

Japan's Carbon Neutral Port (CNP) Initiative

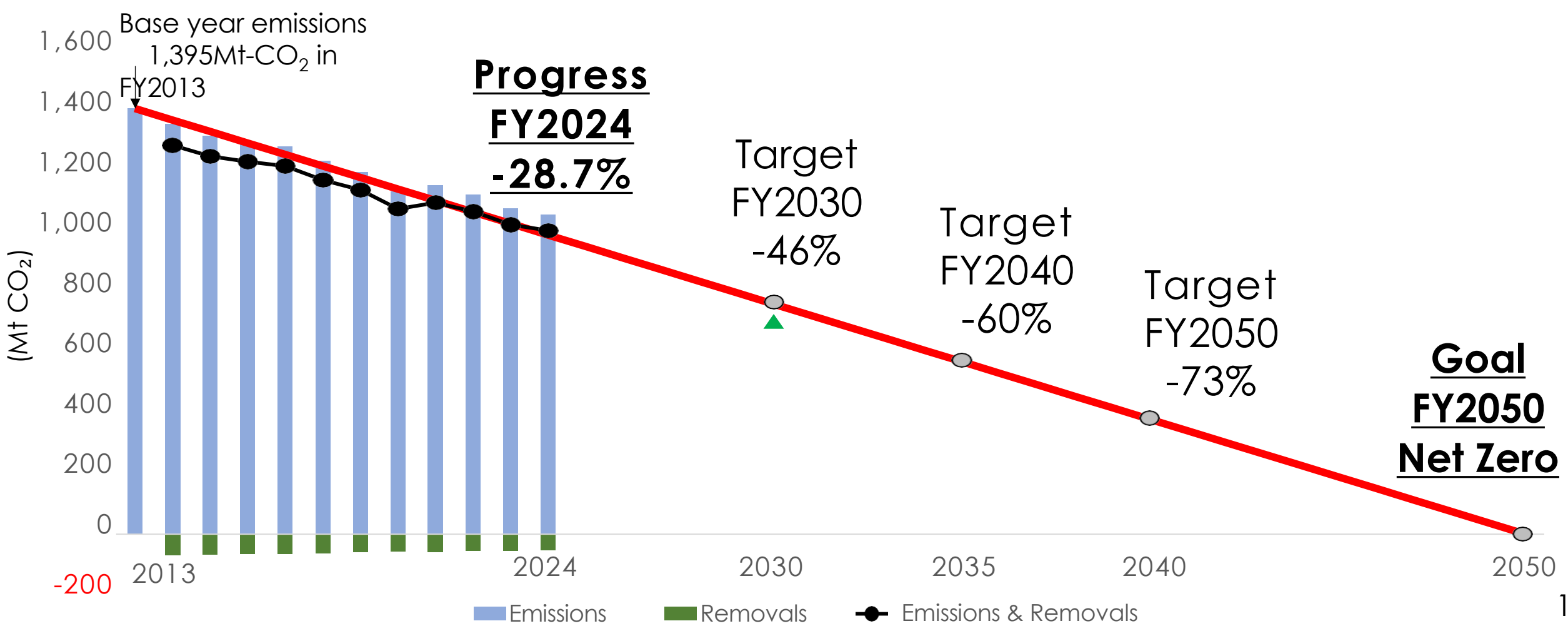
KIKUCHI Hiroyuki

Director for Industrial Partnership Planning

Ports and Harbours Bureau

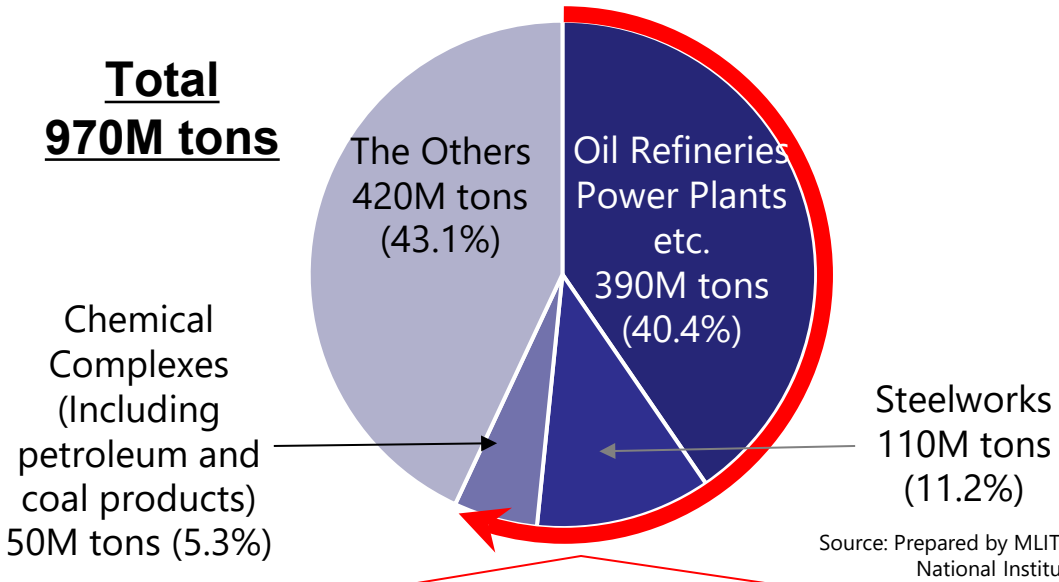
Ministry of Land, Infrastructure, Transport and Tourism (MLIT)

Japan aims to achieve Net Zero by 2050.
Its GHG emissions and removals in FY2024 were approximately 994 million tons, down 28.7% from FY2013. This marked the lowest level since FY2013 and continued the downward trend.



