

CITY OF YOKOHAMA

4th International Forum on Low Carbon Cities

*Innovation and Technology for Green
Transformation for Urban Resilience
in Yokohama City*

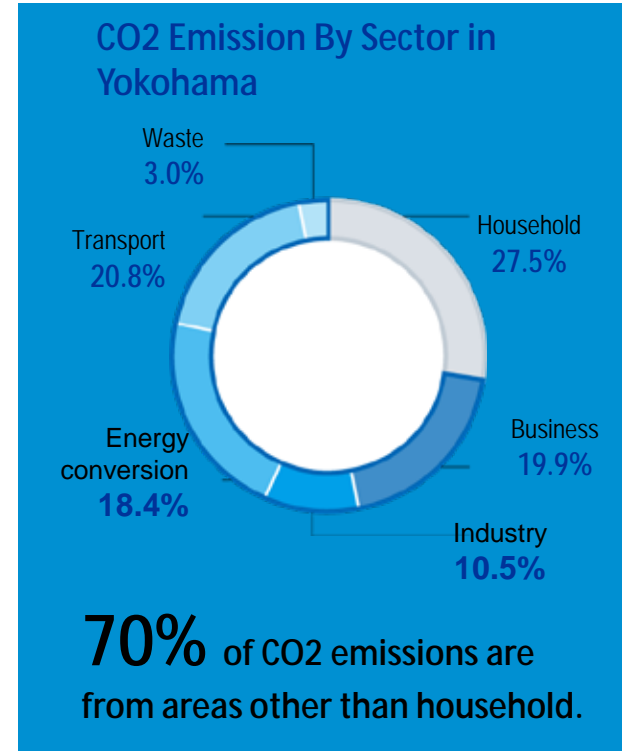
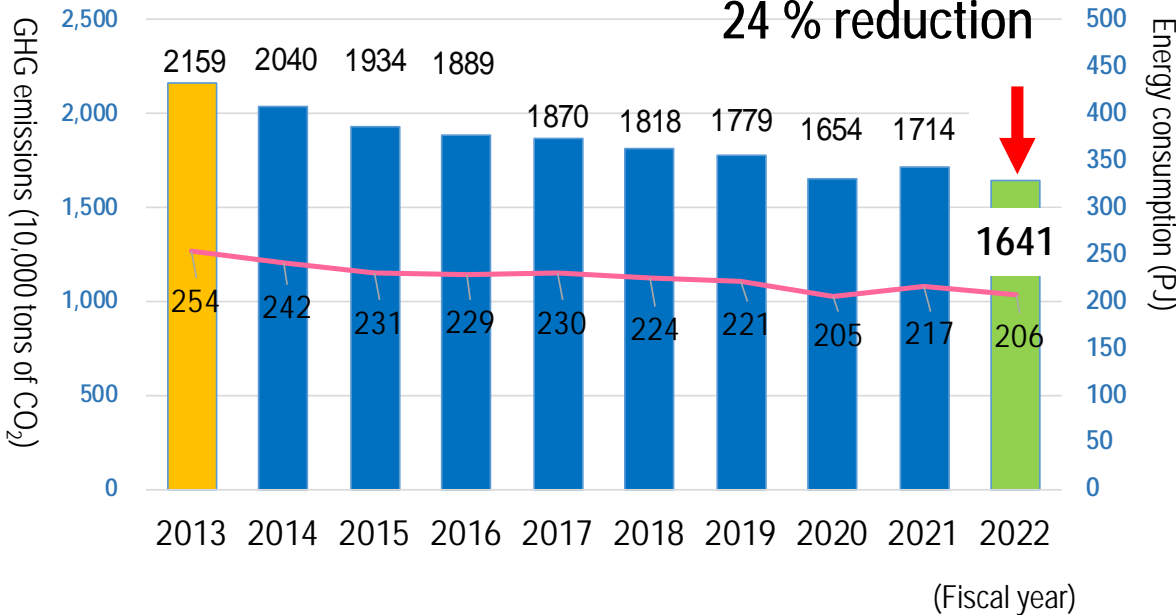
Hisanori OKAZAKI

明日をひらく都市
OPEN X PIONEER

GHG Emissions in the Yokohama City Area

∅ Total GHG emissions in Yokohama in 2022 was 16.41 million tons, 4.3% decrease compared to the previous year and 24% decrease from the base year (2013).

