Outline of Zero Emission Tokyo Strategy 2020 Update & Report

Zero Emission Tokyo 1.5

Zero Emission Tokyo Strategy
2020 Update & Report

Trends in Climate Change - Two Crises Facing the World

- In the year since the formulation of the Zero Emission Tokyo Strategy, we have been confronted with two crises: the **threat of infectious diseases** and the **climate crisis** that has become even more serious
- There is a **concern about rebound although global CO_2 emissions have fallen sharply** due to the stagnation of socio-economic activities caused by COVID-19

→ The post-corona era should not mean just returning to our previous state—we need to **aim for a sustainable society by increasing our resolve to take actions against the climate crisis, taking into account various changes in society seen during the COVID-19 crisis**

Climate crisis raging in the midst of the COVID-19 crisis

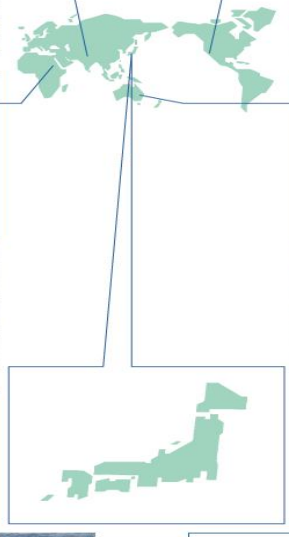
Impact of major weather disasters in recent times

Melting glaciers
India (February 2021)
- Collapse of Himalayan glaciers resulting in river flooding
- More than 200 people dead or missing

Forest fires
California, USA (2020)
- Approx. 17,000 km² burnt, equivalent to the area of the Kanto Plain
- Over 30 deaths
  Approx. 10,000 buildings damaged

Crop damage (Desert locusts)
Africa and the Middle East (2020)
- Large outbreak attributed to heavy rains of a cyclone
- USD 8.5 billion estimated losses (JPY 902.7 billion *calculated using ¥106.2)
- Over 35 million people* facing food insecurity
  * Total in the most affected countries - Ethiopia, Kenya, Somalia, the Sudan, and Yemen

Forest fires
Southern and eastern Australia (July 2019 - March 2020)
- Approx. 190,000 km² burnt, affecting approx. 3 billion animals
- Over AUD 2 billion estimated insurance losses
  (JPY 166.4 billion *calculated using ¥83.2)

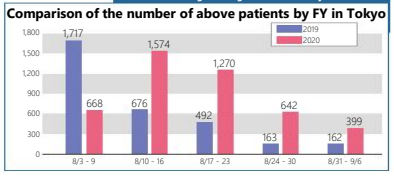


Source Food and Agriculture Organization of the United Nations

Heavy rains
Throughout Japan (July 2020)
- 84 deaths
  16,599 houses damaged
- JPY 220.8 billion damage to agriculture, forestry, and fisheries

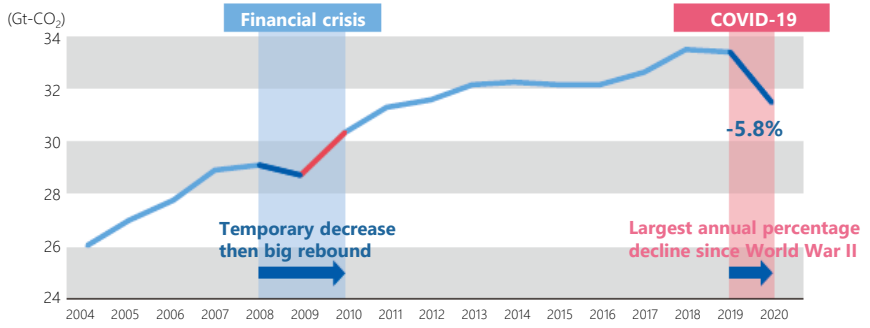
Extreme heat
Throughout Japan (August 2020)
- 41.1°C in Hamamatsu City, Shizuoka Prefecture, on par with the highest temperature in Japanese history
- 43,060 patients seeking emergency care for heatstroke throughout Japan in August
  * Record high for August since the survey started in 2008

