



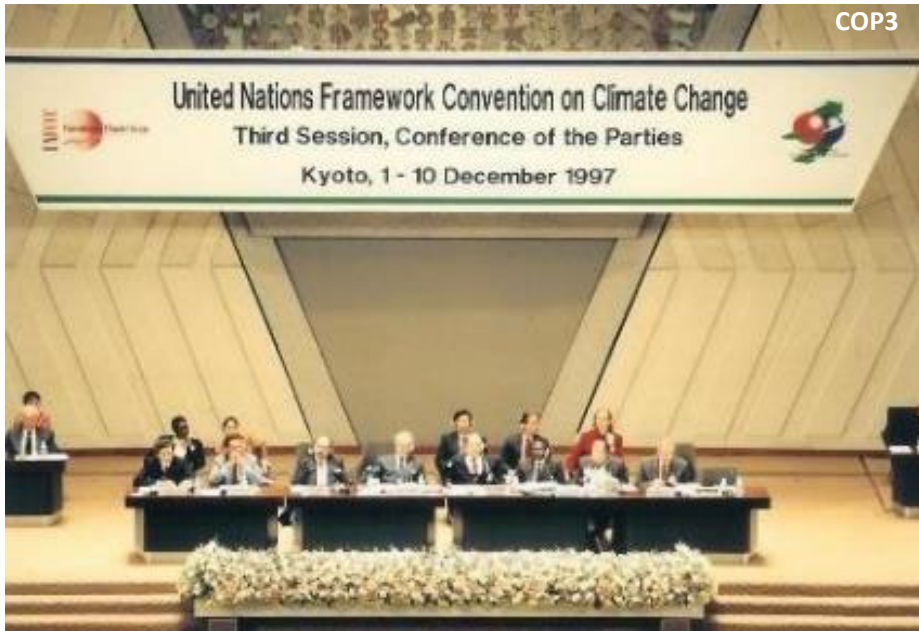
Kyoto's Challenge to Net-Zero by 2050 ~Zero Carbon Ancient Capital Model~



Kyoto City Environmental Policy Bureau,
Global Warming Countermeasures Office



Kyoto City's Global Warming Countermeasures to Date



Kyoto started in full-scale at the venue of **COP3**.

1997 COP3 / establishment of Kyoto Protocol; formulation of the Kyoto City Global Warming Action Plan

2004 Enactment of the Kyoto City Ordinance on Global Warming Countermeasures (the first such ordinance in Japan!)

2009 Kyoto was chosen as an "Eco-Model City" by the government

2010 Complete revision of the Kyoto City Plan of Global Warming

Countermeasures GHG target achieved with a 15% reduction compared to 1990!

2015 SDGs, Paris Agreement "From low carbon to decarbonization"

2017 20th anniversary of the Kyoto Protocol

"Kyoto Declaration for Cultivating a Culture of Sustainable Cities";

Revised Global Warming Action Plan "The Road to Project "0"".

