

Japan's GX Initiatives for Carbon Neutral by 2050

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29 October, 2024

Tokyo, Japan



MLIT

Ministry of Land, Infrastructure, Transport and Tourism

Towards the Realization of GX

Declaration to achieve carbon neutrality by 2050

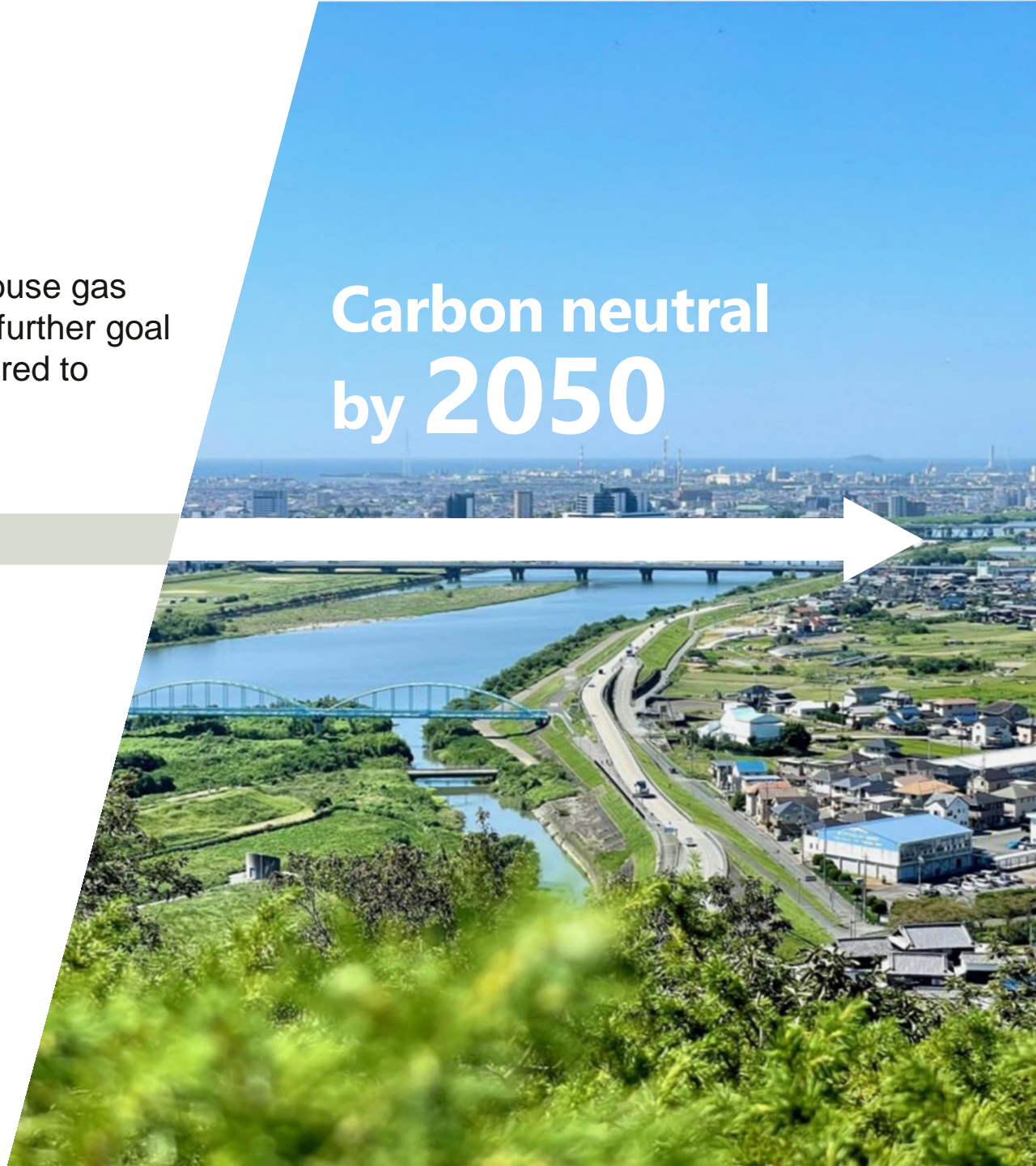
Target to reduce greenhouse gas emission by 46%, with a further goal of 50% reduction (compared to FY2013 level)

2020

FY2030

Carbon neutral
by 2050

With an aim to achieve carbon neutrality, initiatives are undertaken to target the realization of “Green Transformation ‘GX’”, transforming from a fossil fuel to clean energy centered society.