GHG emissions Energy consumption



1. Carbon neutral port
2. Leading decarbonization area
3. Other

Overview of the Port Area of Yokohama

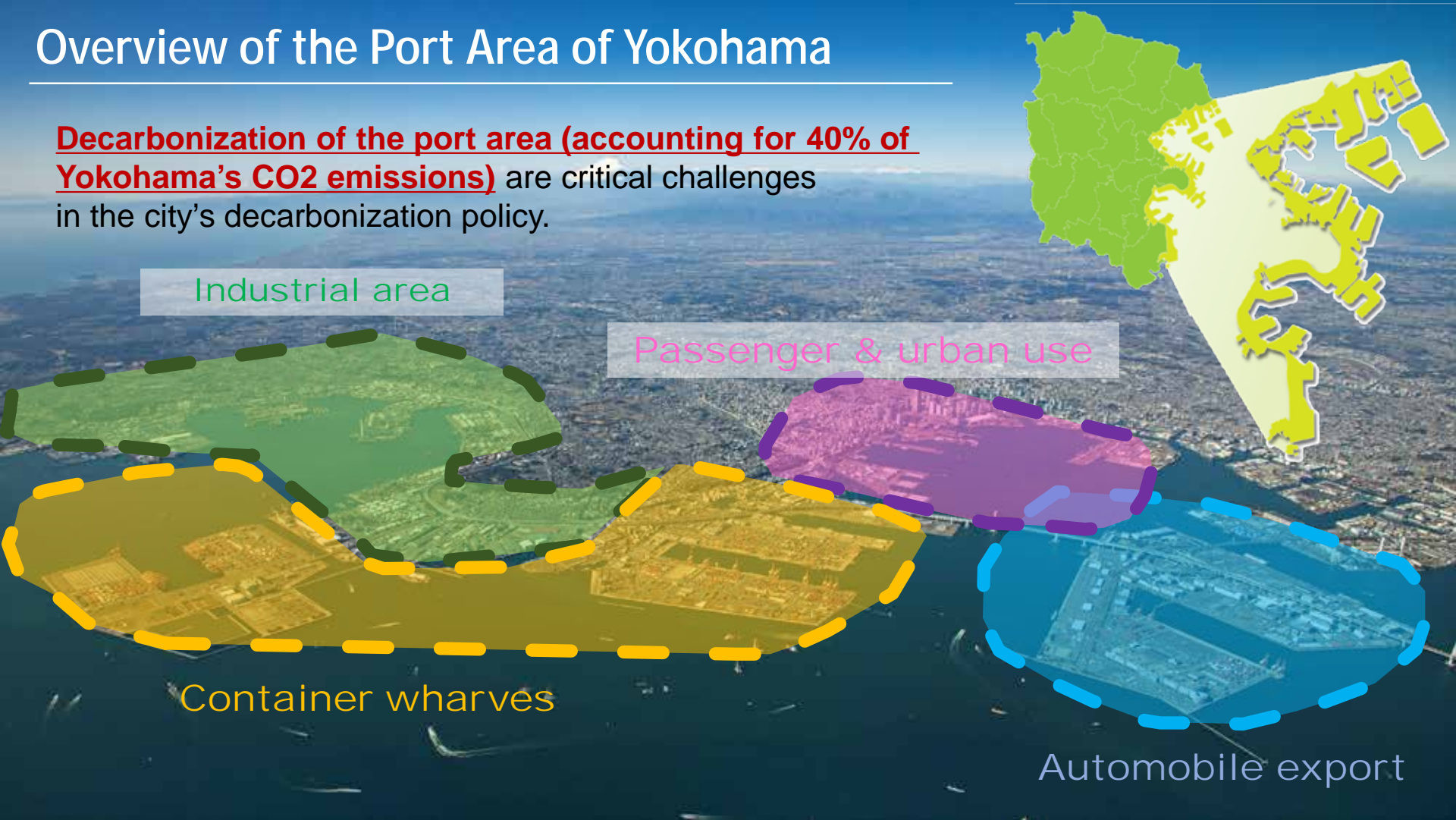
Decarbonization of the port area (accounting for 40% of Yokohama's CO2 emissions) are critical challenges in the city's decarbonization policy.

