

Port and Harbor Decarbonization Plan for the Port of Yokohama (Appendix)

4-1. Projects related to the reduction of greenhouse gas emissions and maintaining and improving absorption



Revised March 2026

(Formulated March 2025)

City of Yokohama

(Port Management Body of the Port of Yokohama)

4. Port decarbonization promotion projects and their implementers

4-1. Projects related to the reduction of greenhouse gas emissions and the conservation and enhancement of absorption

4-1-1. Efforts to decarbonize the waterfront area

The project to promote decarbonization of ports and harbors in the waterfront area of Yokohama City (initiatives to decarbonize the waterfront area) and its implementing entities are as follows.

These are the current status of studies conducted by each entity. The report will be updated to reflect the consideration of each entity in light of future developments in technologies that contribute to decarbonization and changes in social conditions, as well as the progress of inter-company collaboration and the participation of new entities.

(1) Short to medium term (FY2030)

Table 25: Efforts to decarbonize the waterfront area (short- and medium-term)

Waterfront Area Initiatives						
Initiatives	Implementing Entity	Place	Implementation period	Scale and Breakdown of Initiatives	Project Effectiveness (CO2 reduction t/year)	Note
Energy-saving lighting equipment (LEDs, etc.)	AGC	Yokohama technical center	2019～2021	1,200,000kWh	—	
	ENEOS	Yokohama Factory	FY2023～	FY2023 110lights 9.2kW	58	
	Ohgishima Power	Ohgishima power station	FY2013～FY2023	full implementation	169	
			FY2024～FY2025 (Actual)	full implementation	5	
			FY2026 (Plan)	full implementation	41	
	Tokyo Gas	Tsurumi ward	FY2024 introduction	full implementation	2	
	Toshiba Energy Systems & Solutions	Keihin office	FY 2024～	72% introduction rate	40	
	Yokohama City University	All campuses	2021～FY2026	58.3MWh	27	
	IHI	Yokohama office	2021～FY2024	Adoption rate 95 %	800	
	JFE Engineering	Yokohama head office	Implemented in FY2022	full implementation	350	
	Mitsubishi Heavy Industries	Honmoku	～FY2026	full implementation	40	
Energy conservation in air conditioning and heat source equipment, etc. (Equipment renewal, energy management, DHC improvement, etc.)	Uyeno Group Holdings Ltd	Head Office Building	FY 2024	(Before renewal) Electricity consumption: 135,502 kWh	34	
	AGC	AGC Yokohama technical center	～2030	Energy Management in Common Sector	3,700	
	Ohgishima Power	Ohgishima power station	FY2025 (Actual)	Renewal of GHP system in the office building	35	
	TOAGOSEI	YOKOHAMA PLANT	Implemented in FY2020-2025, with effects occurring after completion.	Renewal of No. 1 turbo refrigerator	Under confirmation	Equipment commenced operation in June 2025
	Yokohama City University	Fukuura campus and affiliated hospital	2021～FY2026 2021～FY2027 2021～FY2024	A. Renewal of power receiving and transforming equipment and high-efficiency transformers B. Renewal of aging air conditioning equipment C. Steam piping repair (leak), hospital vertical piping (south side) repair	47	The Citizen's Medical Center and Kanazawa Hakkei Campus will work on the same basis, but since they are outside the scope of the project, CO ₂ emissions reductions will not be recorded.
			2022～FY2026 2022～FY2026 2023～FY2026	A. Fin cleaning of PAC outdoor unit. B. Cooling water pump INV conversion C. Renewal of cooling unit in low-temperature room	5	
	JFE Engineering	Yokohama head office	Operation to start in FY2023	Introduction of storage batteries(2.5MW/5MWh)	—	
	Mitsubishi Heavy Industries	Honmoku	～FY2027	Renewal and rationalization of air conditioning and hot water supply facilities	120	
	Uyeno Group Holdings Ltd	Head Office Building	FY 2024	(Before renewal) Electricity consumption: 345,212KWh	84	
		No. 1 Ueno Building	FY 2025	(Before renewal) Electricity consumption:86,989kWh	13	

