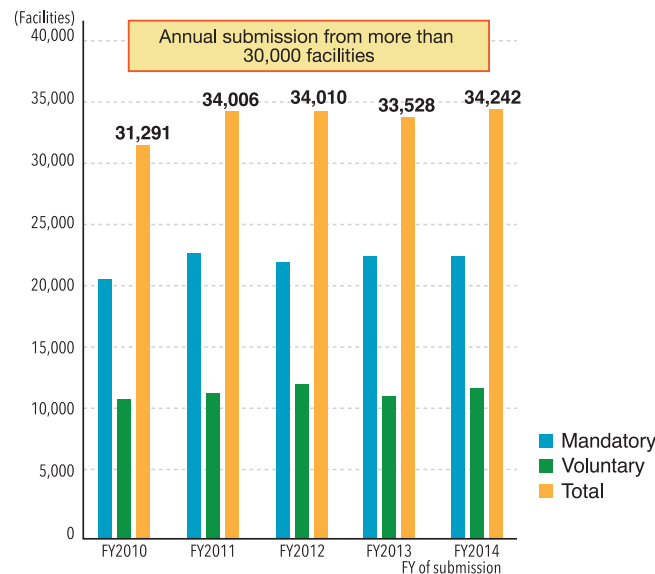
- **Covered facilities** number approximately 630,000 facilities that are not covered by the Tokyo Cap-and-Trade Program.
- **Purpose** is to encourage climate change countermeasures at small and medium facilities that are not imposed mandatory reduction targets.
- **Mandatory report submission** is applied to business operators with multiple facilities located in Tokyo whose combined total annual energy consumption is greater than 3,000 kL of crude oil equivalent. Other business operators may also submit the report at their discretion.

Schematic view of Carbon Reduction Reporting Program for Small and Medium Facilities



Achievements and support measures

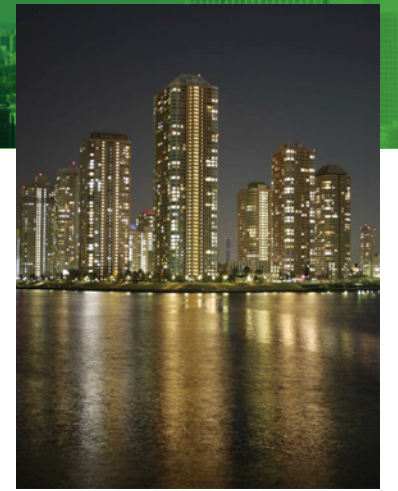
- Over 30,000 facilities submit the report every year.
- Total CO₂ emissions at covered facilities in FY2013 reduced by 11% from FY2010 preceding the Great East Japan Earthquake.
- Support measures provided by the TMG include the Carbon Report, which clearly shows energy efficiency levels at leased buildings based on reported data, free energy audits, and training for energy efficiency improvement measures.



Tokyo Green Building Program (for new buildings)

Promoting environmentally superior new architectural developments and reducing environmental impacts of new buildings

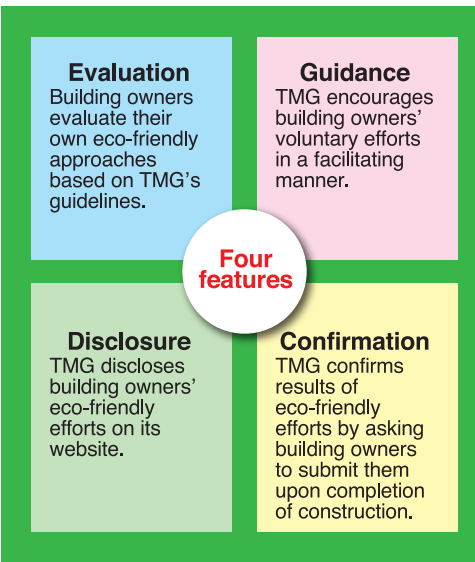
This program encourages voluntary approaches by owners who build or renovate large buildings by requiring them to submit a green building plan to be disclosed by the TMG.



Large condominiums in Tokyo

- **Covered facilities** are new residential and non-residential buildings with total floor area of more than 2,000 m², with those larger than 5,000 m² mandated to submit the plan.
- **Purpose** is to create a real estate market where greener buildings are more highly evaluated.
- **Obligation:** Based on the TMG's guidelines, owners of large buildings are required to employ eco-friendly design and submit Green Building Plan outlining the building's environmental performance to TMG.

Program features

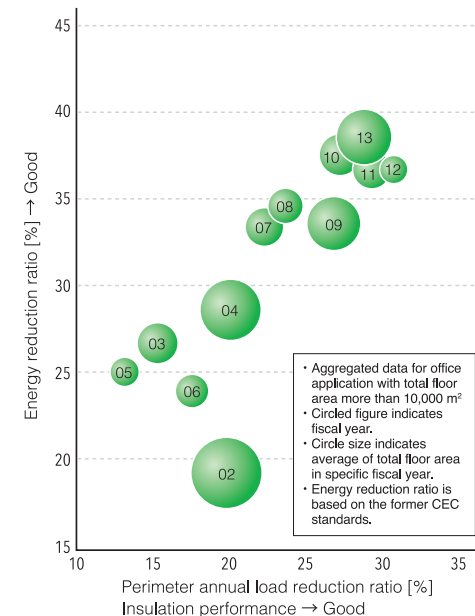


Assessed categories/items

Rational use of energy	Heat load resistance of building shell
	Use of renewable energy
	Energy performance of shell and equipment
Proper use of resources	Efficient operation
	Use of eco-materials
Environmental conservation	Ozone layer protection and climate change mitigation
	Longer building life expectancy
Mitigating heat-island effect	Hydrological cycle
	Greening (vegetation, landscaping, etc.) and biological diversity
Mitigating heat-island effect	Measures against artificial exhaust heat from building equipment
	Covering ground and building surfaces
	Provision for wind environment

Environmental performance transition of non-residential buildings

In the non-residential building sector (office use), both the energy and perimeter annual load reduction ratios have improved as shown on the left.



Green Labelling for Condominiums

Condominiums account for approximately half of the buildings covered by the Tokyo Green Building Program. Condominium owners are required to display the environmental performance label shown below on any advertisement upon sale or lease.

