

# Strategy



## Sustainable City

Along with passing on a system for efficient use of energy to future generations, we will create urban spaces in harmony with the environment. We will also leave a legacy of urban infrastructure by extending the life of facilities or renewing them, and build a city where people of all generations can live with a sense of security. Various approaches will be taken to make Tokyo a sustainable city.



## Approach 20

### Make Tokyo a smart energy city

Multiple energy initiatives are underway to ensure the sustainable development of Tokyo, including more widespread introduction of energy management measures and the expanded use of hydrogen energy. These will allow Tokyo to realize high levels of energy efficiency, comfort, and disaster preparedness and to safeguard its growth over the long term.

# Tokyo in the Future

## ► Leading the World in Energy Efficiency

Initiatives taken at business establishments such as Tokyo's cap-and-trade program<sup>\*1</sup>, as well as the enhanced insulation of residences and installment of home energy management systems (HEMS)<sup>\*2</sup>, are making steady advancements. Furthermore, thanks to the formation of systems for heat and power sharing between communities, energy utilization efficiency is rising, and overall energy consumption is falling.

### ► Energy consumption

2030

**-30%**



(Energy use reduced by 30 percent over 2000 levels by 2030)

	Target year	Target level
Compulsory reduction of greenhouse gas emissions in the second compliance period of Tokyo's cap-and-trade program	FY2015 to FY2019	17% or 15% below base year
Installation of cogeneration systems (CGS) <sup>*3</sup> for business use	2024	60 MW (double that of FY2012)

## ► Expanded Use of Renewable Energy

The introduction of renewable energies utilizing methods suited to the situation in Tokyo, which does not have enough space, is progressing. These include the installation of solar power generation systems on top of parking structures and the roofs of houses and facilities.

### ► Use of renewable electric energy

2012

approx **6%**

2024

► approx **20%**



### ► Installation of photovoltaic solar power generation systems

2024

**1,000** MW

<sup>\*1</sup> A system that sets limits for greenhouse gas emissions for large-scale businesses and allows transfer or acquisition of surplus through trading.

<sup>\*2</sup> A system that aims to reduce energy consumption through efficient management of use of energy and appliances in homes.

<sup>\*3</sup> A system that uses the heat emitted from power generation for heating and cooling.

## ▶ Aiming to Realize a Hydrogen Society

Hydrogen is a clean energy source that does not produce CO<sub>2</sub> when used. We are expanding the use of fuel cell\*<sup>4</sup> vehicles and the establishment of hydrogen stations\*<sup>5</sup>.

### ▶ Fuel cell vehicles

2020

**6,000**



### ▶ Fuel cell buses

2020

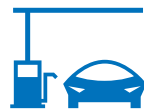
**100** or more



### ▶ Hydrogen stations

2020

**35**



### ▶ Residential fuel cells

2020

**150,000**



\*<sup>4</sup> A clean system in which the reaction between hydrogen and oxygen in the air is converted directly into electricity, with only water generated when the reaction occurs.

\*<sup>5</sup> A facility that supplies hydrogen to fuel cell vehicles.

A decorative vertical bar on the left side of the page. It features a series of overlapping triangles in various shades of blue, purple, and teal. At the bottom, there are two photographs of park-like settings with trees and water.

## Approach 21

### Achieve harmony with nature

In order for Tokyo to become the best city in the world, it would be indispensable for our mature city to continue to develop while protecting its beautiful natural environment. With flowers and greenery adding color to the cityscape, we will create an attractive city that is rich and restful and in harmony with nature, even in the city center.

## ► A Green City

Rich green environments exist in the city such as parks, green spaces, and greenery on private sector buildings. We are also promoting conservation activities aimed at preserving habitats for rare species of plants and animals.

## ► A Clean Waterfront Environment

The number of clean waterfront areas has increased through our further efforts to improve water quality, including measures to enhance the sewerage system. We also have environments where people can enjoy the charms of the waterfront, including the beach in Kasai and the Shibuyagawa river.

	Target year	Target level
Increase sewage storage facility capacity for the early stages of a downpour	FY2023	Total of 170m <sup>3</sup>



## ► Clean Air and Comfortable Spaces

The amount of air pollutants emitted by cars, ships, and other sources has fallen, and air quality has further improved. Roads in the center of Tokyo have solar heat blocking pavements and water-retentive pavements, and there are now more cool spots to provide comfort from the summer heat.