Waterfront Area Initiatives						
Initiatives	Implementing Entity	Place	Implementation period	Scale and Breakdown of Initiatives	Project Effectiveness (CO2 reduction t/year)	Note
Energy conservation in production facilities	ENEOS	Negishi refinery	at any time	Energy-saving modification of existing facilities	—	
			FY2022～	Reducing Crude Oil Processing Capacity	349,000	
			FY2023～	Introduction of large storage batteries	—	
		Yokohama Factory	FY2022～	Removal of unnecessary piping(0.241 Ton/h)	310	
			FY2024～	Reduction of steam use during long vacations(GW 10 days Obon 10 days)	33	
Building decarbonization (multiple initiatives)	NTT DOCOMO BUSINESS, Inc.	1 telecommunications building	2023～2030 (one part～2040)	Decarbonization of bases (Energy savings through equipment upgrades, Purchase of non-fossil certificates, etc.)	1,200	
		4 office locations	2023～2030	Decarbonization of Group sites (Energy savings through equipment upgrades, Purchase of non-fossil certificates, etc.)	300	
	Hitachi	Systemplaza Yokohama	implementation	•Replacement with high-efficiency air conditioners •Review of appropriate number of air conditioners and humidifiers in operation •Purchase of non-fossil certificates	2,105	7.7% reduction from the previous year
	the City of Yokohama	Minato Mirai 21 district	FY2022～ FY2030,currently being carried out	Decarbonization areas Decarbonizing electricity use in buildings (thorough energy conservation, introduction of renewable energy, etc.)	190,000	Ministry of the Environment Regional Decarbonization Transition and Renewable Energy Promotion Grant [Joint Applicant] City of Yokohama, General Incorporated Association Yokohama Minato Mirai 21
				Decarbonization areas Decarbonizing heat energy use in buildings (through offsetting, equipment upgrades, etc.)	45,000	[Participating Businesses] 45 facilities in the district(as of November 2025)
	MUFG Bank	Global Learning Center	FY2024	Decarbonization of heat (10,199 GJ/year)	(680)	Included for reference only, as they are included in the reductions in the Decarbonization Leading Areas.
	Utilization of unused energy	TOAGOSEI	YOKOHAMA PLANT	Implemented from 2021 to FY2024, with effects occurring after completion	Reduction of steam consumption through heat recovery	561
Implemented from 2022 to FY2026, with effects occurring after completion.				Demonstration test of effective use of incinerated waste heat	6,349	FY2024 Subsidy for Carbon Dioxide Emission Control Project - Application Approved
Solar Power Generation	IHI	Yokohama office	2023～FY2030	1,000kW	100	
	Uyeno Group Holdings Ltd	Head Office Building	FY 2025～	Decarbonization through the use of renewable energy	Measurement in progress	
Offshore Wind Power Generation	Toshiba Energy Systems & Solutions	Keihin Office	FY2028～	Manufacture of wind turbine nacelles 72 units per year	—	(reference) CO2 reduction
	Yokohama Engineering Works, Ltd.	Anzen Dockyard, Daikoku Factory	FY2027～ (planned)	Manufacture of anchors for floating offshore wind power Approximately 20 anchors to be manufactured for two large-scale demonstration projects under the GI Fund promoted by METI and NEDO (off southern Akita Prefecture: 2 turbines; off Tahara and Toyohashi, Aichi Prefecture: 1 turbine)	—	Application planned for a GX subsidy from the Ministry of Economy, Trade and Industry (METI)
Use of decarbonized electricity and fuels (CO2-free electricity, certificates, credits)	AGC	Yokohama technical center	2022～	Approx.35,000,000kWh/year	16,000	
	Tokyo Gas	the City of Yokohama	FY2023 introduction	full implementation	13,454	
	JFE Engineering	Yokohama head office	To be introduced sequentially from FY2021	100% introduction in Yokohama area	5,000	
	NYK Line	Hikawa Maru	FY2020～	Use electricity derived from renewable energy	—	
		Yokohama Branch, Maritime Museum Group	FY2023～	The tenant building uses electricity derived from renewable energy	—	
	MUFG Bank	Branches and other facilities	FY2022	100% introduction rate	—	
Renewal of generators, hydrogen and ammonia utilization	The Nisshin OilIIO Group	Isogo office	FY 2025～operation	Gas Turbine Renewal(8,000kW class)	1,200	
			After 2027, by 2030	Gas turbine 1% hydrogen co-firing per year	1,100	
Next Generation Fuel Bunkering	Mitsubishi Gas Chemical	Port of Yokohama	FY 2025	Methanol bunkering is conducted via ship-to-ship operations at anchorage for ocean-going vessels, with further efforts aimed at building additional operational track records.	TBD	The methanol includes biomethanol manufactured at the Niigata Plant of Mitsubishi Gas Chemical Company, Inc.

