

Major Initiatives by the Ministry of Land, Infrastructure, Transport and Tourism toward the Realization of Green Transformation

Promoting Energy Saving in Public Transportation, Physical Distribution, Housing, and Buildings

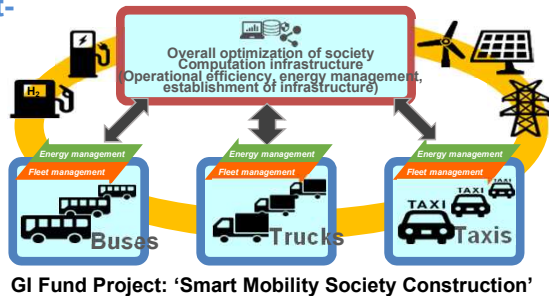
1. Promoting the use of public transit and the introduction of EVs to public transit, and boosting green distribution

- Vehicles account for a large share of CO₂ emissions in the transportation sector. With the aim of achieving carbon neutrality, the widespread use of next-generation vehicles, including electric vehicles and fuel cell vehicles, will be promoted for trucks, buses, and taxis.

■ Encouraging the spread of next-generation vehicles

- Promoting the purchase and upgrading of green vehicles
- Implementing R&D on integrated energy/fleet management systems for commercial EVs and FCVs.

(Green Innovation (GI) Fund: 'Smart Mobility Society Construction')



■ Efforts for infrastructure improvement

- Examining guidelines for EV charging facilities on public roads
- Providing cooperation in establishing EV charging facilities and hydrogen stations at roadside rest stop



Installation of a hydrogen station

- Promoting Green Transformation (GX) by enhancing the use of renewable energy and public transportation and by driving a modal shift in the public transport and physical distribution sectors

■ Promoting GX in the public transport sector

- Promoting GX in the public transportation sector, and supporting demonstrative operation (e.g. the introduction of electric buses and taxis, the joint use of charging or storage-battery facilities, etc.)

■ Promoting the use of public transport by utilizing MaaS

- Promoting the substantiation, construction, and spread of data linkage infrastructure that supports advanced cooperation among transportation operators



■ Promoting green distribution through modal shifts, etc.

- Promoting the implementation of modal shifts and drone delivery and the standardization of software and hardware



Drone delivery

2. Thoroughly implementing energy efficiency measures for housing and buildings

- Thoroughly implementing energy efficiency measures for housing and buildings by promoting 'Net Zero Energy House' (ZEH) and 'net Zero Energy Building' (ZEB), as well as by making it obligatory for new houses and other buildings to conform to energy efficiency standards

■ Promoting energy saving in houses and buildings

- Supporting the popularization of houses that conform with ZEH, ZEB, and LCCM (Life-Cycle Carbon Minus) standards, as well as promoting renovations for high energy efficiency in coordination with relevant ministries and agencies
- Requiring all newly built houses and non-residential buildings to conform with energy efficiency standards in and after FY 2025 under Building Energy Efficiency Act (amended in June 2022)
- Promoting wood utilization by providing support and rationalizing building standards

■ Raising the energy efficiency level

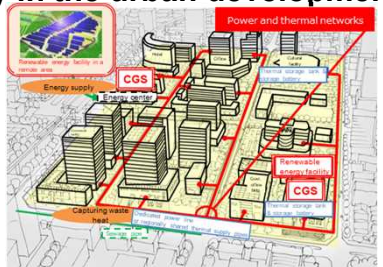
	Current law			Revised law	
	Non-residential building	House		Non-residential building	House
Large-scale 2,000m ² or larger	Conformity obligation Apr. 2017 ~	Notification obligation	➡	Conformity obligation Apr. 2017 ~	Conformity obligation
Medium-scale	Conformity obligation Apr. 2021 ~	Notification obligation		Conformity obligation Apr. 2021 ~	Conformity obligation
Smaller than 300m ² Small-scale	Explanation obligation	Explanation obligation		Conformity obligation	Conformity obligation

3. Promoting urban and regional development that contributes to decarbonization

- Promoting comprehensive and intensive support for environmentally friendly urban development, such as eco-friendly, private-sector urban development, as well as for the shared, optimal use of energy for higher energy efficiency in the urban development and green infrastructure sectors

■ Pursuing environmentally friendly urban development

- Promoting environmentally friendly, private-sector urban development that enhances decarbonization and is jointly implemented in each urban block
- Promoting the development and application of green infrastructure technologies that support decarbonization



Enhancing energy efficiency by connecting multiple buildings with energy piping for the shared, optimal use of energy

Increasing the introduction and use of renewable energy by means of infrastructure (energy creation) 国土交通省

1. Realization of carbon-neutral ports and harbors

- Promoting the development of Carbon-Neutral Ports (CNP) by enhancement of port functions for decarbonization and improvement of the environment for receiving hydrogen and other resources, in order to enhance the competitiveness of Japanese industries and ports and contribute to the realization of a decarbonized society.