	Target year	Target level
Achievement of PM2.5 air quality standards	FY2024	Improved to 100%



## Approach

# 22

### Enhance the safety and reliability of urban infrastructure

Much of the infrastructure supporting Tokyo will be simultaneously due for renewal in the near future. To prepare for this, Tokyo will maintain safety through substantial maintenance and management, and undertake renewals systematically while also upgrading functions. These efforts will ensure a high-quality urban infrastructure for future generations.

# Tokyo in the Future

## ► Maintenance Using Cutting-edge Technology

Further advancements are seen in safety management that utilizes cutting-edge technologies such as a method for sewer line renewal that does not affect daily life in the area and the use of high-resolution cameras when performing tunnel inspections.



## ► Systematic Renewal and Function Upgrades

Progress has been made with respect to extending the service life of bridges and reconstructing sewer lines. Urban functions for disaster resistance and energy efficiency have also been upgraded.

		Target year	Target level
Extension of bridge service life	Bridges undergoing measures	FY2024	Total of 160
	Famous bridges over Sumida River undergoing measures	FY2020	11 completed
Renewal of sewer lines	4 early developed areas in the city center	FY2029	100% completed (16,300ha)







## Approach 23

### Redevelop the urban structure for an aging society

One option for the future urban structure of Tokyo is realignment to a more compact community structure. Major built up areas will be redeveloped to concentrate their functions around train stations.

We will also make city life safe and pleasant for residents of all generations by securing good quality housing stock and by rebuilding or renovating large-scale housing complexes.

## ► Compact Communities

By systematically building housing, commercial facilities, and medical care, senior welfare, and child care facilities around railway stations, vitality and energy has been added to communities, creating an urban residential space comfortable for everyone.

## ► Revitalizing Large-Scale Residential Developments

In Tama New Town and other areas where the graying of the population is progressing, we have worked with local municipalities to rebuild deteriorating public housing developments and condominiums and to make public facilities barrier free, creating communities where multiple generations can continue living with peace of mind.

	Target year	Target level
Reconstruction of metropolitan housing	FY2020	Partial completion (Suwa housing complex)

## ► Securing Quality Housing

The concept of making things that are of high quality and using them with care over a long period of time is also prevalent in the area of housing. Through the effective use of vacant housing and the regeneration of deteriorated condominiums, we have a good living environment that makes use of existing housing.





## Key Terms to Understand Strategy 7

### ► ZEB (Zero-Energy Building)

Approach 20

Buildings with zero net energy consumption achieved through energy efficiency and the use of renewable energy are called zero-energy buildings (ZEB). Efforts led by developed countries to realize the zero net energy consumption concept are moving forward.

### ► Utilization of hydrogen energy

Approach 20

Hydrogen can be derived not only from fossil fuels, but from a variety of materials and methods, including the electrolysis of water. Unlike electrical energy, it is possible to store large quantities of hydrogen and transport it over long distances. In particular, hydrogen derived from biomass or wind and solar generated electricity is the ultimate clean energy, as no CO<sub>2</sub> is emitted during the production process as well.

### ► Passing greenery down to the next generation

Approach 21

With the decline of the population and other changes occurring within society, a discussion on Tokyo's greenery policy in the future is unfolding. Tokyo will outline the direction to be taken with respect to the creation of greenery over a wide area, conservation goals, and other aspects in the grand design for greenery.

### ► Measures against the summer heat

Approach 21

The application of pavement materials that mitigate the daytime rise in road surface temperature is steadily underway. By installing dry mist cooling systems and promoting the development of greenery, we will increase the number of cool spots capable of alleviating heat.

### ► Preventive maintenance

Approach 22

Preventive maintenance programs that extend the service life of infrastructure through systematic repair and reinforcement will be advanced. In addition to bridges and sewer lines, programs will also be implemented for the port and river embankments, and road tunnels.

### ► Residential safety net

Approach 23

Programs to ensure suitable housing for those who need support in securing housing are being strengthened. As part of these programs, Tokyo will move forward with the reconstruction of up to 4,000 metropolitan housing units annually.

### ► Large-scale renewal of expressways

Approach 22

With respect to metropolitan expressways, a legacy from the 1964 Tokyo Games, work will be undertaken to implement large-scale renewal and repairs, advancing the rebirth of the urban infrastructure that serves as the backbone of Tokyo.