Industrial area

Passenger & urban use

Container wharves

Automobile export



A new way to carry electricity across oceans



明日をひらく都市
OPEN X PIONEER

The City of Yokohama has signed a Partnership Agreement with **TEPCO Power Grid** and Japanese most famous Startup, “**Ocean Power Grid**” to carry green-electricity generated by wind using Battery Tankers offshore. (2024.4.24)

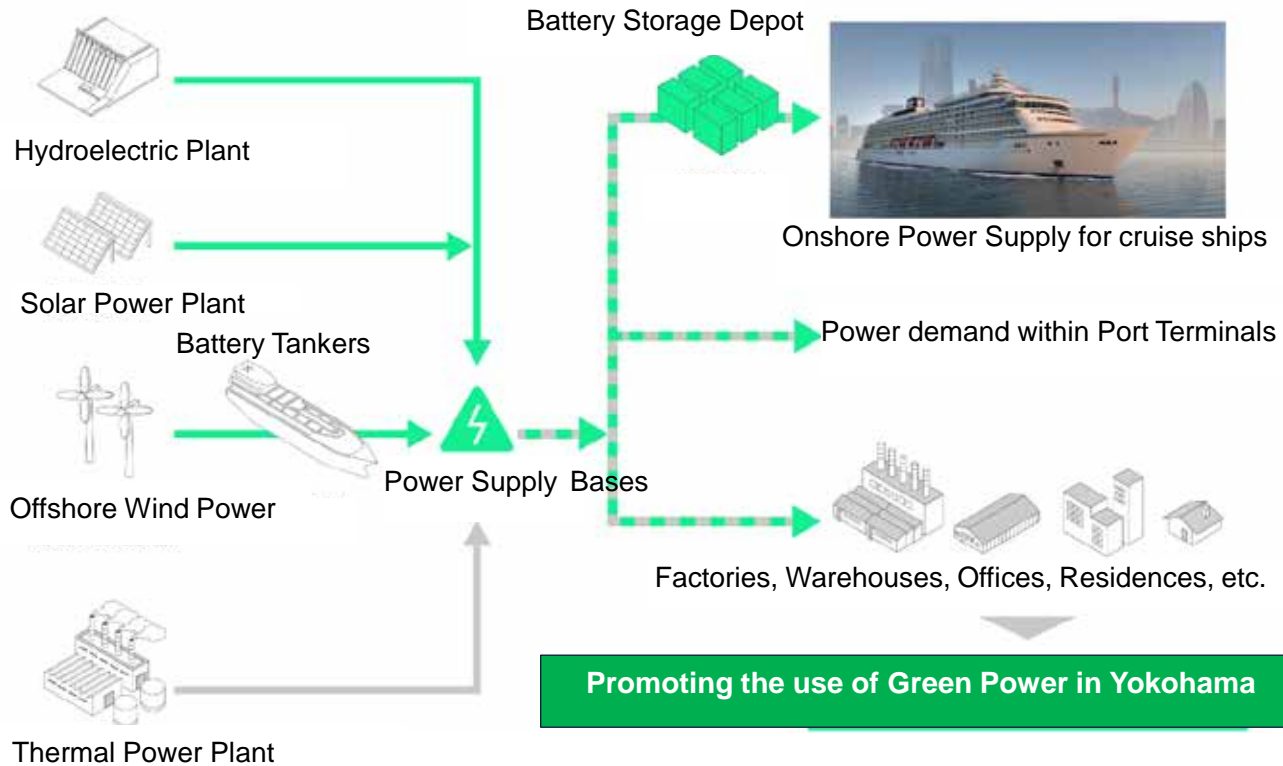


- Ship green electrons to places they are needed.
- Tanker X use cases: grid to grid, offshore wind to grid, grid to island
- Enhance regional resilience by securing power supply during natural disasters.
- This new energy model will be able to connect cities and countries and create a global power grid across oceans.