2019 Declaration of 'Net-Zero by 2050' ahead of all municipalities in Japan

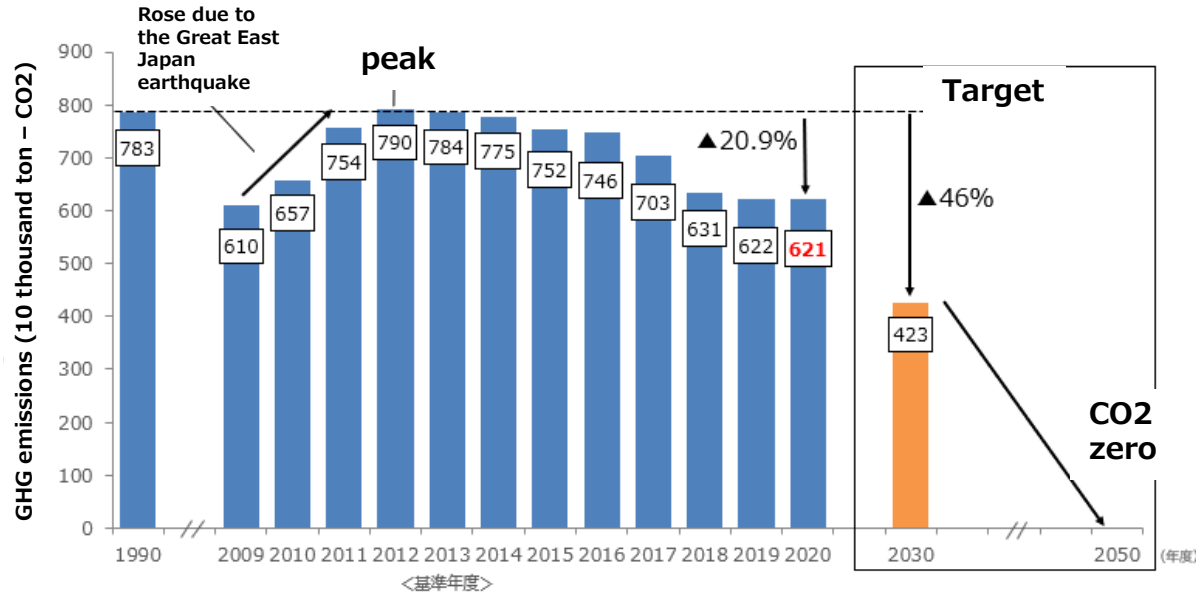
2020 Amendments of ordinance (mentioned the goal of Net-Zero by 2050)

2021 Formulated the new Kyoto City Plan for 2021-2030

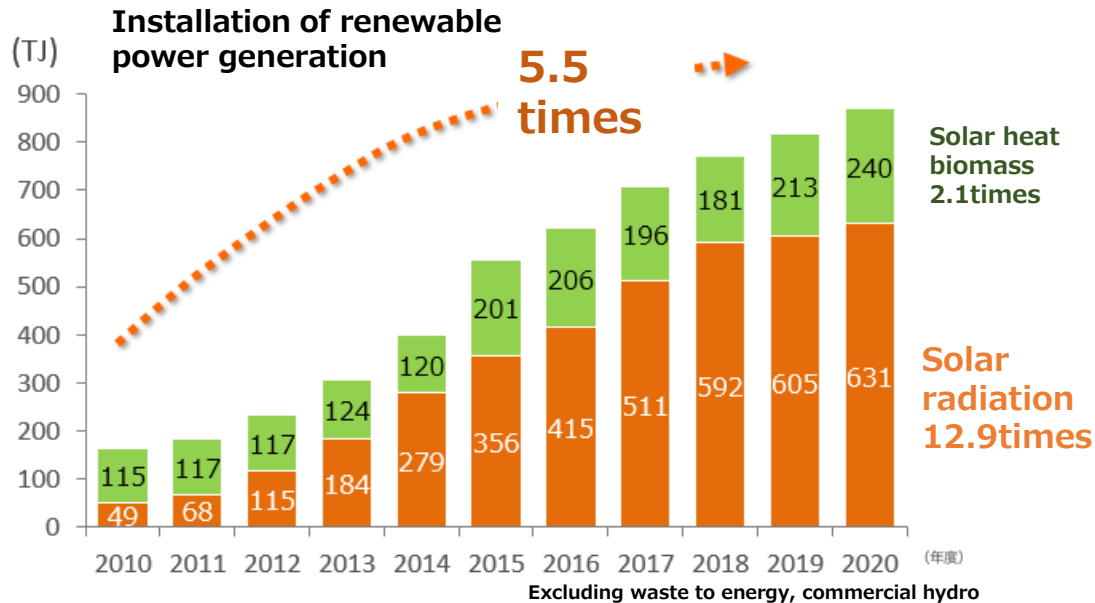
2022 Selected as "Decarbonization Leading Areas" by the government