Waterfront Area Initiatives						
Initiatives	Implementing Entity	Place	Implementation period	Scale and Breakdown of Initiatives	Project Effectiveness (CO2 reduction t/year)	Note
Development and demonstration of various technologies	ENEOS	Central Research Laboratory	2025 Development and technical demonstration of large electrolyzer 2030s Aim for social implementation	Direct MCH®: Development of low-cost production technology for MCH, a type of hydrogen carrier	—	
			Scale-up demonstration at plant scale has been underway since FY2022.	Development of synthetic fuel production technology	—	
			Starting from 2022	Development of chemical recycling technology to produce raw materials for tires from used tires	—	
			Under implementation	Ongoing development of MCH-FC technology, which generates electricity using methylcyclohexane (MCH), a type of hydrogen carrier, as a feedstock.	—	
			Under implementation	Development of bioethanol production technology	—	
	Tokyo Gas	Tsurumi ward	Demonstration from FY2022	Production demonstration test of e-methane (synthetic methane)	—	Preparing to acquire Clean Gas Certificate
	NYK Line NTT FACILITIES, INC. Eurus Energy Holdings Corporation MUFG Bank	Yokohama Osanbashi PIER	Scheduled to run for one year from March 2026, followed by three months for dismantling.	Green Data Center Demonstration Project A demonstration of an offshore data center has been under construction since October 2025.	19	
Other	ENEOS	the City of Yokohama	FY2014~	Hydrogen station operation(4 locations)	—	
	Mizuho Bank	Port of Yokohama	Plan	Support for the creation of new financial schemes to promote initiatives for the formation of a carbonneutral port	—	
	Mitsui E&S	—	April 2024~	Widespread use of high-pressure, high-flow hydrogen compressors	—	
Glass Recycling	AGC	AGC Yokohama technical center	2026~	Recycling of 3,000 t/year of glass cullet	1,800	Maximum case
Supply of methanol as a hydrogen carrier and hydrogen generators	Mitsubishi Gas Chemical	Yokohama Port Waterfront Area	Targeting supply start in 2028	Initiate supply of container-sized portable hydrogen generators and methanol aqueous solution as a hydrogen feedstock to customers.	TBD	The methanol is expected to include biomethanol produced at Mitsubishi Gas Chemical's Niigata Plant.
Short to Medium Term Combination					639,100	
(Reference) Total amount of reductions by CNP Council members (15 companies) calculated from the global warming action plan system (2013 → 2022)					1,163,695	

(2) Medium-term (FY2040)

Table 26: Efforts to decarbonize the waterfront area (medium-term)

Waterfront Area Initiatives	Waterfront Area Initiatives						
	Initiatives	Implementing Entity	Place	Implementation period	Scale and Breakdown of Initiatives	Project Effectiveness (CO2 reduction t/year)	Note
	Energy-saving lighting equipment (LEDs, etc.)	Nissan Motor	Honmoku Wharf	2018～FY2032	Full LED conversion of 13,300 lights across the site Completion scheduled for 2032	505	Compared with 2018 baseline after replacement of 13,300 lights
	Decarbonization of heat (synthetic methane utilization, etc.)	The Nisshin OilIIO Group	Isogo office	FY2030～	Synthetic methane (e-methane) (minimum 1% of supply)	860	
	Synthetic methane supply	Tokyo Gas	the City of Yokohama	To be introduced sequentially from FY2030 onward	Supply of e-methane (synthetic methane)	TBD	Studying the possibility of introducing more than 1% of city gas in 2030. Project effects will be discussed in conjunction with future concretization.
	Offshore Wind Power Generation	Yokohama Engineering Works, Ltd.	Anzen Dockyard, Daikoku Factory	FY2031～FY2040	Plans for mass production of anchors for commercial floating offshore wind power projects across Japan (approximately 100–200 units per year)	—	Planned application for a GX subsidy from METI
	Next Generation Fuel Bunkering	Mitsubishi Gas Chemical	Port of Yokohama	after FY 2030～	Expansion of bunkering systems in line with the development of methanol supply bases, along with continued bunkering operations	TBD	
	Supply of methanol as a hydrogen carrier and hydrogen generators	Mitsubishi Gas Chemical	Yokohama Port Waterfront Area	Continued and expanded from short- to medium-term plan	Continued and expanded supply of container-sized portable hydrogen generators and methanol aqueous solution as a hydrogen feedstock, leveraging the development of methanol supply bases.	TBD	
	Total Mid-term Initiatives					1,365	