Comparison of the number of above patients by FY in Tokyo



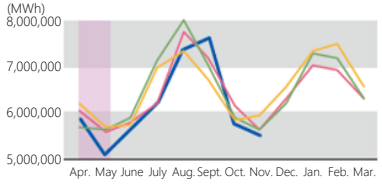
Changes brought about by COVID-19

Global CO_2 emissions decreased by 5.8% from 2019

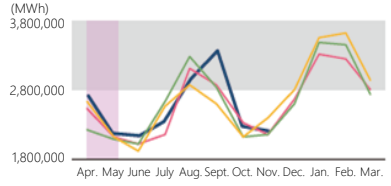


Electricity demand in Tokyo decreased overall but demand for low-voltage electricity for households etc. increased

Total of extra high voltage, high voltage, low voltage



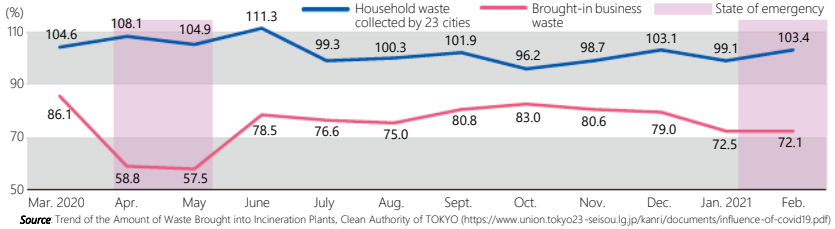
Low voltage



FY 2017 FY 2018 FY 2019 FY 2020 State of emergency

Source Electricity Survey Statistics, Agency for Natural Resources and Energy (https://www.enecho.meti.go.jp/statistics/electric_power/ep002/results.html)

As for the amount brought into 23 cities' incineration plants, household waste increased but business waste decreased from 2019



Source Trend of the Amount of Waste Brought into Incineration Plants, Clean Authority of TOKYO (https://www.union.tokyo23-seisou.lg.jp/kanri/documents/influence-of-covid19.pdf)

Trends in Climate Change - The Dawn of the Era of Mega-Competition for Decarbonization

- **The trend toward a decarbonized society is significantly expanding** in the world—**the United States and China are making a major shift to decarbonization** as well as European and other countries pushing for a **green recovery** to "build back better" from the COVID-19 crisis while coping with the climate crisis
- The **framework for decarbonization developed by non-state actors**, such as cities and businesses, **is also expanding** while the movement to decarbonize the entire **supply chain** or raise funds to promote decarbonization is becoming more active

Trend of decarbonization expanding around the world

Movement for carbon neutrality in each country

Name	Movement
USA	Announced net zero GHG emissions by 2050 Rejoined the Paris Agreement (Feb. 2021)
China	Announced net zero CO_2 emissions by 2060 (Sept. 2020)
Japan	Announced net zero GHG emissions by 2050 (Oct. 2020)

124 countries and one region have announced the goal of carbon neutrality by 2050 (as of January 20, 2021)

Source: Website of Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry

Examples of green recovery in each country

Name	Example
EU	Consider climate change measures as one of core elements in the recovery fund, allocating more than 30% of the entire budget to this end
UK	The Ten Point Plan for a Green Industrial Revolution (Nov. 2020) ➢ Mobilize GBP 12 billion (approx. JPY 1.7 trillion) of government funds
Germany	Comprehensive Economic Stimulus Package (June 2020) ➢ Utilize more than EUR 33 billion (approx. JPY 4.1 trillion) for climate change measures
South Korea	Korean New Deal (July 2020) ➢ Appropriate KRW 73.4 trillion (approx. JPY 7.3 trillion) for environmental measures

Global GHG emission reduction targets

2030 targets	
EU	**55%** from 1990
London	**60%** from 1990
Paris	**50%** from 2004
New York	**40%** from 2005

(As of the end of Feb. 2021)

Accelerated decarbonization movement in cities, businesses etc.