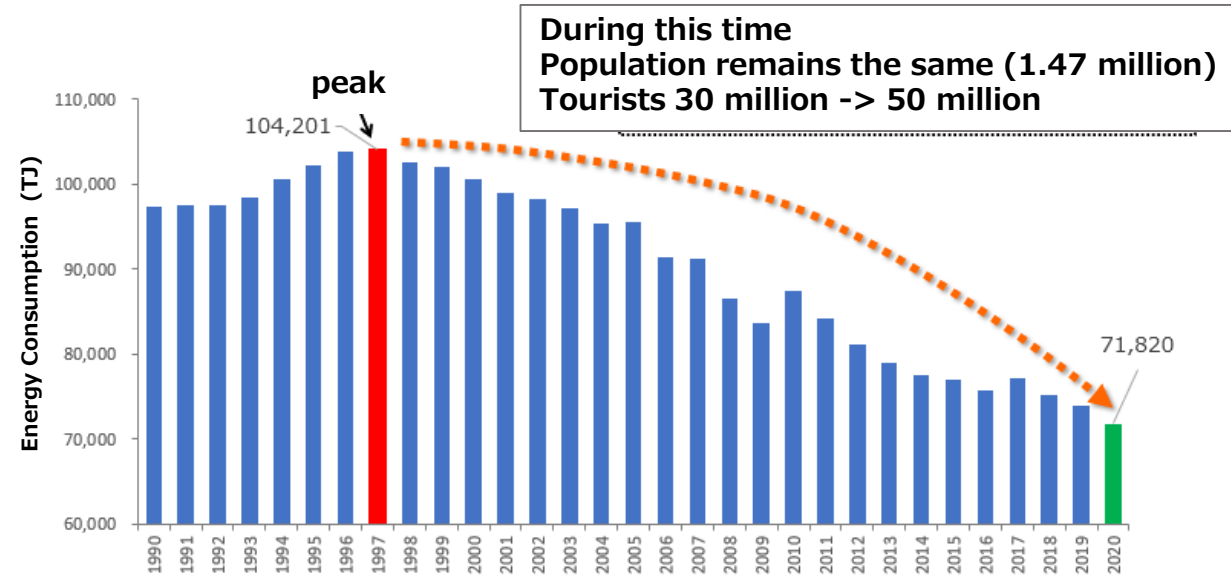
Greenhouse gas emissions drops 21% compared to 2013



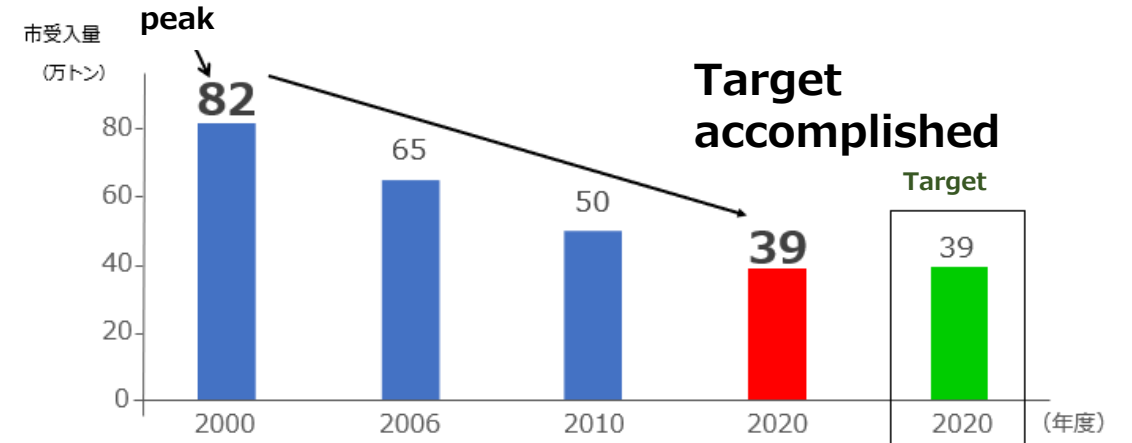
Generation of solar PV based electricity is 13 times larger