(3) Long-term (FY2050)

Table 27: Efforts to decarbonize the waterfront area (long-term)

Waterfront Area Initiatives						
Initiatives	Implementing Entity	Place	Implementation period	Scale and Breakdown of Initiatives	Project Effectiveness (CO2 reduction t/year)	Note
Energy saving in production facilities	JFE Steel	Ohgishima	Plan	Energy saving by downsizing pumps, etc.	—	
Use of decarbonized electricity and fuels(CO2-free electricity, certificates, credits)	JFE Steel	Ohgishima	Plan	Conversion from natural gas to carbon neutral fuel for heating furnaces, etc.	—	
	The Nisshin OilIiO Group	Isogo office	Plan	Amount of electricity received	600	
Renewal of generators, hydrogen and ammonia utilization	The Nisshin OilIiO Group	Isogo office	Plan	Gas turbine hydrogen co-firing GT : 60%、Reheating : 100%	15,700	
	IHI	Yokohama office	Plan	Gas engine power plant fuel conversion (City gas → Ammonia)(4,000kW)	TBD	
	the City of Yokohama	Minato Mirai 21 district	Creation of a roadmap to 2050 in FY2023	Fuel conversion to hydrogen and other fuels in district heating and cooling under the Minato Mirai Hydrogen Project (boiler capacity to be determined)	45,000	
Hydrogen use in LNG- and coal-fired power generation	JERA	—	TBD	Hydrogen conversion of LNG-fired power plants, etc.	—	Promote company-wide conversion of LNG-fired power plants to hydrogen to reduce emissions intensity of thermal power generation. *We would like to refrain from giving a definite answer on the scale and period of implementation at each location at this time.
	Electric Power Development(J-POWER)	Isogo Thermal Power Plant	TBD	Transition of thermal power sources based on J-POWER BLUE MISSION 2050 (2 units)	—	In accordance with the J-POWER BLUE MISSION 2050 roadmap, high-efficiency coal-fired power plants will also select the most appropriate technology based on the characteristics of the site and contribute to a stable supply of electricity while reducing carbon emissions and decarbonization. *In May 2024, we presented the direction of transition for our seven thermal power plants, including the Isogo Thermal Power Plant.However, it may be revised according to preconditions such as policy, electricity supply and demand conditions, and progress in industrial development.

Waterfront Area Initiatives							
Initiatives	Implementing Entity	Place	Implementation period	Scale and Breakdown of Initiatives	Project Effectiveness (CO2 reduction t/year)	Note	
Establishment of electric power supply bases and supply of renewable energy power	the City of Yokohama,Ocean Power Grid, MUFG Bank,etc.	Port of Yokohama	TBD	Introduction of renewable energy from offshore wind power by battery tankers	TBD	5 parties MOU concluded with the City of Yokohama,TEPCO Power Grid, Ocean Power Grid, TODA CORPORATION, MUFG Bank (January 2025)	
Offshore Wind Power Generation	Yokohama Engineering Works, Ltd.	Anzen Dockyard, Daikoku Factory	FY2040～FY2045 (planned)	Mass production of anchors for commercial floating offshore wind projects across Japan, approximately 100–200 units per year	—		
Next Generation Fuel Bunkering	Idemitsu Kosan	Honmoku Pier Minami Honmoku Pier	Plan	eMethanol fueling for container ships	TBD	eMethanol demand calculation in progress	
	Mitsubishi Gas Chemical	Port of Yokohama	Continuation and expansion from the medium-term plan	Expansion of bunkering systems in line with the development of methanol supply bases, along with continued bunkering operations	TBD		
Consideration of land use conversion	JFE Holdings	Ohgishima	FY2023～	Land use conversion to areas leading the way in carbon neutrality	TBD		
Supply of methanol as a hydrogen carrier and hydrogen generators	Mitsubishi Gas Chemical	Yokohama Port Waterfront Area	Continuation and expansion from the medium-term plan	Continued and expanded supply of container-sized portable hydrogen generators and methanol aqueous solution as a hydrogen feedstock to customers, leveraging the development of methanol supply bases	TBD		
Total Long-term Initiatives					61,300		
Total Promotion Project Initiatives					701,765		