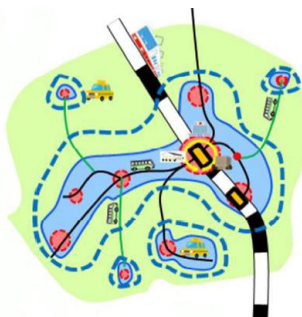
Initiatives Towards the Realization of GX by MLIT

Transportation Sector



Transformation of Urban Structure

By consolidating urban functions and encouraging the use of **public transportation**, CO2 emission is reduced



Urban Sector



Implementation of Green Infrastructure

By using the various functions of the natural environment, the heat island phenomenon is mitigated



Energy Sector



Optimization of Unit Block Energy Use

With the application of digital technologies, **energy** usage for an entire block is optimized

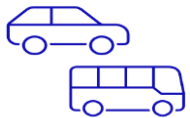


Decarbonization in Transportation Sector

For decarbonization initiatives in the transportation and traffic sector, popularization of electric vehicles (EV) as well as the introduction of automated driving technology and car sharing are being advanced.



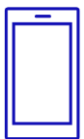
**Popularization of electric vehicles (EV) /
fuel cell vehicles (FCV)**



Automated driving technology



Car sharing



Mobility as a Service (MaaS)



Advance of GX in Urban Sector

In urban city and architecture, the city's overall operation is optimized with the use of ICT technologies, contributing to the realization of a sustainable society.

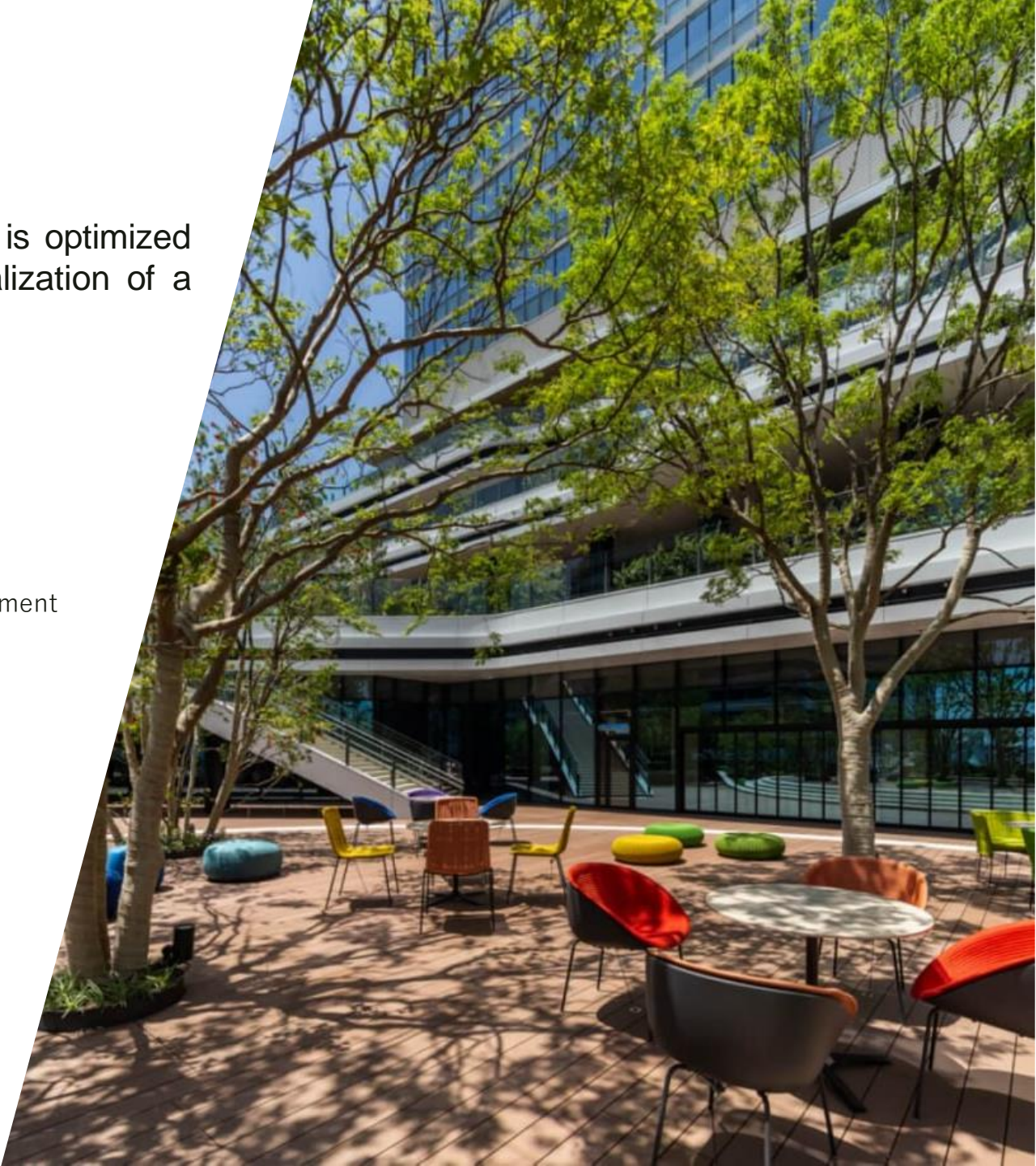


Energy Management System (EMS)

Optimal use of energy is encouraged with the unified management of electricity consumption



Use of IoT technologies in housing



Initiative in Energy Sector

The expanded introduction of solar and wind power generation becomes a major element in realizing a sustainable future.