Energy consumption 31% smaller than the peak amount

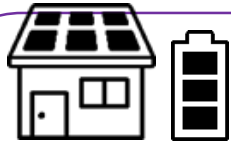


Citizen's dedications lead to a 50% reduction in waste



Waste treatment cost reduced by 15.4 billion yen (10 thousand yen per head) At peak 36.7 billion yen (2002) -> 21.7 billion yen (2017)
Closed waste treatment centers: 5 sites ->3 sites

Household waste per citizen per day
Kyoto : 404 grams (2020)
Other major cities : 556 grams (2019)



Energy



- **Obligation to install renewable energy in buildings of 300 m2 or more.**
- **Subsidies to promote the installation of solar PV add-ons (Priority measures acceleration project).**
- **Joint purchasing of solar panels, promotion of PPAs**
- **Promoting renewable energy demand**
- **Project to promote local production, local consumption and local circulation of renewable energy for housing**



Lifestyle

- **Environmental learning programme**
- **Community activities in 222 Eco-School Districts.**



- **decarbonized lifestyle promotion**
Used garment collection & circulation projects, etc.

Net-Zero by 2050

By 2030

**GHG:
-46% or more
Renewable energy ratio:
35% or more**



**Transformation
of
4 sectors**

**+
Forest and agricultural
land sink measures**



Business

- **Large emitters:**
Their emission reduction plan's reduction target **doubled** (from 2023).
- **Medium-sized businesses:**
'**Energy consumption reporting system**' was established (2022-)



Mobility

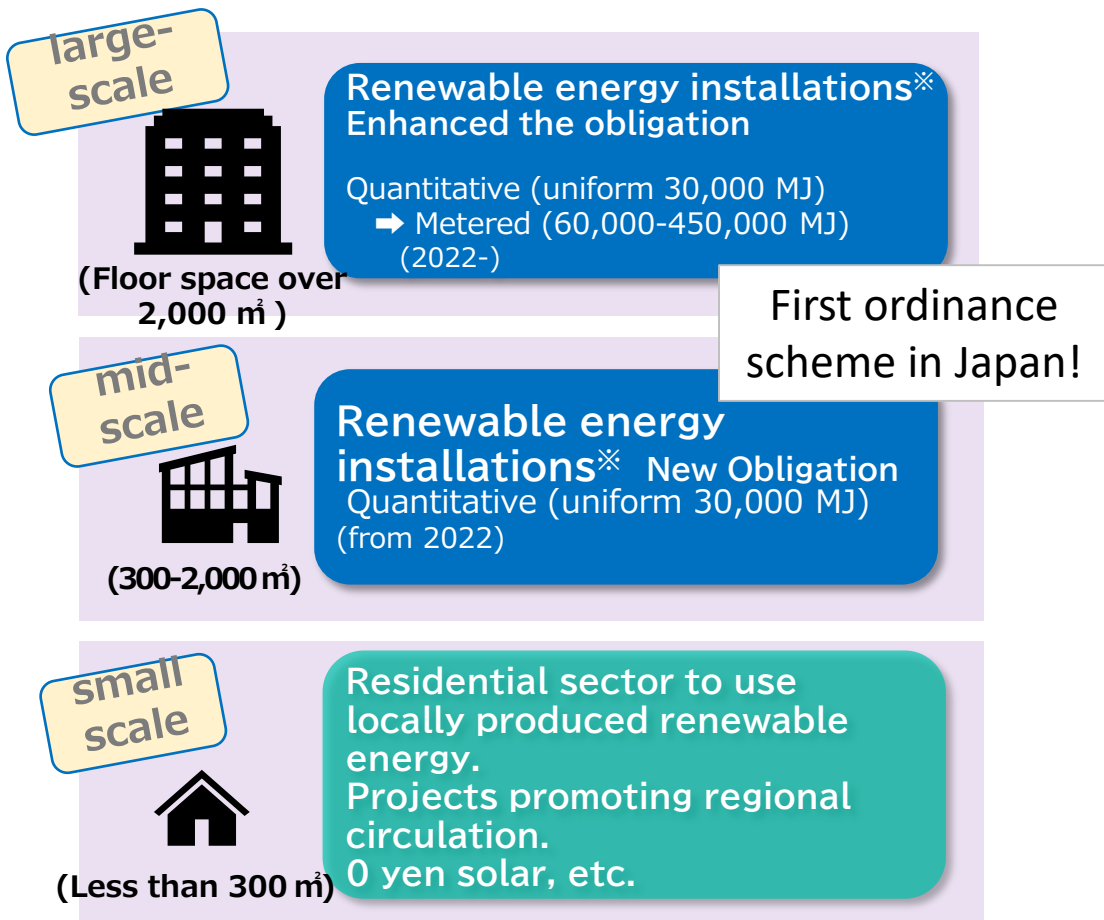
Next-generation vehicles, etc.