Key Features of Ports in Japan

CO2 emissions in Japan (FY2024 / published in Apr. 2026)

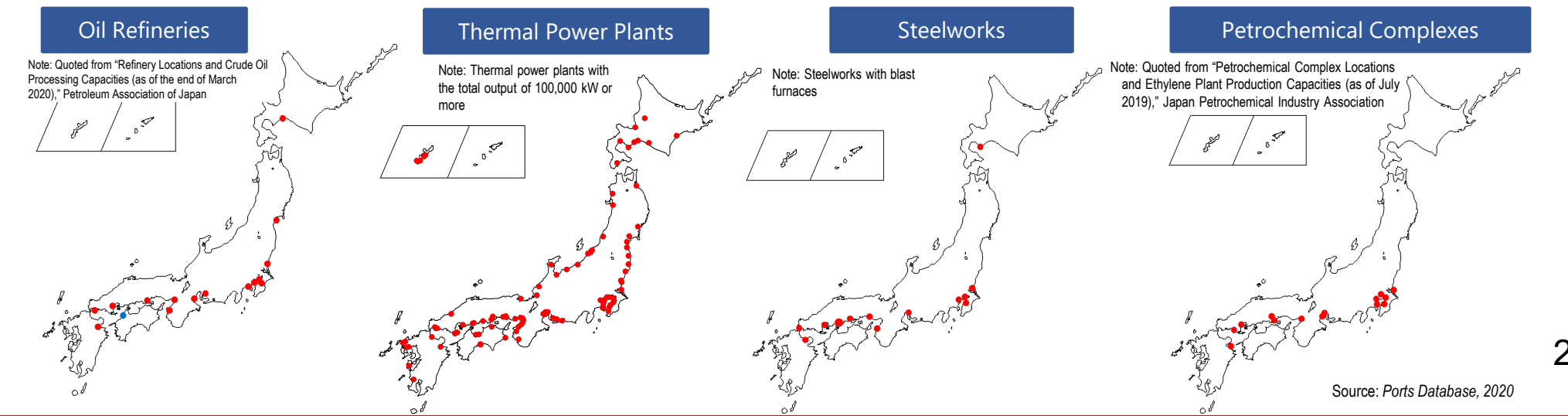


Dependency on imports

Crude Oil	99.7%
Coal	99.6%
LNG	97.8%
LPG	76.3%

Source: Prepared by MLIT based on SHIPPING NOW 2023-2024 published by Japan Maritime Public Relations Center

Most of oil refineries, power plants, steel works and the chemical industries are in ports and coastal areas



Carbon Neutral Port (CNP) Initiative

Supporting Industries' Energy Transition

In Japan, most refineries, power plants, ironworks, and chemical industries are located in ports and coastal areas.



Support the reduction of their GHG emissions by receiving hydrogen and ammonia.

Production of hydrogen and ammonia in foreign countries



Transportation



Receive & Store



Use

Decarbonization of Port Operations

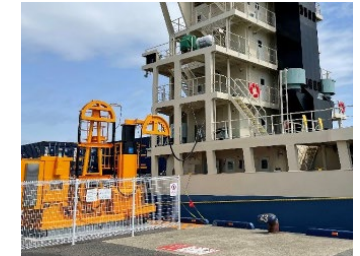
Globally, cargo owners, shippers and logistics providers are addressing the decarbonization of supply chains.



Environmental-friendliness plays an important role for ports to be selected.