Offshore wind power generation



Hydrogen energy



Smart grid

A stable power supply is devised by optimizing energy supply for the overall power network



Examples of Initiative Towards GX Implementation [Transportation/Urban Sectors]

Environmentally Friendly Tourism MaaS (Tochigi Prefecture, Nikko City)

The tourist city Nikko City, with 10 million visitors annually, introduced environmentally friendly tourism MaaS to create a transportation system that is easy to use for both residents and tourists, and endeavored to relieve traffic congestion and achieve a decarbonized society.

EV BUS OPERATION



INTRODUCTION of MaaS APPLICATION



EV CAR SHARING



Examples of Initiative Towards GX Implementation [Urban Sector]

Study of Heat Island Measures Using Digital Data (Chiyoda Ward, Tokyo)

As a study tool for heat island measures for the Otemachi, Marunouchi, and Yurakucho areas, various digital tools are being used, such as the thermal environment simulation by open data “Project PLATEU (by MLIT)” and open maps “TOKYO OASIS” that suggests comfortable walking routes.

PLATEAU
by MLIT

SURFACE TEMPERATURE

WIND ENVIRONMENT

The image displays two 3D urban models. The top model shows a cityscape with a color-coded surface temperature overlay, ranging from red (hot) to blue (cool). The bottom model shows the same cityscape with wind flow lines and arrows, indicating wind direction and speed around the buildings.

TOKYO OASIS

OASIS SPOT (ATTRACTIVE SPACES/STREET ART)

SEATING AREA

PREFERRED ROUTE (SUNNY/SHADED/ SHORTEST ETC.)

TREE INFO

The image shows a 3D map of a city area with various colored overlays and labels. A green arrow points from a text box on the right to a specific location on the map. The text box contains a photo of a forest and a short paragraph of Japanese text.

大手町の森

■事前に千葉県君津市の山林で育てた植物をそのまま移植して再現した「本物の森」が大手町にあります。「施工時に植えた植物は樹木・地被類あわせて117種でしたが、1年後には約300種ほどに増えていきました。」というガイドの通り、都心ではなかなか見られない虫や鳥に出会えるかもしれません。 植栽時の土の匂いのいい記憶

— CLOSE

ルート検索

Cost reduction in data management with the use of open 3D urban modelling

Suggestion for comfortable outdoor route

Examples of Initiative Towards GX Implementation [Urban/Energy Sectors]



PLATEAU
by MLIT

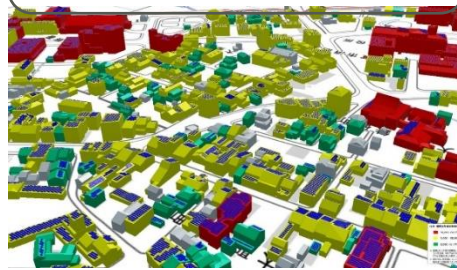
Study of Solar Power Generation Potential Using Urban Digital Twin (Kaga City, Ishikawa Prefecture)

“Project PLATEAU (by MLIT)” is used as a study tool for measures to strengthen the popularization of solar power generation in the city.

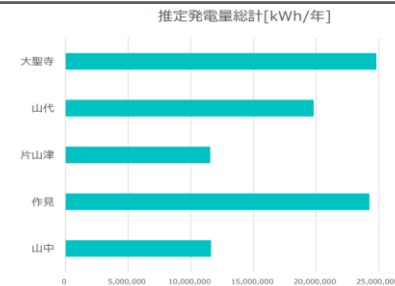
FY2021

- Study at the scale of a district

SOLAR POWER GENERATION ANNUAL PROJECTION



POTENTIAL POWER GENERATION PROJECTION



SOLAR PANEL REFLECTION SIMULATION



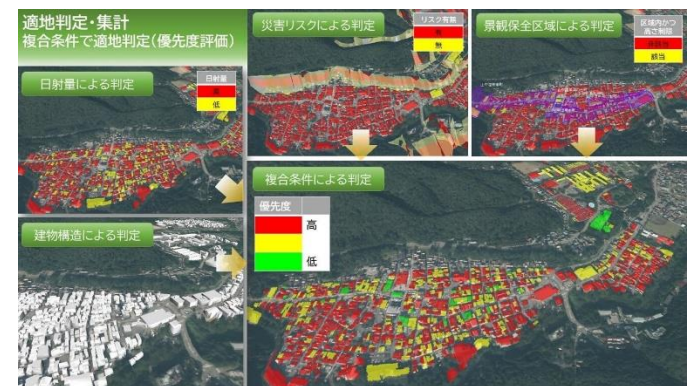
FY2022

- Study at the scale of a city
- Development of a support system to promote carbon neutrality