A new way to carry electricity across oceans



明日をひらく都市
OPEN X PIONEER



Methanol bunkering simulation

" the number of methanol-fueled ships increase

" Necessity to establish a methanol bunkering system at domestic ports

" "methanol bunkering simulation" as one of the efforts to realize a safe ship-to-ship fuel supply



Methanol-fueled container ship "Alette Maersk"



Ship-to-ship situation

Ammonia bunkering on ammonia-fueled tugboats

Ammonia fuel was supplied to the ammonia-fueled tugboat using the truck-to-ship method.

Ammonia bunkering in progress

Bunkering method

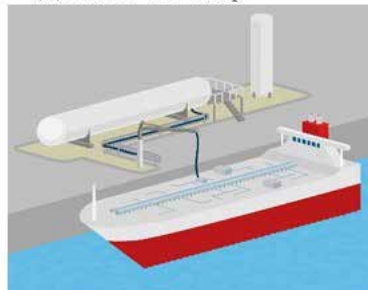
(1) Truck to Ship



(2) Ship to Ship



(3) Shore to Ship



Leading regions for decarbonization



明日をひらく都市
OPEN X PIONEER

Minato Mirai 21 District

This area symbolizes Yokohama's office, commercial, and tourist areas , and is home to many companies and facilities that are keen to achieve decarbonization.

The area is also a high-demand area,



Employment population	134,000 people Number of business establishments (1,930)
Resident population	9,000 people
Number of visitors (estimated)	77.3 million(2023) 66.8million(2022)
Land Use Planning	186 hectares <ul style="list-style-type: none">• Residential land 87hectares• Roads and railways 42hectares• Parks and green spaces 46hectares• Pier 11hectares

Leading regions for decarbonization



Conversion of electricity to renewable energy

The need for collaboration with other cities

<Characteristics of our city>

The city's **potential for renewable energy generation is low**, estimated at about



Supply of renewable energy from outside the city is essential

Leading regions for decarbonization



明日をひらく都市
OPEN X PIONEER

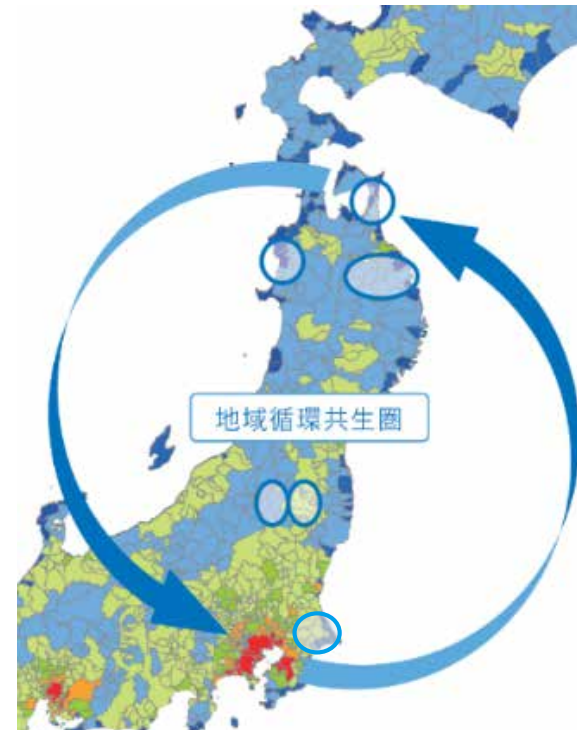
Conversion of electricity to renewable energy

(1) Supply of renewable electricity generated outside the pilot region

(a) Strengthening cooperation with other local governments



地図出典:平成27年環境白書



Leading regions for decarbonization



明日をひらく都市
OPEN X PIONEER

Conversion of electricity to renewable energy

(1) Supply of renewable electricity
generated outside the pilot region

(b) Strengthening cooperation with other local governments

【連携協定を締結している自治体 2023年4月現在】

- ・青森県横浜町
- ・岩手県東北広域振興局対象自治体等
(久慈市、二戸市、葛巻町、普代村、軽米町、
野田村、九戸村、洋野町、一戸町)
- ・秋田県八峰町、大瀧村、湯沢市
- ・福島県会津若松市
- ・福島県郡山市
- ・茨城県神栖市