Alternative fuel to a ship

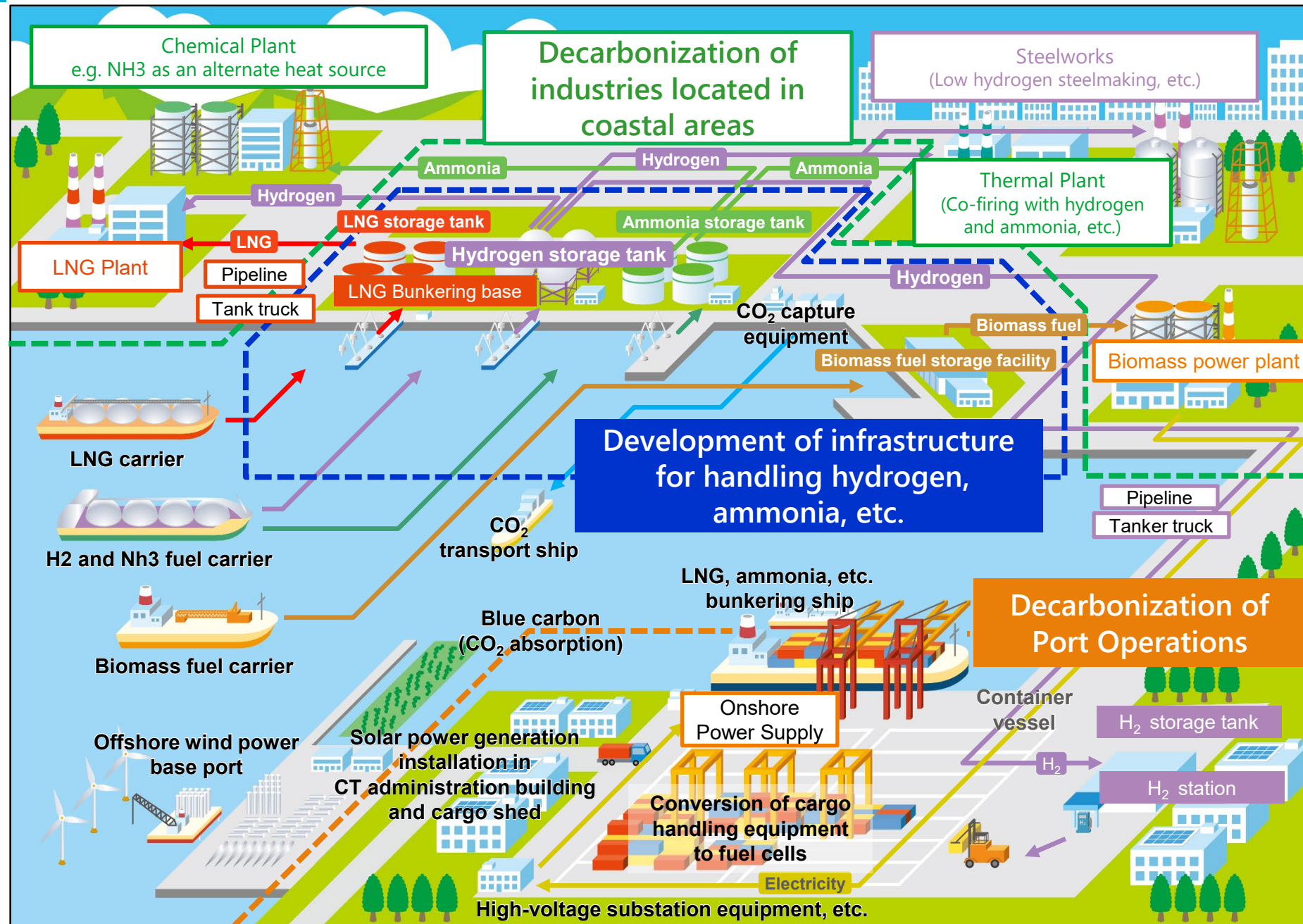


Onshore power supply to ships



Zero- and near-zero-emission cargo handling equipment

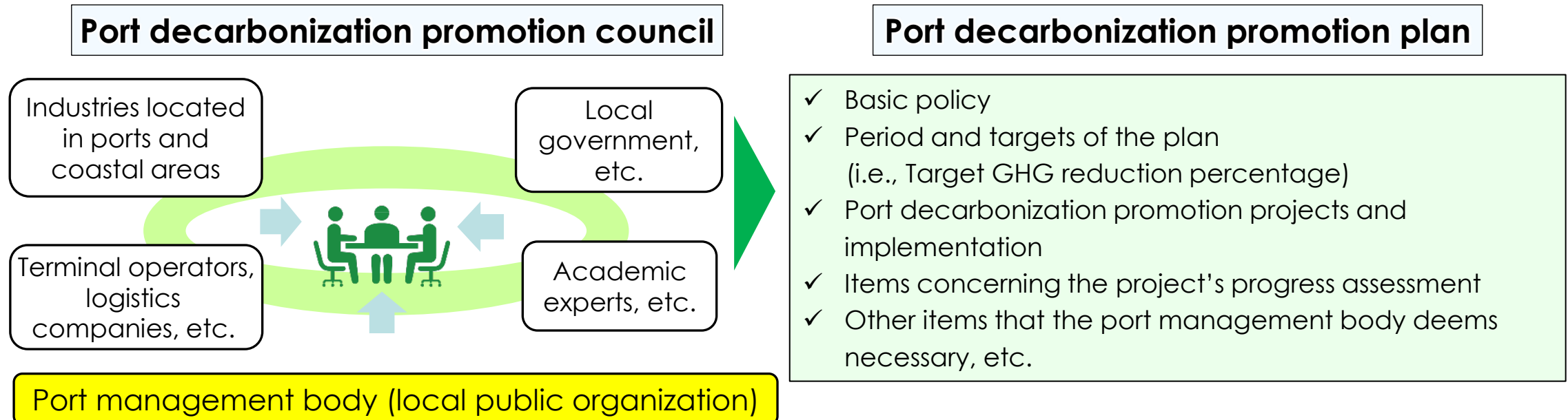
CNP Initiative Illustrated



Port and Harbor Act amended in 2022

The port management bodies may organize **port decarbonization promotion councils** consisting of the relevant local governments, logistics companies, and companies located in a port or harbor, and have them discuss the preparation and implementation of decarbonization plans.

Port management bodies may develop **port decarbonization promotion plans** that establish public-private partnership efforts to decarbonize ports.