- **Large emitters:**
Strengthened existing obligation (from 2023).
(to install at least 2/3 for new car purchases)
- **Car dealers:**
Obligation to report on sales performance (from 2022)
- **Maintenance of Environment for EV use in public-private partnerships**

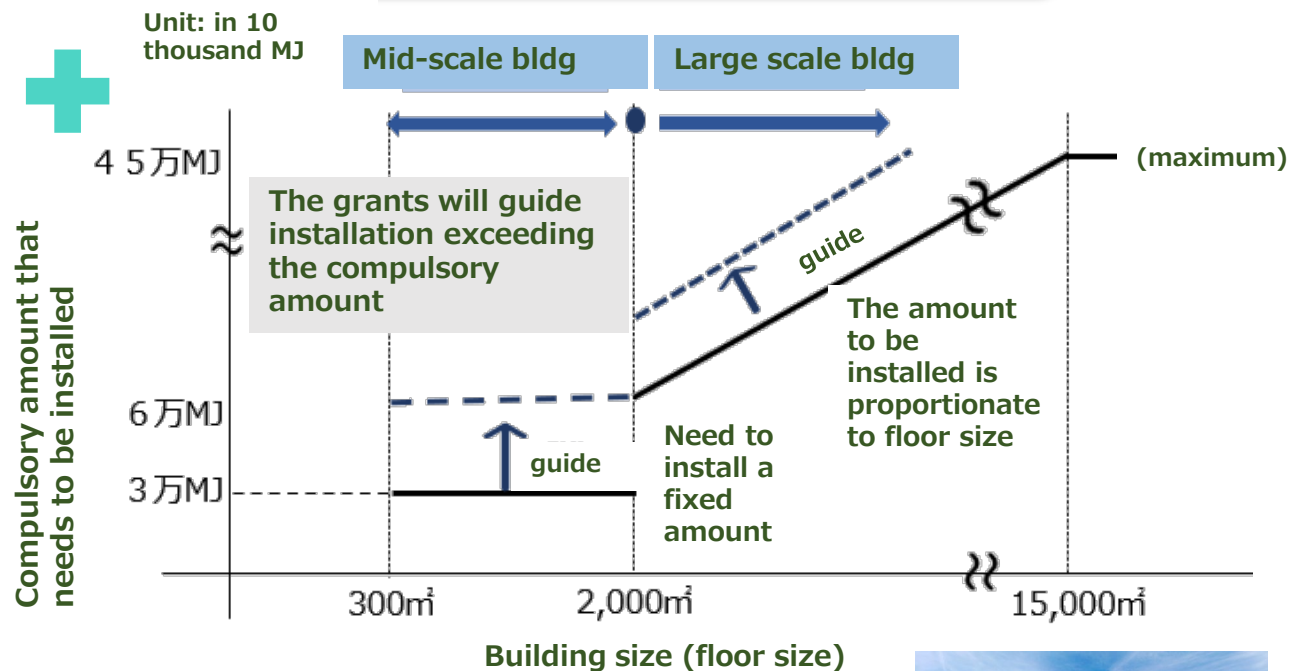


KYOTO CITY OPEN LABO

Measures to Promote Renewable Energy in Buildings by Size



Subsidies for promoting the installation of additional solar power generation equipment, etc.