Race To Zero, the world's largest campaign to bring together efforts for decarbonization by non-state actors under the UNFCCC (United Nations Framework Convention on Climate Change)

RACE TO ZERO
Climate Ambition Alliance

Participants consist of 471 cities including Tokyo, 22 regions, 1,675 businesses, 85 major investors, and 569 universities (as of March 22, 2021)

International initiatives of businesses aiming for decarbonization

SBT (Science Based Target)

615 certified businesses including 91 Japanese businesses

* GHG emission reduction targets set by businesses to hold the temperature rise to 1.5°C

RE100 (Renewable Energy 100%)

291 participating businesses including 50 Japanese businesses

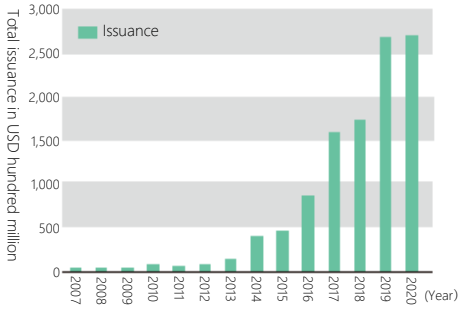
* Efforts aimed at covering all business operations with renewable power alone

Source: Website of the Ministry of the Environment (Mar. 9, 2021)

Expanded decarbonization movement in economic activities

- ✓ Mainly at global businesses, there is a growing movement that requests decarbonization efforts from business partners to decarbonize the entire supply chain
- ✓ Active use of green or sustainability bonds has resulted in an increase in the amount issued worldwide

Changes in the issuance of green bonds in the world



Source: Changes in the Issuance of Green Bonds in the World, Ministry of the Environment

TIME TO ACT: Now is the Time to Accelerate Effective Actions – Start Actions for "Carbon Half" by 2030 –

- As the world rapidly moves toward a decarbonized and sustainable society, Tokyo takes responsibility as a major city to accelerate actions against the climate crisis that has become even more serious, with the perspective of a **sustainable recovery** from the COVID-19 crisis as shown in the Climate Emergency Declaration: TIME TO ACT
- The **10 years leading up to 2030 are extremely important** for the realization of net zero CO_2 emissions by 2050. Many nations are aiming at achieving 1.5°C consistent pathways set by the IPCC's Special Report

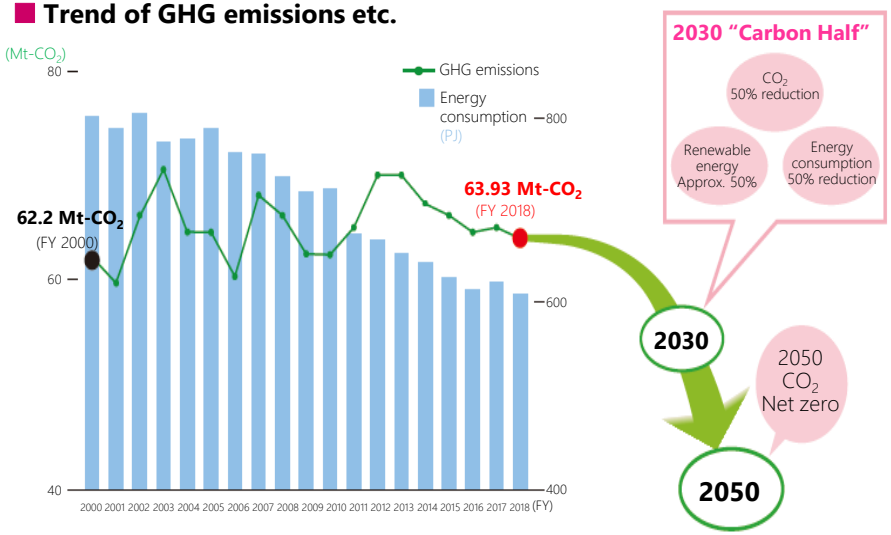
→ As a milestone to accelerate actions, TMG has **announced "Carbon Half"** that will halve GHG emissions by 2030, and is **advocating a new vision of social change, Carbon-Half Style toward 2030**