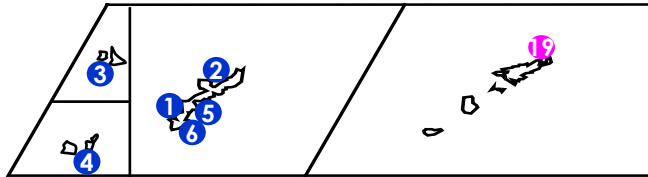
Port Decarbonization Promotion Council

- Total : 101 ports

Port Decarbonization Promotion Plan

- Total : 75 ports (*)

As of June 30, 2026



Okinawa General Bureau

1. Naha
2. Unten
3. Hirata
4. Ishigaki
5. Kinwan
6. Nakagusuku

Kyushu Regional Development Bureau

- | | |
|----------------|---------------|
| 1. Shimonoseki | 11. Oita |
| 2. Kita-Kyushu | 12. Tsukumi |
| 3. Hakata | 13. Beppu |
| 4. Kanda | 14. Saeki |
| 5. Miike | 15. Nakatsu |
| 6. Karatsu | 16. Hososhima |
| 7. Imari | 17. Aburatsu |
| 8. Nagasaki | 18. Miyazaki |
| 9. Sasebo | 19. Naze |
| 10. Yatsushiro | 20. Sendai |
| | 21. Shibushi |

Chugoku Regional Development Bureau

- | | |
|---------------------|-----------------------|
| 1. Tottori | 7. Hiroshima |
| 2. Sakaiminato | 8. Kure |
| 3. Hamada | 9. Tokuyama Kudamatsu |
| 4. Mizushima | 10. Ube |
| 5. Fukuyama | 11. Onoda |
| 6. Onomichi Itozaki | |

Shikoku Regional Development Bureau

- | | | |
|--------------|--------------------|------------|
| 1. Tokushima | 5. Matsuyama | 10. Kochi |
| 2. Tachibana | 6. Uwajima | 11. Susaki |
| 3. Takamatsu | 7. Niihama | |
| 4. Sakaide | 8. Toyo | |
| | 9. Mishima Kawanoe | |

Hokkaido Regional Development Bureau

1. Muroran
2. Wakkana
3. Tomakomai
4. Hakodate
5. Ishikari Bay New Port

Hokuriku Regional Development Bureau

- | | |
|-------------------|-------------|
| 1. Niigata | 6. Nanao |
| 2. Ryotsu | 7. Kanazawa |
| 3. Naoetsu | 8. Tsuruga |
| 4. Ogi | |
| 5. Fushiki-Toyama | |

Tohoku Regional Development Bureau

- | | |
|--------------------|-------------|
| 1. Aomori | 8. Akita |
| 2. Hachinohe | 9. Funakawa |
| 3. Miyako | 10. Noshiro |
| 4. Ofunato | 11. Sakata |
| 5. Kamaishi | 12. Onahama |
| 6. Kuji | 13. Soma |
| 7. Sendai Shiogama | |

Kanto Regional Development Bureau

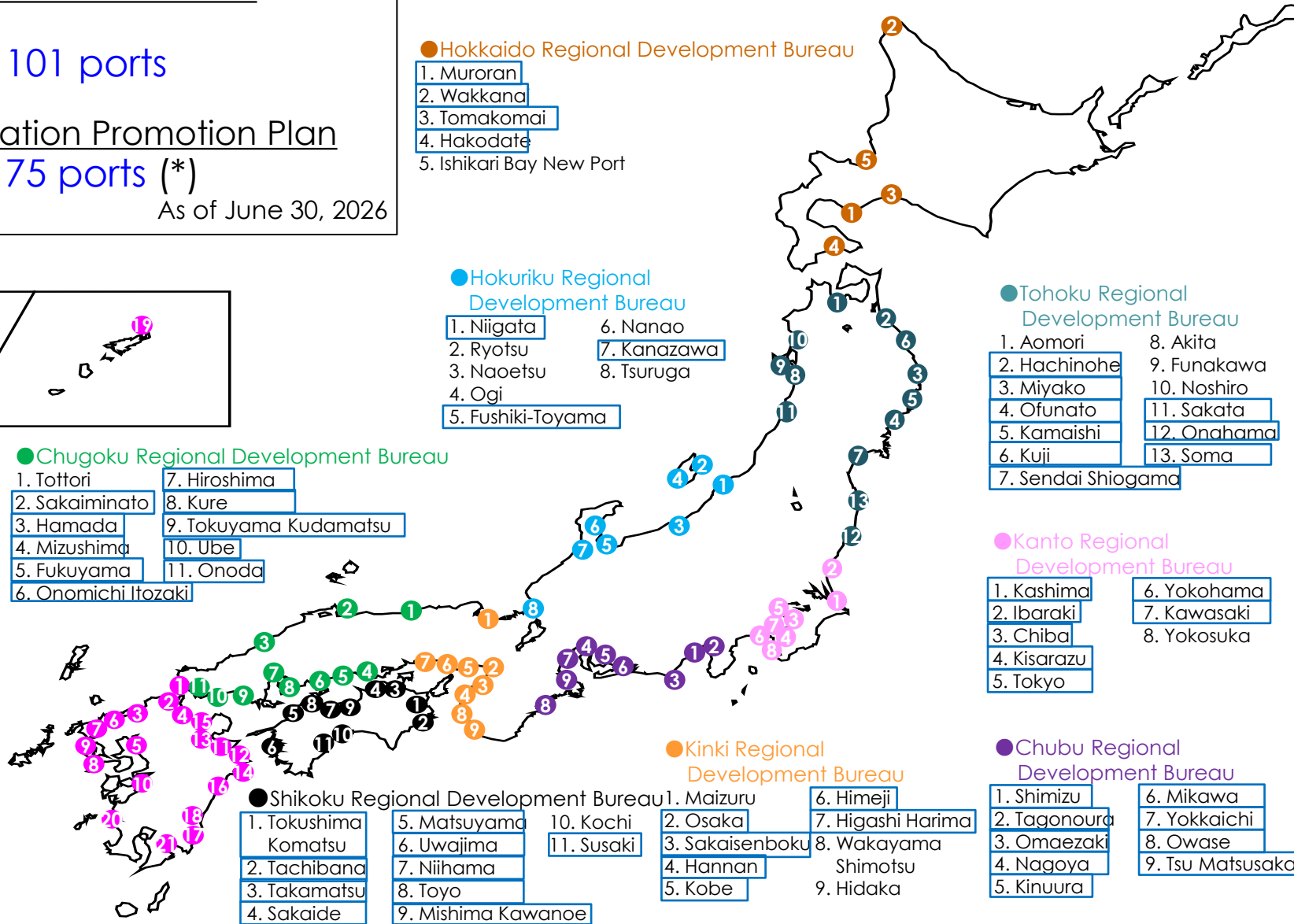
- | | |
|-------------|-------------|
| 1. Kashima | 6. Yokohama |
| 2. Ibaraki | 7. Kawasaki |
| 3. Chiba | 8. Yokosuka |
| 4. Kisarazu | |
| 5. Tokyo | |