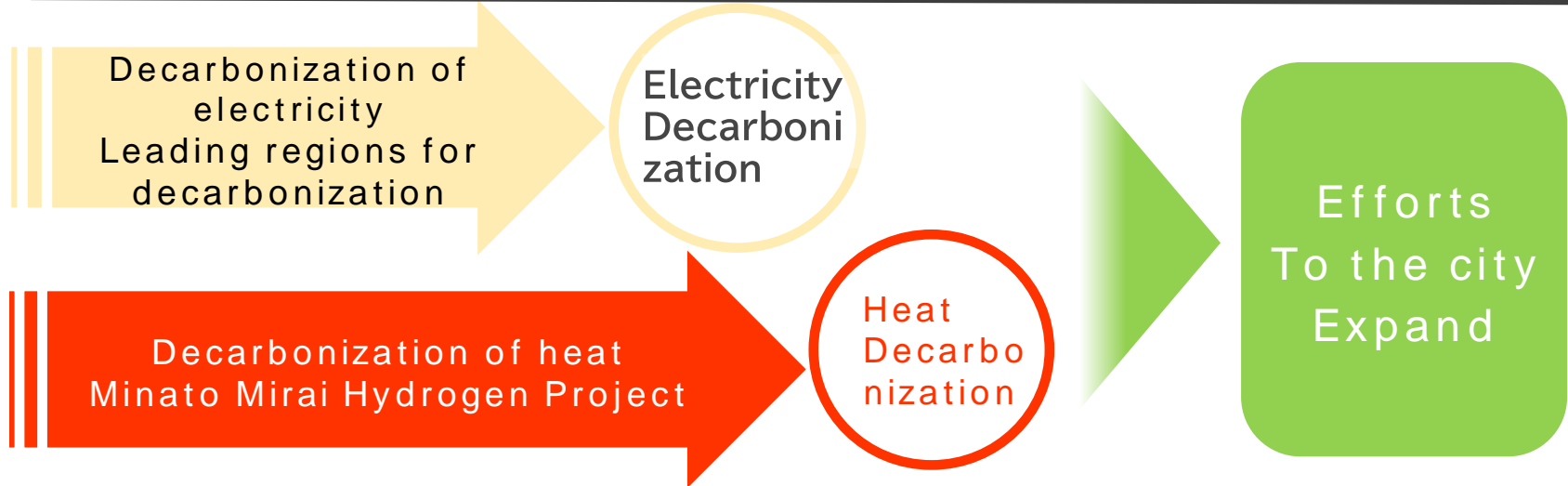
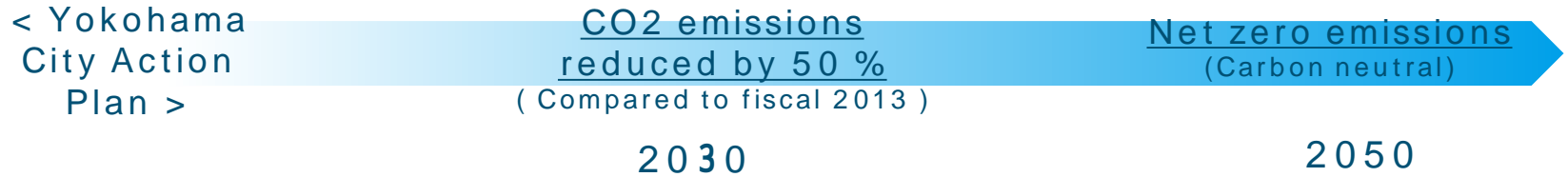


Ceremony to mark the start of the supply
of renewable energy electricity

Decarbonization efforts in the Minato Mirai 21 district



明日をひらく都市
OPEN X PIONEER



Reduction and decarbonization of heat in district air-conditioning



明日をひらく都市
OPEN X PIONEER

In collaboration with companies engaged in the heat supply business in the preceding area, we will introduce high-efficiency heat source equipment, switch to renewable energy sources for electricity used in heat production, and use hydrogen to reduce the use of heat and decarbonize the industry.