Strengthening five 2030 targets that support the acceleration of actions

	(Existing targets)		
➢ Reduction of GHG emissions in Tokyo compared to 2000	30%	⇒	**50%***
➢ Reduction of energy consumption in Tokyo compared to 2000	38%	⇒	**50%***
➢ Percentage of power generated by renewable energy	Approx. 30%	⇒	**Approx. 50%***
➢ Phasing out the sale of new gasoline-only passenger cars in Tokyo		⇒	**100%**
➢ Phasing out the sale of new gasoline-only motorcycles in Tokyo		⇒	**100%** (by 2035)

* TMG will discuss further these targets and initiatives for these aspects in the Tokyo Metropolitan Environmental Council

Trend of GHG emissions etc.



2030 Carbon-Half Style

✓**The year of 2030 virtually defines the society in 2050**

✓Need to **establish a social foundation for decarbonization** going beyond the target of halving GHG emissions in 2030

Advocate "2030 Carbon-Half Style"

Aiming to reconstruct and redesign the entire social system in 2030 into a sustainable one capable of halving our carbon output

Reference: Highlights of the strategy

Highlights of the Zero Emission Tokyo Strategy (December 2019)

- Start taking action by acknowledging the climate crisis and sharing the visions of net zero emissions by 2050
- Announce 2050 goals and 2030 targets for each sector, specific policy development

Highlights of the updated version (March 2021)

- **Accelerate** actions by sharing **2030 Carbon-Half Style**
- Update the roadmap for each sector and announce the **visions of social change for 2030** and **policy approaches** to realize them

Updating Policies

- For the realization of "Carbon Half" by 2030, present **26 visions for social change**, **36 approaches**, and **94 efforts to be immediately accelerated and strengthened** by updating roadmaps for six sectors and 14 policies set forth in the Zero Emission Tokyo Strategy
- Strengthen and accelerate the efforts by **formulating individual plans focusing on climate change adaptation, measures against food waste, and TMG's initiatives for its own sustainability**

Six sectors and 14 policies to promote specific efforts

* Formulate **individual plans and strategies** for sectors requiring prioritized measures

I	Energy sector	(1) Make renewable energy a major energy source (2) Expand the use of hydrogen energy	
II	Urban infrastructure sector [Buildings]	(3) Expansion of zero emission buildings	
III	Urban infrastructure sector [Transport]	(4) Promote the spread of zero emission vehicles (ZEVs)	ZEV Promotion Strategy
IV	Resource/industry sector	(5) 3Rs (6) Plastics (7) Food waste (8) Fluorocarbons	Plastic Strategy NEW Food Loss and Waste Reduction Plan
V	Climate change adaptation sector	(9) Strengthening adaptation measures	NEW Tokyo Climate Change Adaptation Plan
VI	Engagement and inclusion	(10) Cooperate with various actors in movements and reform of social systems (11) Strengthen cooperation with local municipalities (12) TMG's initiatives for its own sustainability (13) Strengthen cooperation with cities and non-states actors around the world (14) Promote sustainable finance	NEW Zero Emission TMG Action Plan

Realizing a Zero Emission Tokyo

Roadmap for each policy

Update

Strengthening five 2030 targets

- GHG emissions
- Energy consumption
- Percentage of power generated by renewable energy
- Phasing out the sale of new gasoline-only passenger cars in Tokyo
- Phasing out the sale of new gasoline-only motorcycles in Tokyo*

