

## 1. Objective

- Tokyo Metropolitan Government (TMG) has set a goal to achieve “carbon half” by 2030, and become fully carbon neutral (net zero) by 2050.
  - As global awareness rises, environmental conservation and decarbonization initiatives have become key factors when considering ports.
- ▶ The **Port of Tokyo CNP Implementation Plan** was developed to promote strategical efforts to decarbonize the Port of Tokyo.

## 2. Principles

### (1) Positioning of Plan

- The plan was developed by **TMG as the administrator of the port**, based on the current status and input from companies and organizations participating in the Port of Tokyo CNP Implementation Plan taskforce.
- It establishes **strategies and roadmaps** for the **entire port community**, including private entities such as port operators, shipping companies, etc.
- Basic approach towards decarbonization is to:
  - ✓ Promote **efficient area-wide decarbonization** of the port district including inland areas adjacent to terminals, through public-private partnership.
  - ✓ **Establish supply system** with neighboring municipalities and energy companies, to **optimize hydrogen and fuel ammonia supply** in the district.

### (2) Target Areas

- The plan covers following commercial activities **within areas shown on right**.
  - Logistical activities such as cargo operations at terminals** including international container, domestic unit load and conventional terminals
  - Vessels berthed at terminals** (maritime transportation) and **vehicles traveling in the port** (truck transportation)
  - Commercial activities in warehouses, refrigerated warehouses, factories, etc.** in areas adjacent to terminals



Scope of Port of Tokyo CNP Implementation Plan

## 3. Estimated Greenhouse (GHG) Gas Emissions

CO<sub>2</sub> emissions estimated from **entire port district** including private entities such as **port operators** and **shipping/trucking companies**

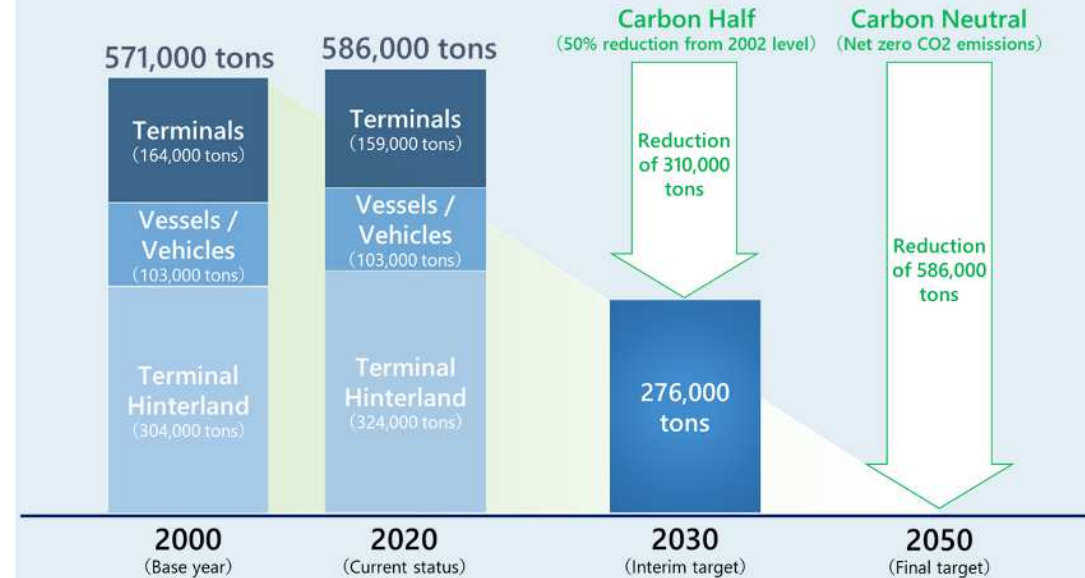
### CO<sub>2</sub> Emissions from Port of Tokyo

Category			CO <sub>2</sub> Emissions (tons)	
			2020	2000
<b>Entire Port District</b>			<b>586,000</b>	571,000
<b>Breakdown</b>	<b>Terminals</b>	Gantry cranes, RTGs, forklifts, sheds, etc.	<b>159,000</b>	164,000
	<b>Warehouses, factories, etc.</b>	Warehouses, refrigerated warehouses, factories, etc.	<b>324,000</b>	304,000
	<b>Vessels &amp; vehicles</b>	Vessels at berth, truck transport within port	<b>103,000</b>	103,000

## 4. Targets & Plans for GHG Reduction

**Final goal: Carbon neutrality by 2050** (net zero CO<sub>2</sub> emissions)

**Mid-term: Carbon-half by 2030** (50% reduction from 2000)



\* Additional target set to resource 30% of electricity from renewable sources by 2026, and 50% by 2030.

## 5. Key Initiatives towards Carbon Neutrality

### (1) Reduction of CO<sub>2</sub> Emissions from Land Transportation through Green and Seamless Logistics

#### ■ Construction and reorganization of terminals

- ✓ Reinforce **container terminal functionality** through development/reorganization of Y3, Aomi and other terminals

#### ■ Adopting Information & Communications Technology (ICT)

- ✓ Introduce **reservation system** for transactions at all container terminals
- ✓ Promote **remote-operated cargo handling** at container terminals

#### ■ Promoting modal shift

- ✓ Reduce trucks entering port by shifting from truck to **ship and rail**



ICT Adoption



Modal Shift (to ship and rail)



## (2) Green Energy and Conservation

### ■ Promoting usage of green energy

- ✓ Supply **all container terminals** with **green power** from renewable sources by April 2024
  - \* Shinagawa and Outer Central Breakwater Terminals are supplied with green power since July 2022
- ✓ Add solar power systems to **rooftops** and **unused space above tunnels** within port district
- ✓ Provide **shore power** in terminals and reduce CO<sub>2</sub> emissions from vessels at berth



Roof-top Solar Power Systems

### ■ Reviewing commercial activities to reduce environmental impact

- ✓ Conserve energy in **buildings**, adopt zero-emission **vehicles/equipment** and optimize **business practices**



FC Vehicles and EV Trucks

### ■ CO<sub>2</sub> absorption methods

- ✓ Develop and preserve **seaweed beds** that constitute **blue carbon ecosystems** and serve as carbon sinks

## (3) Shift from Fossil Fuel to Hydrogen and other Renewable Energy Sources

### ■ Promoting cargo handling machinery powered by next generation energy sources

- ✓ Replace **all RTGs** (approx. 140) with models driven by engines that can be retrofitted with **fuel-cell modules**
- ✓ Conduct **pilot project** with such type of RTG using **hydrogen** as its energy source



Fuel-cell Enabled RTG

Engine replaceable with fuel-cell

### ■ Adopting stand-alone power generation systems using hydrogen and other sources

- ✓ Equip **stand-alone power generation systems** to secure power supply during shortages

### ■ Promoting vessels powered by next generation energy sources

- ✓ Shift towards **next generation energy sources** starting with replacement of **TMG-owned vessels**

Hydrogen Power Generation System

▶ Hydrogen demand in 2050 at the Port of Tokyo is expected to be around **13,000 tons per year**.



## 6. Implementation & Progress Management

- TMG to meet regularly with stakeholders to **accelerate implementation** of plan and **assess progress**.
- Plan to be **revised as necessary**, based on updated GHG reduction policies, technological progress and accomplishment of initiatives, etc.