Future prospect

- Expansion of target area
- Application with policy revision

ANNUAL SOLAR POWER GENERATION PROJECTION



Cooperation with ASEAN (Smart JAMP and Capacity Building)

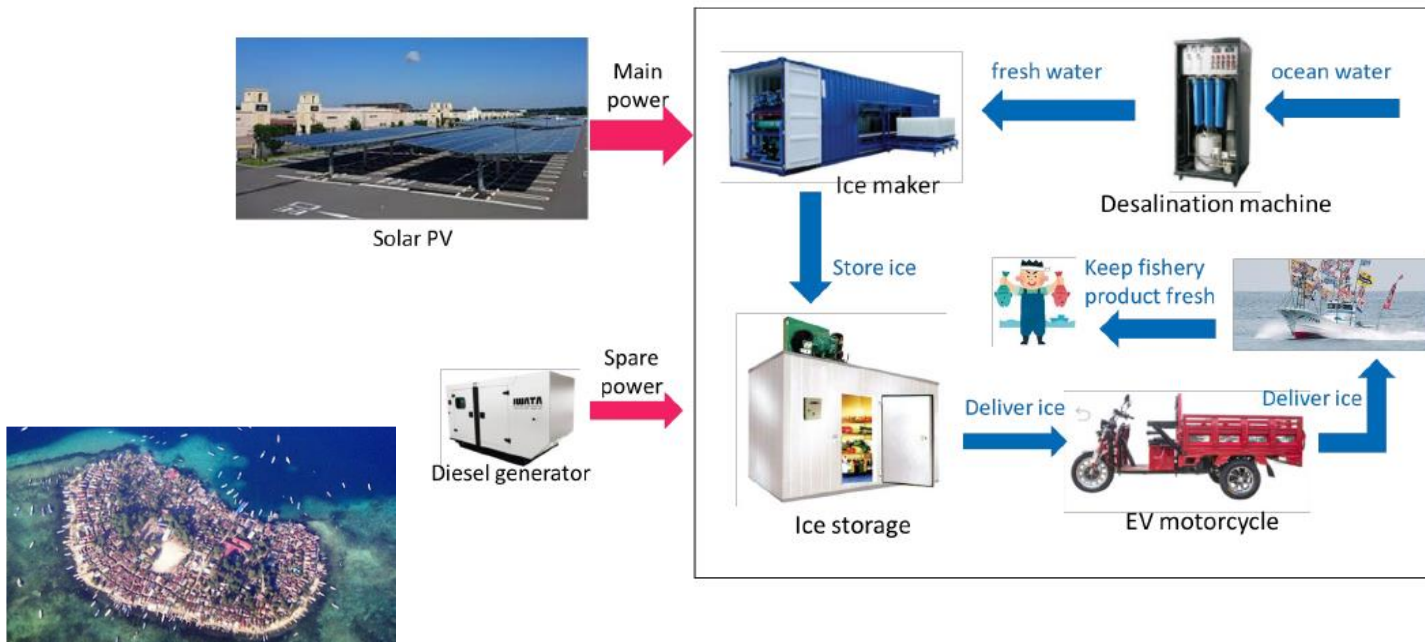
Smart JAMP

Possibility of Introducing energy system for ASEAN

(Makassar, South Sulawesi, Indonesia)

For the unstable power supply on the remote islands of South Sulawesi, an energy system using renewable energy is introduced to advance the electrification and fishing industry of the remote islands.

The study under Smart JAMP 2021



Capacity Building

Trainings and programs for national and local governments in the ASEAN region are implemented in cooperation with international organizations (e.g. JICA, UNCRD).

2024 JICA Knowledge Co-Creation Program



Conclusions

- In order to become carbon neutral by 2050, Japan is undertaking initiatives using GX through innovations in various sectors such as transportation, urban, and energy sectors.
- There are common issues in becoming carbon neutral for Asia. It is important for us to cooperate in promoting decarbonization towards carbon neutrality/net-zero emissions, while also achieving economic growth, energy security and resilience, especially through innovation.
- By sharing Japanese technologies and extensive know-how, we hope to contribute to implement smart city that facilitates carbon neutrality for ASEAN.
- For Smart JAMP in the next FY, project formulation surveys for smart city projects in the decarbonization sector are planned. We would like to propose to share the good practices presented in this seminar as case studies.





**Thank you
for your attention**