* 2035 target

94 efforts immediately accelerated and strengthened

26 visions for 2030 Carbon-Half Style

The image or vision of social change necessary for 2030

- **36 approaches for 2030 Carbon-Half Style**

Goal – Visions — 2050

Tokyo's visions for 2050

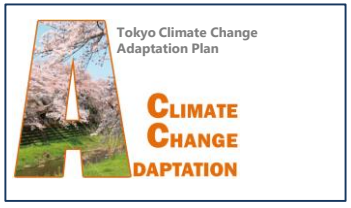
Challenges – Improvements

Items needing a leap to reach the goal

Milestone – Waypoint to the goal — 2030

Targets to reach by 2030

2020



“2030 Carbon-Half Style” and Primary Efforts/Approaches by Policy Area

	2030 Carbon-Half Style (Excerpt)	Primary efforts/approaches
Renewable energy	• Expansion of solar power generator installation and self-consumption in Tokyo **in collaboration with private businesses and others** • **Urban development premised on the use of renewable energy**, including the use of electricity from renewable energy generated outside Tokyo and the utilization of decarbonized heat	• **Promote the introduction of solar panels** with no initial cost and **support the installation of storage batteries** • **In collaboration with private businesses,** strongly promote the installation of solar panels and the self-consumption through the installation of storage batteries **taking advantage of installation potential** • Promote **PPA*** **outside Tokyo** * Power purchase agreement that promises to purchase electricity from renewable power sources for a certain period of time
Hydrogen	• Accelerating **the use of hydrogen energy** while expanding the supply and demand of hydrogen in the Tokyo metropolitan area • Building the foundation for the use of hydrogen generated from renewable energy etc. from 2030 onward	• Support environment-friendly **multi-energy stations**, including those having a hydrogen station installed in an existing gas station • **Promote the introduction of fuel cell-based transportation for business use**, including trucks and forklifts • **Stimulate hydrogen demand** and promote further social implementation of hydrogen technology through inter-business collaboration
Buildings	• Progress in the **standardization of zero emission buildings** at the time of construction and the transition of existing buildings to zero emission buildings • Buildings forming cities to be decarbonized to **attract sustainable investments etc.**	• Consider how to disclose information aiming at cooperation with **sustainable finance** • **Expand zero emission facilities** utilizing Tokyo Cap & Trade Program and other policy programs
Houses	• Progress in the standardization of zero-emission specifications for new houses and the provision of high thermal insulation for existing houses • **Resilient and healthy houses** acting as a safety net for the life of Tokyo residents	• **Introduce multiple levels into the criteria for the Tokyo Zero Emission House** • Support improvements in thermal insulation at existing houses; expand the use of **healthy houses**
Civic life	• Shift to a **sustainable and prosperous lifestyle** through the review of energy use and consumption behavior	• Draw attention to a **model project for group buying of renewable power** to develop it in the Tokyo metropolitan area and across Japan • Promote movement for **changing** energy use and **consumption behavior** in cooperation with pioneering businesses
Mobility	• Establishment of environmentally friendly **multi-energy stations** as social infrastructure • Widespread ZEVs, from small to large sizes, due to diversified vehicle types; progress in mobility reform to deliver a society using autonomous driving and MaaS capable of meeting diverse needs • Larger market for **zero emission motorcycles accelerating the phaseout of gasoline-only motorcycles**	• Increase ZEV subsidies **in collaboration with the national government** and promote the installation of hydrogen stations and fast chargers • Encourage businesses to introduce ZEVs through the Vehicle Emission Regulation Program • Build a **mechanism that will give** manufacturers **an incentive to develop and sell ZEVs** • Support the creation of an environment that allows depleted batteries to be replaced with a fully charged battery to improve the convenience of EV motorcycles
Resources	• **A resilient waste treatment system established** based on the system with no manual operation and various 3R routes • **Mainstreaming 2R (reduce & reuse) businesses**, including selling by weight, sharing, and reusable containers • **Shift to a sustainable circular society** focusing on curbing food waste	• Sophisticate and optimize waste treatment systems by **introducing AI, ICT, and robotics technologies** • **Collaborate with leading businesses** towards generalization and mainstreaming of new business styles and consumer behaviors that do not depend on single-use plastics • **Promote** measures against food waste **in tandem with consumers, businesses, and other stakeholders**
Fluorocarbons	• Progress in **non-fluorocarbon** air conditioners and freezer refrigerators, resulting in more products of such kind on the market • Expansion of efforts to **eliminate fluorocarbon leakage**	• **Expand the use of non-fluorocarbon equipment** by supporting the introduction of the equipment in line with its development trends • **Make sure of preventive measures** taken against leakage at the time of the use or disposal of equipment by providing on-site guidance to businesses