(4) Reduction Effect of CO₂ Emissions

Table 28: CO₂ Emissions Reduction Effects of Decarbonization Initiatives in the Waterfront Area

Item	Total
① : CO ₂ emissions in the base year (2013)	9,093,000t
② : CO ₂ emissions in the most recent year (2022)	6,394,000t
③ : CO ₂ emission reductions from port decarbonization promotion projects (2023-2050)	728,000t *
④ : Reduction of CO ₂ emissions from base year (2050) (①-②+③)	3,427,000t
⑤ : Reduction rate (④／①)	37.7%

* The total of 701,000 tons for the port decarbonization promotion projects in the waterfront area and 27,000 tons for the port decarbonization promotion projects at the piers.

4-1-2. Initiatives for decarbonization at the wharf

The project to promote decarbonization of ports and harbors in the waterfront area of Yokohama City (initiatives to decarbonize at the wharf) and its implementing entities are as follows.

These are the current status of studies conducted by each entity. The report will be updated to reflect the consideration of each entity in light of future developments in technologies that contribute to decarbonization and changes in social conditions, as well as the progress of inter-company collaboration and the participation of new entities.

(1) Short to medium term (FY2030)

Table 29: Efforts to decarbonize at the wharf (short- and medium-term)

Efforts at the wharf (in the terminal)						
Initiatives	Implementing Entity	Place	Implementation period	Scale and Breakdown of Initiatives	Project Effectiveness (CO2 reduction t/year)	Note
Energy-saving lighting equipment (LEDs, etc.)	the City of Yokohama	In Terminal public facilities	~FY2030	adjusting	—	
	Yokohama Kawasaki International Port Corporation	Minami Honmoku Pier MC-4	FY2021	Six lighting towers, gantry crane lighting facilities, etc.	—	Effects of the project are accounted for in the introduction of renewable electricity
		Honmoku Pier D-4	FY2025~	Six lighting towers, gantry crane lighting facilities, etc.	—	
		Honmoku Pier D-5	FY2025~	Four lighting towers, gantry crane lighting facilities, etc.	—	
		Honmoku Pier D-1	FY2026~	Six lighting towers, gantry crane lighting facilities, etc.	—	
		Minami Honmoku Pier MC-1~3	FY2026~	15 lighting towers, gantry crane lighting facilities, etc.	—	
		Honmoku Pier BC	FY2027~	13 lighting towers, gantry crane lighting facilities, etc.	—	
	Yokohama Port Corporation	Daikoku Pier C-1~4,L-1~8	FY2014~2024	Adoption rate 100%	—	40%-50% reduction in electricity consumption for lighting
Building decarbonization (multiple initiatives)	Yokohama Port Corporation	Daikoku Pier C-1~4,L-1~8,etc. Daikoku Pier A-5	Phased implementation by FY2030	Achieve ZEB Ready certification through improved insulation performance, enhanced energy efficiency of HVAC and hot water systems, and further optimization of LED lighting, including both efficiency improvements and review of the number of units in operation.	69	
Solar Power Generation	Yokohama Port Corporation	Minami Honmoku Pier MC-1,2	FY2014~	520kW	249	FIT
		Minami Honmoku Pier MC-3	FY2015~	310kw	184	FIT
	the City of Yokohama	Daikoku Pier T-4	FY2014~	300kw	160	FIT
		Daikoku Pier Y-CC	FY2016~	24.5MWh/year	13	
Use of decarbonized electricity and fuels (CO2-free electricity, certificates, credits)	Yokohama Kawasaki International Port Corporation	Honmoku Pier D-1	FY2022~	2,145MWh/year	948	
		Honmoku Pier D-4	FY2022~	5,645MWh/year	2,495	
		Honmoku Pier BC	FY2022~	9,459MWh/year	4,181	
		Daikoku Pier T-9	FY2022~	675MWh/year	299	
	Terminal lessee, etc.*	Minami Honmoku Pier MC-1~4	~FY2029 conceptual stage	27,000kWh/year	10,176	
	Yokohama Port Corporation	Daikoku Pier C-1	FY2022~	252MWh/year	110	
		Daikoku Pier C-2	FY2022~	198MWh/year	80	
		Daikoku Pier L-1~8	FY2022~	1,389MWh/year	580	
		Honmoku Pier A-5,6	FY2022~	142MWh/year	50	
		—	FY2023~	Use of J-credits (gasoline)	16	
	NYK Line	Daikoku Pier C-3	2020~	Use of electricity derived from renewable energy	—	