*Solar power generation installations, solar thermal installations, solar thermal Biomass utilisation facilities, wind power generation facilities, etc.



Explanation of renewable energy becomes mandatory (from 2021).
 (authorized) architect
 ↓
 owner (of a building)

<Description>
 · Maximum amount of possible reductions in CO₂ by installing renewable energy.
 · The type of renewable energy that can be introduced, e.g.



Regional Decarbonization

Additional significance from previous global warming measures

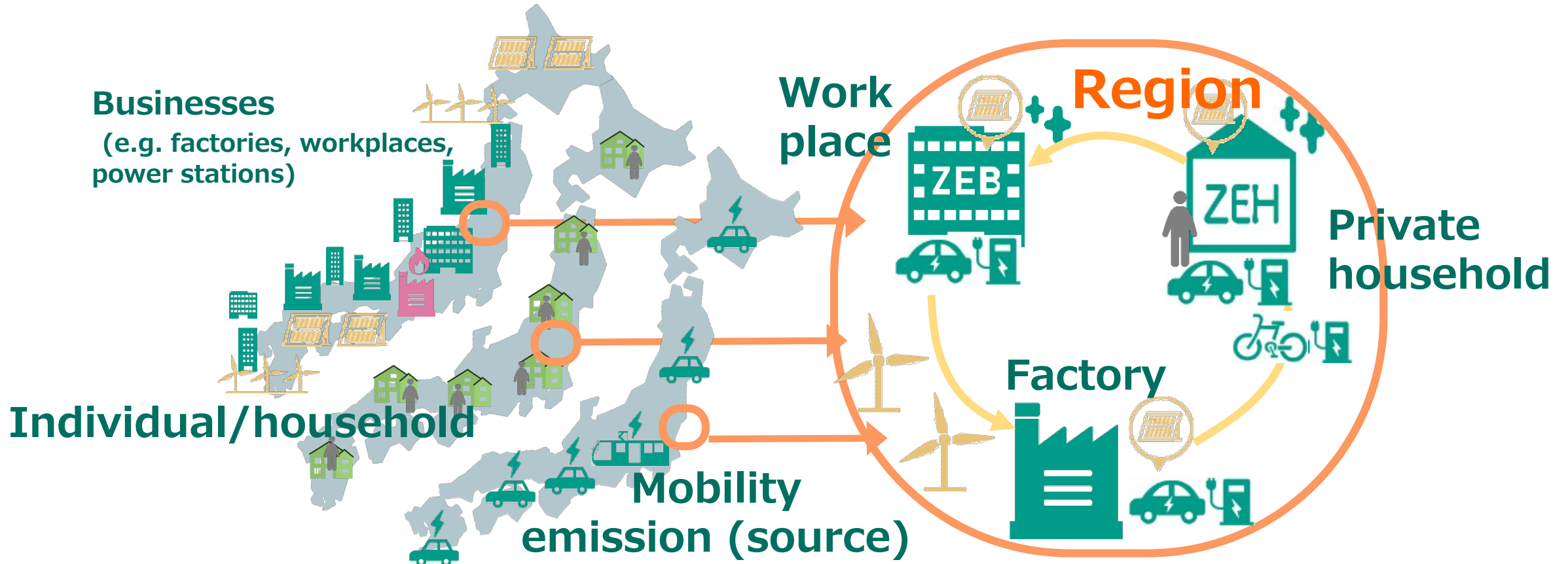
Global Warming Measures to Date

Existing measures are developed for each emitter, source and scene. There are, for example, those for businesses (factories, workplaces, power plants, etc.), individuals, households (residential life) as well as those related to mobility.