Kinki Regional Development Bureau

- | | |
|-----------------|-------------------|
| 1. Maizuru | 6. Himeji |
| 2. Osaka | 7. Higashi Harima |
| 3. Sakaisenkoku | 8. Wakayama |
| 4. Hannan | 9. Hidaka |
| 5. Kobe | |

Chubu Regional Development Bureau

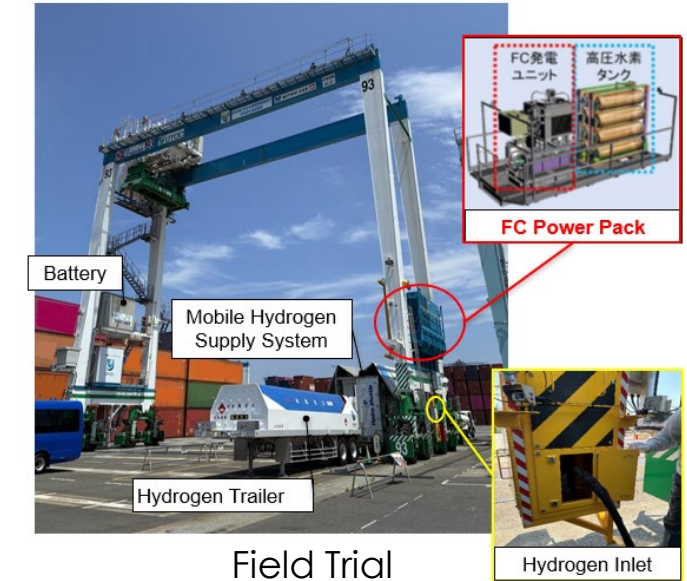
- | | |
|--------------|------------------|
| 1. Shimizu | 6. Mikawa |
| 2. Tagonoura | 7. Yokkaichi |
| 3. Omaezaki | 8. Owase |
| 4. Nagoya | 9. Tsu Matsusaka |
| 5. Kinuura | |



■ Hydrogen-Fueled RTG

Field trials were carried out at three ports.

Japan has been developing a guideline for the safe and efficient introduction of hydrogen-fueled cargo handling equipment.



Field Trial
(Yokohama port, August 2025)

■ Hydrogen Ready RTG

Hydrogen Ready RTGs have been widely spreading at container terminals in Japan, which are equipped with larger capacity lithium-ion batteries for direct powering and a small engine primarily used to recharge the battery.