■ Promoting the development of carbon-neutral ports (CNP)

- The Port and Harbour Act (revised in November 2022) provides for the legalization of the Port and Harbour Decarbonization Promotion Plan and the public-private port decarbonization councils. Pilot councils have been organized at 41 ports and harbours.

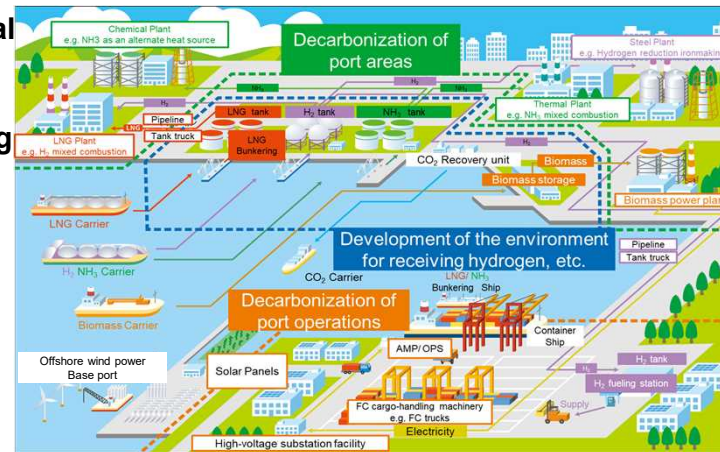


Image of Development of Carbon Neutral Port (CNP)

- Promoting the introduction of offshore wind farms, which is the key to making renewable energy the main power source.

■ Promoting the introduction of offshore wind farms

- Smoothly promoting procedures for designating promotion zones and for the public solicitation of business operators based on the Act on Promoting the Utilization of Sea Areas for the Development of Marine Renewable Energy Power Generation Facilities
- Promoting the planned development of base ports, which are indispensable for the installation and maintenance of offshore wind farms



Example of base port in Europe

2. Promoting the introduction of renewable energy, such as solar power and biomass, by utilizing infrastructure

- Promoting undertakings to maximize the introduction of solar, hydro, biomass and other renewable energy sources by utilizing airports, railways, roads, dams, sewage systems, ports and other diverse infrastructure

■ Promoting the introduction of solar power generation

- Promoting the introduction of solar power generation using road spaces
- Promoting the preparation of airport decarbonization promotion plans based on the revised Airports Act toward turning airports into hubs of renewable power generation, etc.
- Studying the feasibility of introducing renewable power generation by utilizing railway assets and collaborating with communities along railway lines, and by establishing a platform for public-private partnerships toward promoting undertakings

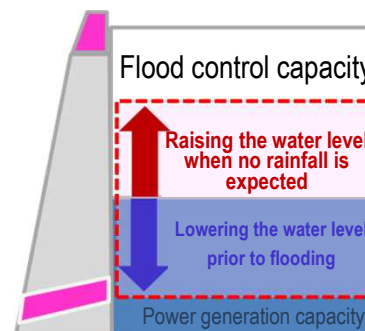


solar PV power generation systems on roads

■ Promoting the introduction of hydropower generation

- Promoting hybrid dams that operate to improve flood control capacity while also generating hydroelectric power

Raising the dam height

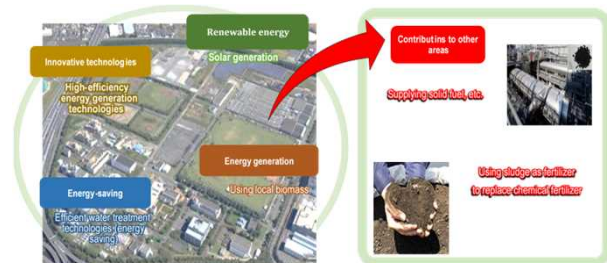


Increasing the number of outlet conduits

Hybrid dam project

■ Promoting the introduction of power generation from sewage biomass

- Promoting the introduction of innovative technologies for using biomass from sewage systems, etc.
- Establishing the Carbon-Neutral Regional Treatment Plant Model, a project that demonstrates the decarbonization of an entire sewage plant by mobilizing all budgetary tools to promote the wide use of sewage technology.



Model plan for a carbon-neutral regional treatment plant

1. Promotion of carbon neutrality in maritime transportation

○ To achieve carbon neutrality in international shipping by 2050: Promoting technological development of zero-emission ships fueled by hydrogen, ammonia, etc., and leading international rule-making at the International Maritime Organization (IMO) to promote the international competitiveness of the maritime industry, including by accelerating the widespread use of zero-emission ships, etc.

■ Introduction and widespread use of zero-emission ships, etc.

- Promoting technological development to start demonstration of ammonia-fueled ships from 2026 and hydrogen-fueled ships from 2027
- Implementing the development of an environment to promote zero-emission ships, including the establishment of a domestic production base.
- Leading international rule-making by the IMO on economic and technical measures.