Regional Decarbonization

Measures in which diverse emitters, sources and scenes in the region cooperate with each other. For example, through energy and infrastructure sharing.



Kyoto City's Decarbonization Leading Area (summary)

Zero Carbon Ancient Capital Model to improve regional strength by decarbonizing Kyoto's culture and lifestyle

Cultural heritage sites and shopping areas around Fushimi area, etc. Fushimi area

- One of the oldest urban areas in the city, with local communities, temples, shrines and shopping streets.
- Concentration of environment-related facilities.

Decarbonization of cultural heritage groups

Procurement, installment of renewable electricity, storage batteries etc

Maximum introduction of solar and other renewable energy equipment and storage batteries in **cultural heritage sites (temples and shrines)** by devising the locations where they are introduced, such as parking lots and roofs of related facilities. decarbonization through energy-saving refurbishment of equipment and procurement of renewable energy.

<Fushimi area>

Fushimi Inari Taisha shrine, Fujimori shrine. Shinshu Otani sect (Higashi Honganji), Fushimi district temple. (Higashi Hongwanji Temple, Fushimi Annex, Jotokuji Temple) (Koukeiji, Katsusetsuji, Zentsuji, Reisenji). Daigoji Temple, Myofukuji Temple, Daikokuji Temple



<Ripple effect in city>

Mibudera (member of the Imperial family) Kitano Tenmangu Shrine Hoennin era(1224.11.20-1225.4.20) Kyoto Gyoen

15 locations

2030 100 locations

Decarbonize and transform the Fushimi shopping street area

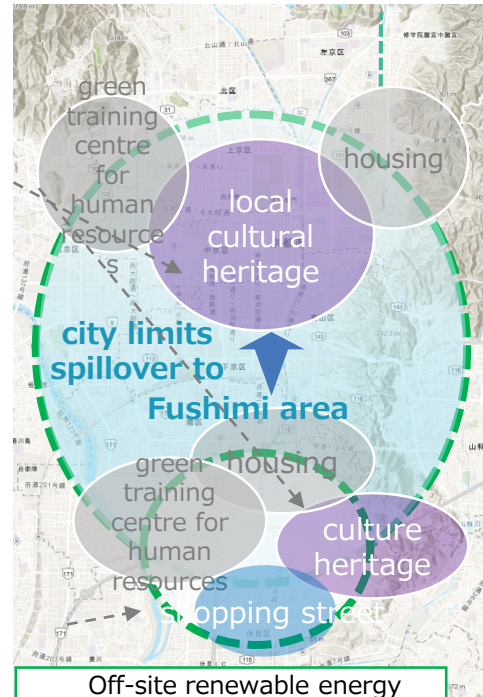
PV and storage batteries Procurement of renewable electricity

3 shopping streets and 87 shops

Fushimi Otesuji shopping street, Nayamachi shopping arcade, Ryoma-dori shopping street Total arcade length 560 m.



Centralized energy management in the Kyoto Regional Renewable Energy Grid Council.



Local community hub

Electricity demand 36.9 GWh
New renewable energy generation facilities 8.2 MW
Energy savings 2.9 GWh

Housing groups/areas

- ◆ Existing housing units 100 units in various locations in the city
- ◆ **Public Land Used for Decarbonization** 400 units in the area of the former Fushimi Technical High School and other sites. Formation of 3.9 ha of next-generation ZEH+ residential neighbourhoods. Former Miyake Municipal Housing Area 14 units