Realizing a Zero Emission Tokyo

- Need to ramp up efforts to increase the effectiveness of actions in different policy areas and accelerate the momentum for bold changes
- Ensure a step toward a decarbonized and sustainable city by presenting **envisaged key considerations** from the perspective of backcasting **to promote the acceleration and progress of social change** as well as by encouraging the **Tokyo Metropolitan Environmental Council to discuss what future measures should be taken**

Key considerations to promote the acceleration and progress of social change

✓Transition to a decarbonized society through a circular economy
- Mainstream circular economy-oriented businesses; support consumers' circular choice
- Contribute to the reduction of consumption-based CO_2 by prolonging the life of products and using low-carbon materials

✓Collaboration with all initiatives/projects of TMG
- Cooperate in a range of policy areas, such as buildings/houses, welfare, health, transportation, urban development, disaster preparedness, and industrial initiatives
- Promote the leadership of the entire administration sector (public facilities etc.) including TMG

✓Bold use of digital technology and financing
- Utilize big data, depict/evaluate environmental values

✓Further cooperation with other regions at home and abroad
- Interchange renewable energy with other regions, create demand for hydrogen in collaboration with other prefectures in the Tokyo metropolitan area

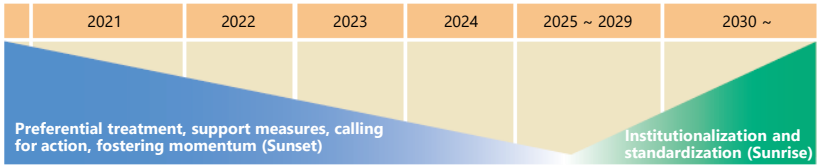
✓Human resource development and capacity building to support decarbonization actions
- Activate the exchange of human resources with expertise in climate change measures at businesses or local governments

✓Further fostering momentum to encourage a shift in the behavior of each individual Tokyo resident

✓Efforts for sustainability, including coexistence with nature and improvements in the air environment

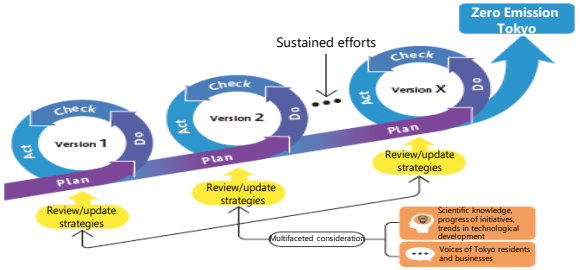
Our key considerations include making the best use of various policy approaches and inventiveness in order to move ahead with the efforts shown on the left and achieve social change

✓Promoting policies through various approaches
- Improve accessibility for Tokyo residents and businesses to decarbonization actions
  - Create an additional mechanism that enables Tokyo residents and businesses to easily take concrete decarbonization actions together with the administration
- Utilization of incentive-based subsidies
  - Utilize subsidy programs that call for active efforts of each entity, including subsidies to promote the development and spread of products that contribute to decarbonization, and subsidies in proportion to the level of efforts
- Promoting policies through sunset/sunrise legislation
  - Utilize a method of providing generous preferential treatment and specific support measures for a limited time to rapidly establish and implement efforts or initiatives in society, and a means of leading society by presenting in advance what should be institutionalized or standardized in the future
- Others, including the utilization of the public procurement and tax system, encouragement through institutional or regulatory incentives and disincentives



Promoting PDCA cycle

Improve goals and initiatives taking into account scientific knowledge and trends in technological development



*The "Zero Emission Tokyo Strategy 2020 Update & Report" is intended as a whitepaper with the aim of realizing Zero Emission Tokyo. We are continuing to capture data and verify the progress of the "Zero Emission Tokyo Strategy" formulated in December of 2019.