Technological development of zero-emission ships

Development of Hydrogen-ammonia-fueled engine

Zero-emission ship

Development of Fuel tank and fuel supply system

2. Introduction of sustainable aviation fuel (SAF) and fuel-efficient aircraft

○ To achieve carbon neutrality by 2050: Formulating the Basic Policy for Promoting Decarbonization in Aviation in light of the revised Civil Aeronautics Act, and organizing public-private councils and working groups to promote the development of a SAF supply chain.

■ Formulating the Basic Policy for Promoting Decarbonization in Aviation

- Based on the Civil Aeronautics Act (revised in June 2022), scheduling the formulation of the Basic Policy for Promoting Decarbonization in Aviation (December 2022), with targets for decarbonization in aviation and measures to be taken by the government and stakeholders, etc.

■ Organizing public-private councils and working groups

- Establishing public-private councils and working groups in 2022 for promotion of SAF* deployment, improvement of flight operations by renovating air navigation service, and introduction of new technologies into aircraft and equipment.

*Replace 10% of the fuel consumed by Japanese airlines with SAF by 2030

Support

Regulation

- Promoting the introduction of SAF

- ➔ Developing a SAF supply chain and supporting domestic SAF to obtain the certification for registration as CORSIA-eligible fuels

- Improving flight operations by renovating air navigation service

- Introducing new technologies to aircrafts

- ➔ e.g., the introduction of fuel-efficient aircrafts

- Targeting carbon neutrality by 2050 by means of the Basic Policy for Promoting Decarbonization in Aviation, based on the revised Civil Aeronautics Act

- In international aviation in particular, pursuing the International Civil Aviation Organization's (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

Realizing carbon neutrality by 2050

3. Promoting carbon neutrality in construction

○ Promoting carbon neutrality throughout the life cycle of infrastructure, including through the widespread use of electric-powered construction machinery and other innovative construction equipment.

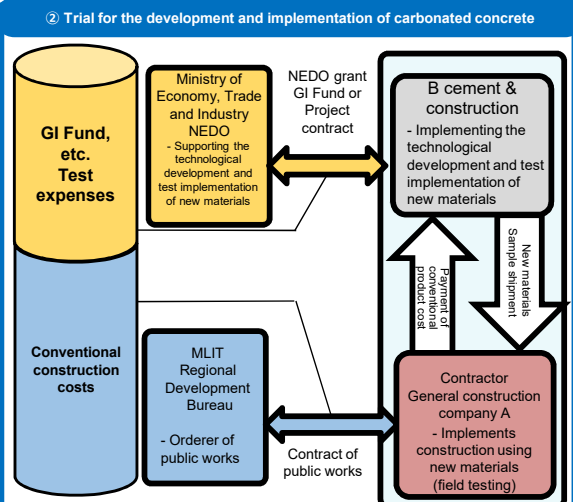
■ Introducing construction materials that promote decarbonization

- Conducting field execution work that promotes decarbonization, such as by using the carbonated concrete that is being developed under the Green Innovation (GI) Fund.
- Conducting field tests at the Naruse Dam road diversion work (Tohoku Region) and the new diversion channel work on the Kusaka River (Shikoku Region).

① Active use of low-carbon concrete (implementation of model construction work)

- Implementing model construction using low-carbon concrete blocks (55% or more Portland cement is replaced with fine-ground granulated blast-furnace slag)
- Promoting undertakings to realize decarbonation and to study issues of procurement for such undertakings

② Trial for the development and implementation of carbonated concrete




The flowchart illustrates the trial for the development and implementation of carbonated concrete. It starts with 'GI Fund, etc. Test expenses' leading to 'Conventional construction costs'. This leads to 'Ministry of Economy, Trade and Industry NEDO' which supports 'technical development and test implementation of new materials'. This is linked to 'NEDO grant GI Fund or Project contract'. The process then moves to 'B cement & construction' which implements 'the technological development and test implementation of new materials'. This leads to 'Contractor General construction company A' which implements 'construction using new materials (field testing)'. The contractor is linked to 'MLIT Regional Development Bureau' which is the 'Orderer of public works'. The contractor also provides 'Contract of public works'. The contractor's 'New materials' are fed back into the 'Ministry of Economy, Trade and Industry NEDO' for 'Sample shipment' and 'New materials'.

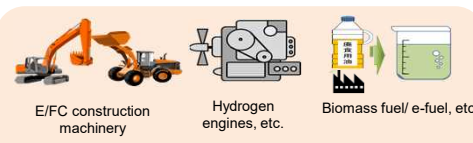
■ Promoting widespread use of innovative construction machinery

- Studying the establishment of a system for certifying innovative construction machinery to promote the pervasion of innovative construction machinery powered by electricity, hydrogen and biomass

[Diesel fuel-sourced power]



New power sources



■ Promoting the introduction of i-construction

- To promote productivity improvements at construction sites through ICT construction: establishing a system for certifying ICT construction machinery and for supporting the training of ICT construction engineers.

■ Hokkaido Infrastructure Zero-Carbon Test Construction

- Incorporating CO₂ reduction efforts into calculations of a public works construction evaluation points system