Efforts at the wharf (in the terminal)						
Initiatives	Implementing Entity	Place	Implementation period	Scale and Breakdown of Initiatives	Project Effectiveness (CO2 reduction t/year)	Note
Introduction of decarbonized cargo handling equipment	Yokohama Kawasaki International Port Corporation	Honmoku Pier D-1	FY2021～FY2024	Introduction of energy-saving gantry cranes (3 units)	—	Effects of the project are accounted for in the introduction of renewable electricity
		Honmoku Pier D-4	2024～FY2027	Introduction of energy-saving gantry cranes (2 units)	—	
		Minami Honmoku Pier MC-4	After 2026	Introduction of energy-saving gantry cranes (2 units)	—	
		Honmoku Pier BC	After 2026	Introduction of energy-saving gantry cranes (3 units)	—	
		Honmoku Pier MC-1,2	FY2020～FY2024	Introduction of energy-saving gantry cranes (5 units)	—	
		Honmoku Pier BC	FY2021～FY2023	Introduction of energy-saving gantry cranes (2 units)	—	
		Honmoku Pier BC	FY2025～FY2026	Introduction of energy-saving gantry cranes (1 units)	—	
		Honmoku Pier D-5	After2028	Introduction of energy-saving gantry cranes (3 units)	—	
		Honmoku Pier C5～9	FY2026～FY2028	Introduction of energy-saving gantry cranes (2 units)	—	
Introduction of decarbonized cargo handling equipment	Suzue Corporation, Sankyu, Sumitomo Warehouse, Tokyo International Terminal, Mitsubishi Logistics Corporation, Port of Yokohama Mega Terminal	Honmoku Pier BC	FY2015～FY2023	Low-carbon RTGs 50% of total installed	501	
	Nippon Express Kamigumi	Honmoku Pier D-1	～FY2021	Low-carbon RTGs 87.5% of total installed	374	
			FY2022～FY2026	Low-carbon RTGs 100% of total installed	53	
	CMACGMJAPAN	Honmoku Pier D-4	FY2013	Low-carbon RTGs 100% of total installed	701	
	APM Terminals Japan	Minami Honmoku Pier MC-1～4	FY2015～FY2023	Low-carbon RTGs 93% of total installed	2,134	
			FY2025～FY2026 conceptual stage	Low-carbon RTGs 100% of total installed	305	
	Terminal lessee, etc.*	Minami Honmoku Pier MC-1～4	FY2027～FY2029 conceptual stage	RTG 100% adoption rate	4,551	
			FY2027～FY2029 conceptual stage	Reach Stacker 100% adoption rate	2	
			FY2027～FY2029 conceptual stage	Top Lifter 100% adoption rate	1,232	
			FY2027～FY2029 conceptual stage	Forklift 100% adoption rate	107	
			FY2027～FY2029 conceptual stage	Truck on the premises 100% adoption rate	3,013	
	Mitsui E&S	Port of Yokohama	FY2023～FY2024	On-site demonstration of hydrogen-fueled cargo handling equipment (Our near-zero emission RTGs is powered by a fuel cell)	—	Reduce CO2 emissions to zero
	Total short- and medium-term in terminal					32,583