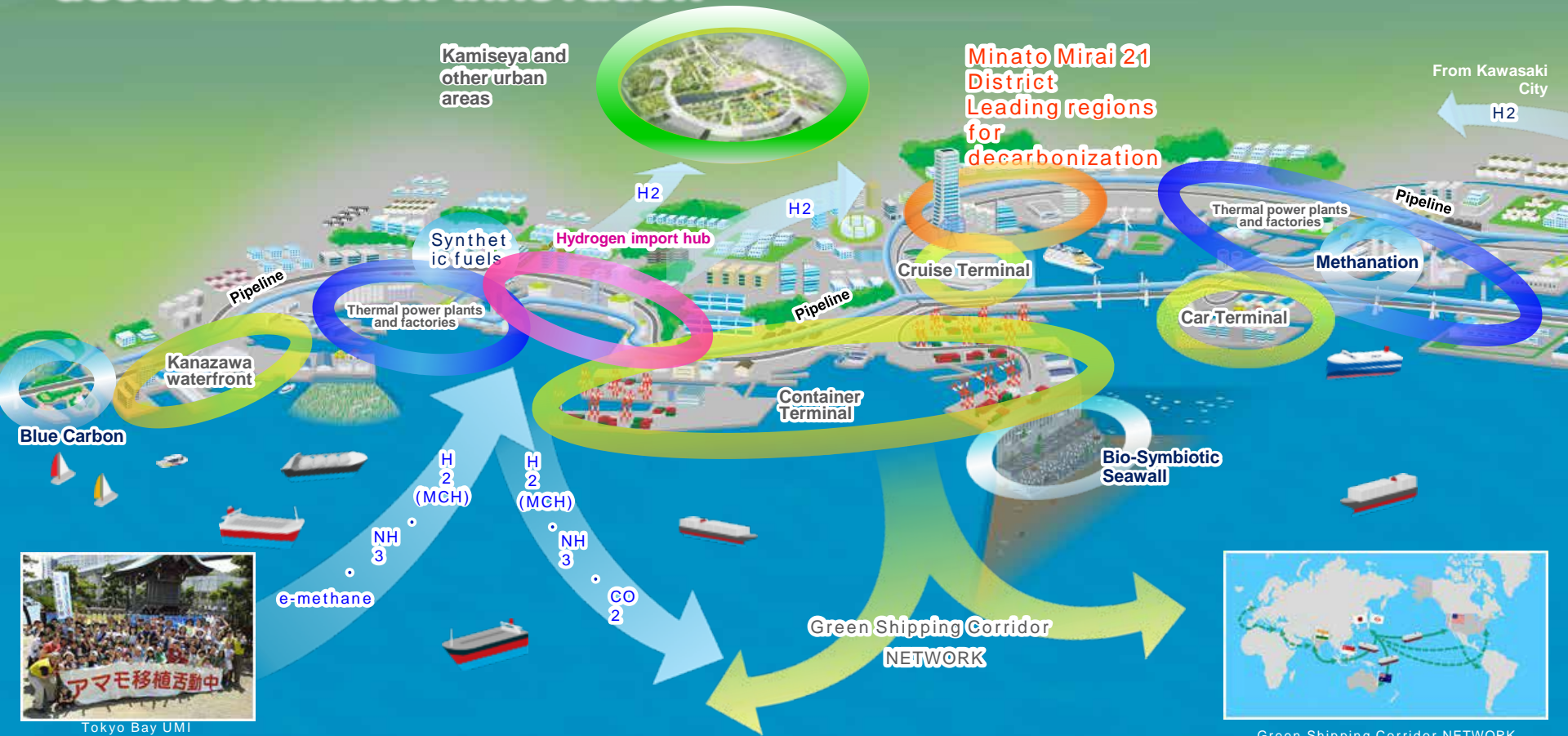
Heat Provider

A system that produces cold & hot water, etc. in a single location and supplies them to the city (building) through conduits.



引用：一般社団法人日本熱供給事業協会ホームページ

Yokohama's goal for decarbonization innovation



Tokyo Bay UMI Project



Green Shipping Corridor NETWORK