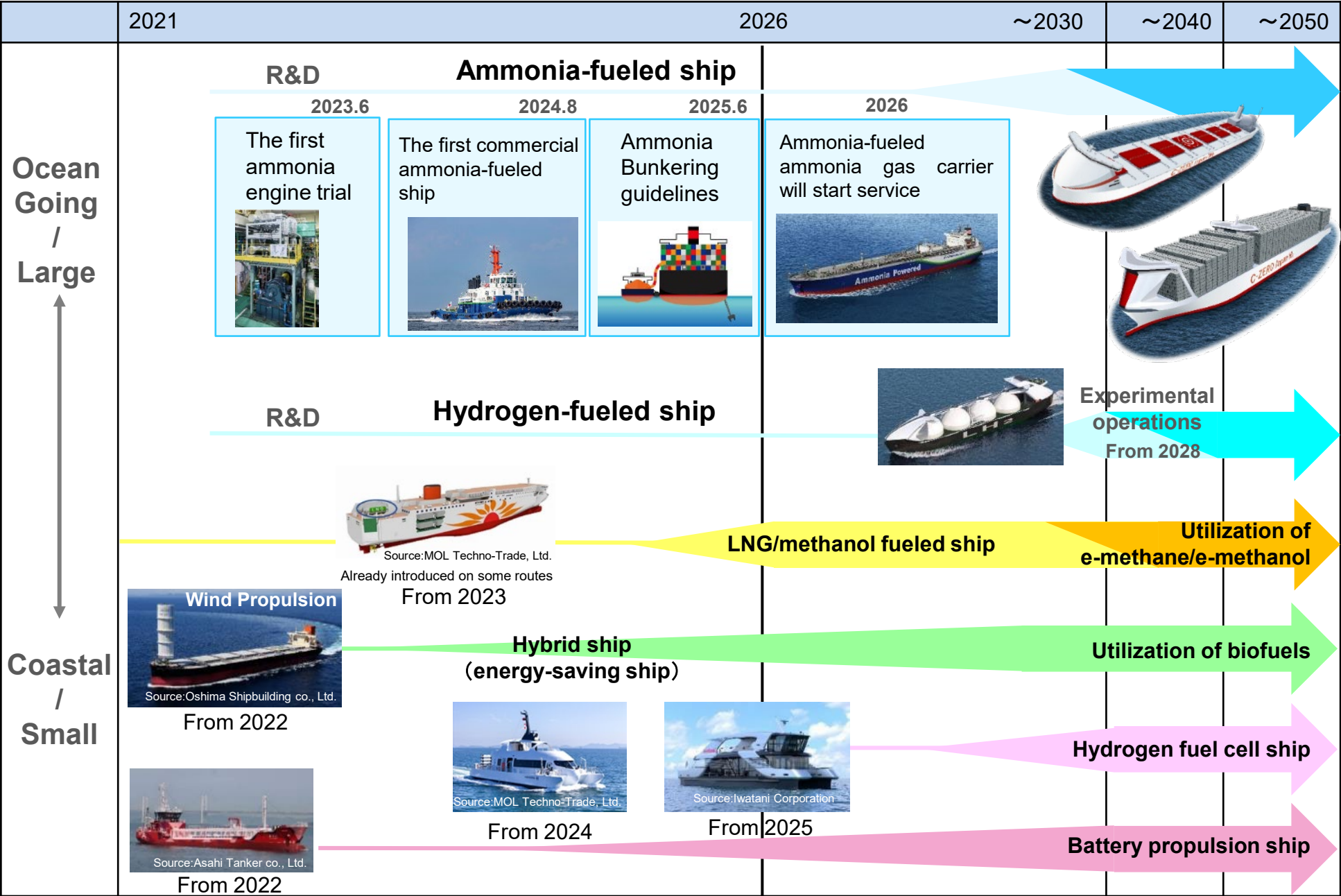
It is ready for an easy conversion to a hydrogen-fueled crane by replacing the small diesel genset with a fuel cell power module, once hydrogen infrastructure can support it.



Hydrogen-ready RTG
introduced at Kobe port

Source: Mitsui E&S

Development of zero-emission ships in Japan



■ Guidelines

MLIT has developed safety guidelines for bunkering alternative fuels, including LNG, ammonia, and methanol.

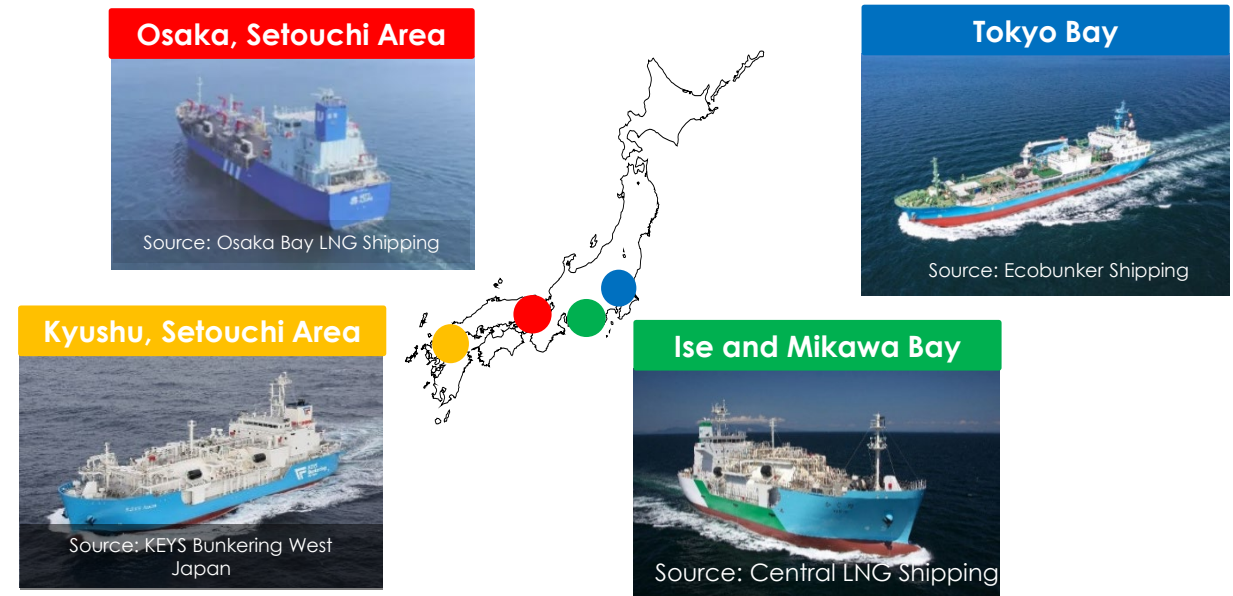
■ LNG bunkering

MLIT has been providing support for facility development at 4 LNG bunkering bases.

■ Methanol bunkering

In February 2026, Japan's first ship-to-ship bunkering of methanol vessel fuel at anchorage was successfully carried out in Yokohama port.

Several Japanese companies aim to commercially supply methanol in Japan.



LNG Bunkering Bases



Methanol Bunkering (Yokohama port, February 2026)

Source: MOL, Kokuka Sangyo, MGC, Idemitsu, City of Yokohama

Safety Materials for Alternative Fuel Bunkering

For safe and smooth introduction of alternative fuel bunkering, MLIT has developed materials organizing safety procedures.