Efforts at the wharf (incoming/outgoing vessels and vehicles)						
Initiatives	Implementing Entity	Place	Implementation period	Scale and Breakdown of Initiatives	Project Effectiveness (CO2 reduction t/year)	Note
Next Generation Fuel Bunkering	the City of Yokohama	Port of Yokohama	—	Work with companies to implement initiatives	TBD	Assuming an increase in fuel types, listed for all periods.
Decarbonization of vessels	NYK Line	Tokyo Bay	FY2024～	Ammonia-fueled tugboat One ammonia-fueled tugboat scheduled to enter commercial operation in 2025.	Up to 95% reduction compared to heavy fuel oil	
		Port of Yokohama etc.	In service from July 2025	LNG dual-fuel capability and shore power readiness for Asuka III Asuka III is equipped with a dual-fuel system enabling operation on both heavy fuel oil and LNG, and is also fitted with onshore power supply capability.	—	
	Daito Corporation	Port of Yokohama etc.	FY2027～	Battery-electric propulsion tugboat	—	Project to Promote Innovative Operation Efficiency and Non-Fossil Energy Conversion for Coastal Shipping by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) and the Ministry of Economy, Trade and Industry (METI)
	City of Yokohama	Port of Yokohama	FY2025～	Introduction of biofuel-compatible engines in harbor boat		
			FY2024～	Participation in the Blue Visby Consortium	—	
			FY2023～	Use of Maritime Emissions Portal (RightShip)	—	
	Installation of onshore power supply facilities	the City of Yokohama	Honmoku Pier A-4	FY2024～	Low-voltage onshore power supply facilities	
Osanbashi Pier			April 2027～	High-voltage onshore power supply facility (for large cruise ships)	—	FY2025 Subsidy for the Creation of New Local Economies and Living Environments (Coastal Area Revitalization Project Centered on the Osanbashi International Passenger Terminal)
Yokohama Kawasaki International Port Corporation etc.		Honmoku Pier D-4,5	Under planning conceptual stage	High-voltage onshore power supply facilities (for container ships)	—	
		Minami Honmoku Pier MC-3,4	Under planning conceptual stage	High-voltage onshore power supply facilities (for container ships)	—	
Introduction of gate reservation system		Kanto Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism	Minami Honmoku Pier	FY2021～	full implementation	—
	Honmoku Pier		after FY 2025～	full implementation	—	
Incentives for environmentally friendly vessels	City of Yokohama	Port of Yokohama	FY2017～	・ ESI (Environmental Ship Index) system ・ Programs by the Green Award Foundation	—	Assuming that the type of incentive will increase with the increase in fuel
			FY2020～	LNG-fueled vessels and LNG bunkering vessels	—	Assuming that the type of incentive will increase with the increase in fuel types, the incentives are listed for the entire period.
			FY2025～	Methanol-fueled vessels	—	
				Vessels bunkered with biofuels	—	
Inbound/Outbound Vehicles Vessels Medium/Short Term Total					5	

(2) Medium-term (FY2040)

Table 30: Efforts to decarbonize at the wharf (medium-term)

Efforts at the wharf (in the terminal)						
Initiatives	Implementing Entity	Place	Implementation period	Scale and Breakdown of Initiatives	Project Effectiveness (CO2 reduction t/year)	Note
Introduction of decarbonized cargo handling equipment	Yokohama Kawasaki International Port Corporation	Minami Honmoku Pier MC-1,2	~FY2040 conceptual stage	Introduction of energy-saving gantry cranes (5 units)	—	Effects of the project are accounted for in the introduction of renewable electricity
		Honmoku Pier BC	~FY2040 conceptual stage	Introduction of energy-saving gantry cranes (6 units)	—	
		Shinhonmoku Pier	~FY2040 conceptual stage	Introduction of energy-saving gantry cranes (8 units)	—	
		Minami Honmoku Pier MC-3	~FY2040 conceptual stage	Introduction of energy-saving gantry cranes (4 units)	—	
		Minami Honmoku Pier MC-4	~FY2040 conceptual stage	Introduction of energy-saving gantry cranes (1 units)	—	
		Honmoku Pier BC	~FY2040 conceptual stage	Introduction of energy-saving gantry cranes (2 units)	—	
		Honmoku Pier D-1	~FY2040 conceptual stage	Introduction of energy-saving gantry cranes (3 units)	—	
	Terminal lessee, etc.*	Honmoku Pier D-5	~FY2040 conceptual stage	RTG 100% introduction rate	925	
			~FY2040 conceptual stage	Top Lifter 100% adoption rate	227	
			~FY2040 conceptual stage	Forklift 100% adoption rate	14	
			~FY2040 conceptual stage	Truck on the premises 100% adoption rate	549	
		Honmoku Pier BC	~FY2040 conceptual stage	RTG introduction rate 50%	1,077	
			~FY2040 conceptual stage	Top lifter introduction rate 13.3%	113	
			~FY2040 conceptual stage	Trucks on premises indroduction rate 22.9%	284	
Total mid-term in terminal					3,189	

Efforts at the wharf (incoming/outgoing vessels and vehicles)							
Initiatives	Implementing Entity	Place	Implementation period	Scale and Breakdown of Initiatives	Project Effectiveness (CO2 reduction t/year)	Note	
Next Generation Fuel Bunkering	the City of Yokohama	Port of Yokohama	—	Work with companies to implement initiatives	TBD	Assuming an increase in fuel types, listed for all periods.	
Decarbonization of vessels	the City of Yokohama	Port of Yokohama	FY2024～	Promotion of the Blue Visby Consortium	—		
Incentives for environmentally friendly vessels	the City of Yokohama	Port of Yokohama	FY2017～	・ ESI (Environmental Ship Index) system ・ Programs by the Green Award Foundation	—	Assuming that the type of incentive will increase with the increase in fuel types, the incentives are listed for the entire period.	
			FY2020～	LNG-fueled vessels and LNG bunkering vessels	—		
			FY2025～	Methanol-fueled vessels	—		
				Vessels bunkered with biofuels	—		