Green Human Resource Development Hubs

65 Facilities.

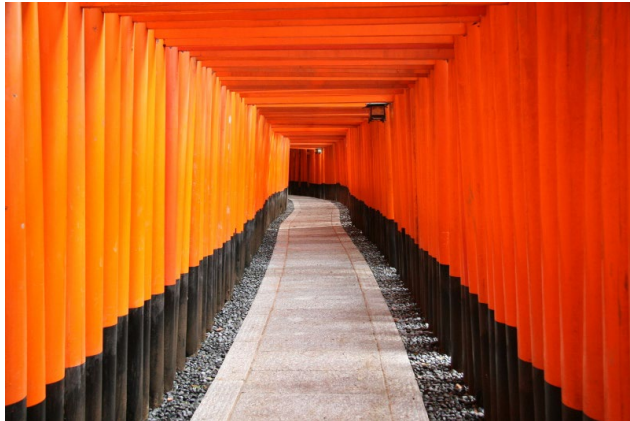
28 facilities at Ryukoku University Fukakusa Campus. 36 facilities at Kinugasa and Suzaku campuses of Ritsumeikan University. Miyako Ecology Centee 1 facility

- Local issues, etc. associated with decarbonization initiatives
- ✓ Activating local communities
 - ✓ Improvement of local disaster preparedness
 - ✓ Improved attractiveness as an environmentally advanced area

Through the decarbonization and transformation of old historic cultural heritage sites, shopping streets, etc. Create a sustainable, bustling place to visit, trade and live.

(i) Decarbonizing Cultural Heritage

- Install solar and other **renewable energy generation equipment and storage batteries** by devising areas where equipment can be installed, such as parking lots and related facilities, provided that they do not interfere with the landscape.
- **Energy-saving retrofitting of equipment** and switching to **100% renewable electricity will help to** achieve a decarbonization transformation.



Fushimi Inari-Taisha Shrine (in Kyoto)

- Head temple of Inari Shrine.
- Around 32,000 companies nationwide



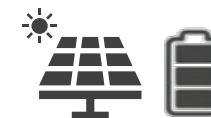
 本門佛立宗 Myoufukuji Temple
HONMON BUTSURYU SHU

- Head temple of Inari Shrine.
- Around 32,000 companies nationwide
- designated shelter



Head Temple of Daigoji

- Head temple of the Daigo school of Shingon Buddhism
- Around 800 temples nationwide
- Approx. 350,000 students.



Improvement of local disaster preparedness

(ii) Decarbonization Transformation of Commercial Streets

Aiming to become Japan's first carbon-neutral shopping area

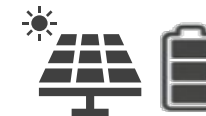


伏見大手筋商店街

納屋町商店街

竜馬通り商店街
RYOMADORI SHOPPING STREET

- Installation of **solar arcade** and photovoltaic installations and storage batteries in shops
- Decarbonization transformation through energy-saving retrofitting of equipment and switching to **100% renewable electricity**



Improvement of
local disaster
preparedness

Decarbonization as a brand
Creation of liveliness

- Initiatives that lead to a decarbonization shift in trading practices and consumption.

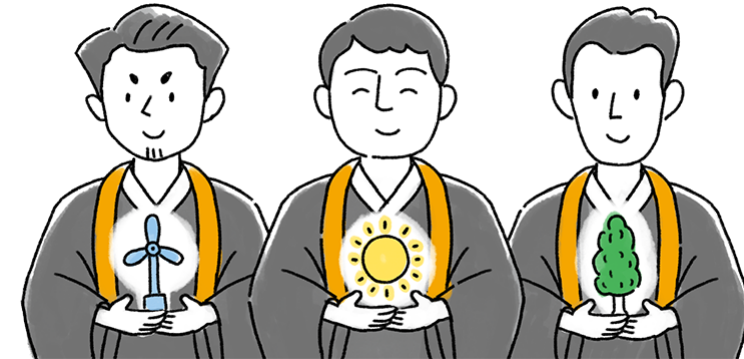
(iii) Stable Renewable Energy Supply System

- ◆ Development of **mega-solar power plants on** idle municipal land, with private-sector input to **contribute to the local community**



- ◆ **100% renewable electricity plan**

Part of the electricity tariff (up to 2.5%) **is donated to** fund activities that create connections between people



Aiming to simultaneously realise renewable energy utilization, regional economic circulation and regional revitalization.

Activate local communities by organizing events and products on the theme of decarbonization, involving university students and local residents, where activity fees are available.