	L N G	Ammonia	Methanol
Material	"Guideline and Manual for LNG Transfer Operation" (Ship to Ship Volume) (Shore to Ship Volume) (Truck to Ship Volume)	"Guideline for Ammonia Bunkering" (Common Volume) (Ship to Ship Volume)	"Summary Report of the Study Group on the Formation of Methanol Bunkering Hubs"
Issuing Entity	Maritime Bureau, MLIT	Maritime Bureau, MLIT	Ports and Harbours Bureau, MLIT
Issue Date	Jun. 2013 Jun. 2023: Revised	Jun. 2025	Mar. 2025



As part of the CNP initiative, new OPS facilities have been installed in Japanese ports.



Kobe Port (for Training Ships)



Kobe Port (for Domestic Cargo Ships)



Nagoya Port (for Work Vessels)



Hakata Port (for Ferry)

Source : Fukuoka City

■ Development of liquefied hydrogen supply chain

Japan plans to start transporting liquefied hydrogen from overseas and supplying it to domestic customers commercially from 2030.



Liquefied Hydrogen Terminal

Source: Japan Suiso Energy, Ltd.



Liquefied Hydrogen Carrier

Source: Kawasaki Heavy Industries, Ltd.

■ Supports for the introduction of hydrogen, etc.

The Japanese government has been providing support to early-stage, high-potential businesses that utilize hydrogen and ammonia, etc.

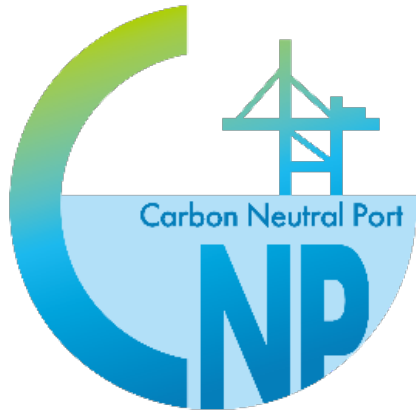
■ Guideline for handling bases in ports

MLIT has issued a guideline for port management bodies and private entities on the development of handling bases for hydrogen, ammonia, etc. in ports.



Construction work of ammonia tanks at a thermal power station

Source: JERA



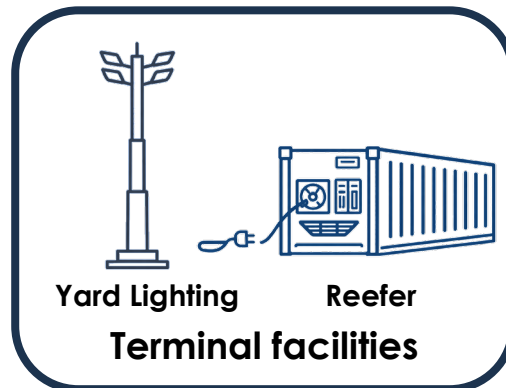
CNP certification (Container Terminal) aims to promote decarbonization efforts at terminals and support the development of CNP by providing transparency and objective evaluation.

- Certification Body: Ports and Harbours Bureau, MLIT
- Certification Targets: Container terminals in Japan
- Applicants: Port administrators (public) or Terminal operators (private)

Decarbonization Efforts to be Evaluated

Decarbonization Efforts Related to Cargo Handling at Terminals

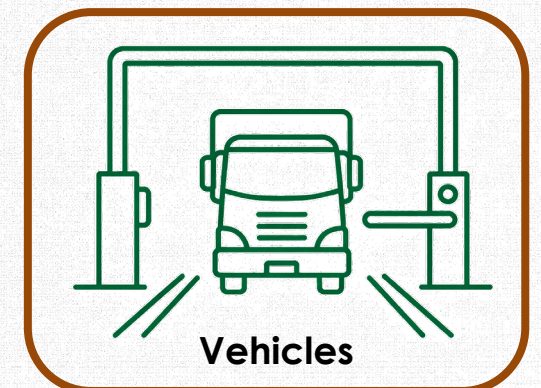
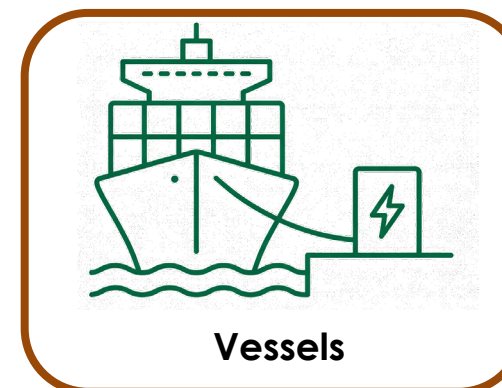
Scope 1 & 2



- Low-carbonization/decarbonization for cargo handling equipment and terminal facilities (Yard Lighting and Reefer, etc.)

Decarbonization Efforts Related to Vessels and Vehicles Using Terminals

Scope 3

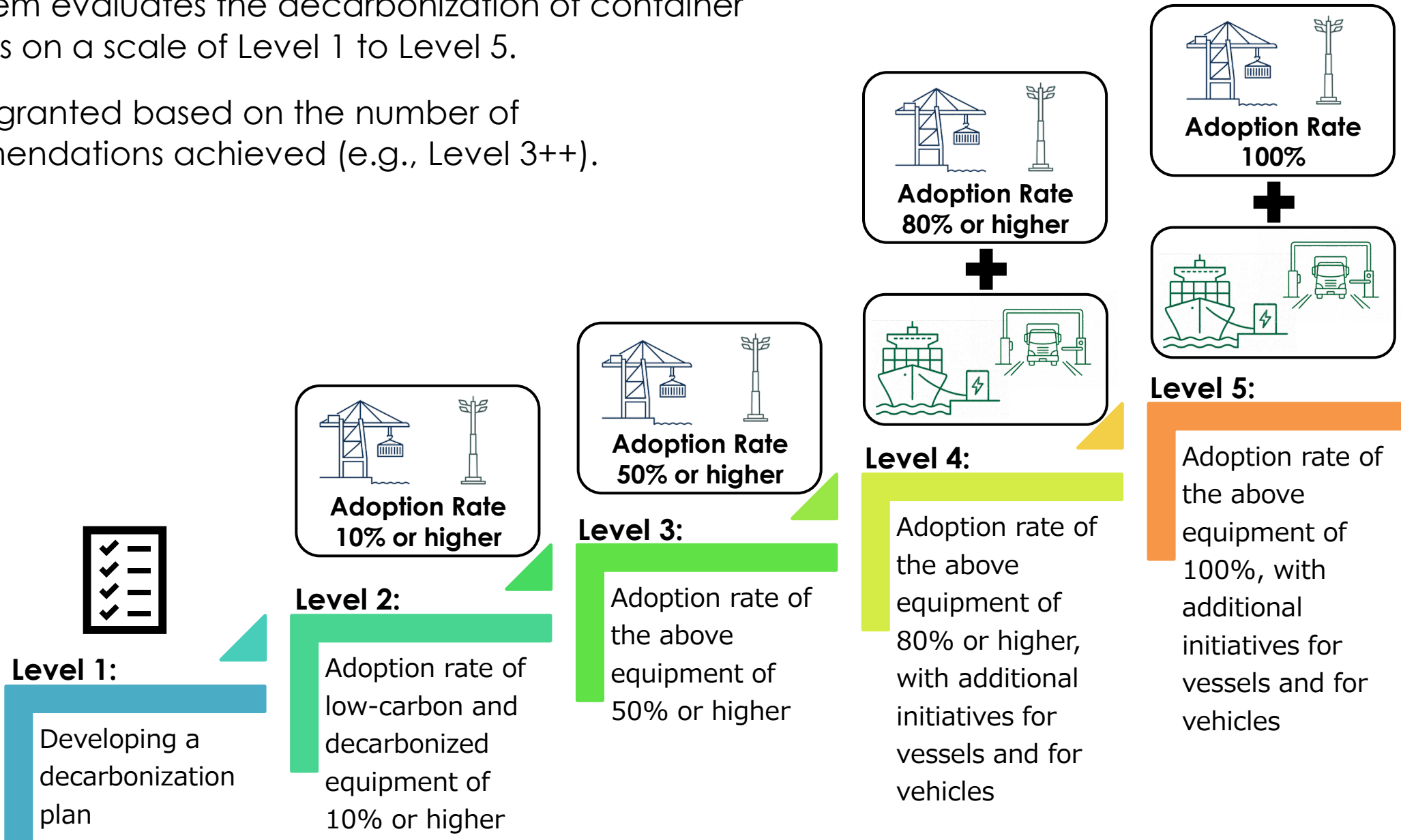


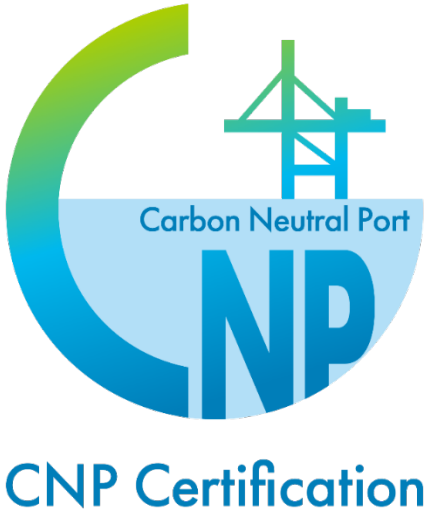
- Onshore electricity supply for berthing vessels
- Low-carbon and decarbonized fuels bunkering for vessels
- Measures to mitigate traffic congestion at terminal gate

Evaluation Methods (Certification Level Criteria)

The system evaluates the decarbonization of container terminals on a scale of Level 1 to Level 5.

A “+” is granted based on the number of recommendations achieved (e.g., Level 3++).





**Certification Level
Level 5 +**

(Certification date: Sep. 25, 2025)



Introduction of 26 e-RTG Cranes



Introduction of 6 STS Cranes
with Inverter Control Systems



Enhanced efficiency in cargo pick-up and
delivery through the implementation of the
gate processing system



Conversion of 10 Yard Lighting
Units to LED

■ Yokohama Port won the IAPH 2025 Sustainability Awards

Won the first prize in the Climate and Energy category of the IAPH 2025 Sustainability Awards, in recognition of its partnership with the public, private, and international organizations, including 121 initiatives led by private companies.



IAPH World Port Conference (Kobe, October 2025)

■ ASEAN - Japan Collaboration

At the ASEAN-Japan Port Technology Group Meeting, the "Guideline for realizing CNPs in ASEAN countries" has been developed.

It is also given status as one of the initiatives in the action plan in the 2nd AZEC (Asia Zero Emission Community) Leaders' Joint Statement (October 2024).



ASEAN-Japan Port Technology Group Meeting (Cambodia, December 2025)