(3) Long-term (FY2050)

Table 31: Efforts to decarbonize the waterfront area (long-term)

Efforts at the wharf (in the terminal)						
Initiatives	Implementing Entity	Place	Implementation period	Scale and Breakdown of Initiatives	Project Effectiveness (CO2 reduction t/year)	Note
Introduction of decarbonized cargo handling equipment	Terminal lessee, etc.*	Honmoku Pier BC	~FY2050 conceptual stage	RTG 100% adoption rate	1,077	
			~FY2050 conceptual stage	Top Lifter 100% adoption rate	735	
			~FY2050 conceptual stage	Reach Stacker 100% adoption rate	122	
			~FY2050 conceptual stage	Truck on the premises 100% adoption rate	959	
Introduction of decarbonized cargo handling equipment	Terminal lessee, etc.*	Honmoku Pier D-1	~FY2050 conceptual stage	RTG 100% adoption rate	990	
			~FY2050 conceptual stage	Top Lifter 100% adoption rate	199	
			~FY2050 conceptual stage	Straddle carriers 100% adoption rate	33	
			~FY2050 conceptual stage	Trucks on the premises 100% adoption rate	279	
			~FY2050 conceptual stage	Forklift trucks 100% adoption rate	3	
			~FY2050 conceptual stage	Reach Stacker 100% adoption rate	1	
Long-term total in terminal					4,398	

Efforts at the wharf (incoming/outgoing vessels and vehicles)							
Initiatives	Implementing Entity	Place	Implementation period	Scale and Breakdown of Initiatives	Project Effectiveness (CO2 reduction t/year)	Note	
Next Generation Fuel Bunkering	the City of Yokohama	Port of Yokohama	—	Work with companies to implement initiatives	—	Assuming an increase in fuel types, listed for all periods.	
Decarbonization of vessels	Nissan Motor Co., Ltd.	whole company	—	Adoption of container Bio Fuel vessels for Europe	—		
	the City of Yokohama	Port of Yokohama	FY2024～	Promotion of the Blue Visby Consortium	—		
Incentives for environmentally friendly vessels	the City of Yokohama	Port of Yokohama	FY2017～	・ ESI (Environmental Ship Index) system ・ Programs by the Green Award Foundation ・ LNG bunkering and LNG bunkering vessels	—	Assume that the type of incentive will increase with the increase in fuel types, the incentives are listed for the entire period.	
			FY2020～	LNG-fueled vessels and LNG bunkering vessels	—		
			FY2025～	Methanol-fueled vessels	—		
				Vessels bunkered with biofuels	—		

Effect of the project (CO2 reduction t/year)	2013~2050	2013~2022	After 2023
Total terminal promotion project initiatives	40,383	13,059	27,324
Container terminal only	38,360	11,633	26,727
Total Initiatives for Inbound/Outbound Vehicle Vessel Promotion Projects	5	0	5

*The details of initiatives with “etc.” added as an executing entity are stipulated in the Manual for Port Decarbonization Promotion Plan Preparation (March 2023, Industrial Port Division, Port and Harbor Bureau, Ministry of Land, Infrastructure, Transport and Tourism) to be included in the 6-1. However, in this plan, we have focused on the listing of Port Decarbonization Promotion Project and have included them in 4-1-2. Efforts to decarbonize at the docks. We are aware that these efforts do not currently fall under the port decarbonization promotion projects stipulated in Article 50-2, Paragraph 5 of the Port and Harbor Act.

(4) Reduction of CO₂ Emissions

Table 32: CO₂ Emissions Reduction Effects of Decarbonization Initiatives at Docks

Item	In Terminal※ 1	Incoming and outgoing vessels and vehicles※ 2	Total
① : CO ₂ emissions in the base year (2013)	37,000t	337,000t	374,000t
② : CO ₂ emissions in the most recent year (2022)	26,000t	326,000t	352,000t
③ : Reduction of CO ₂ emissions through port decarbonization promotion projects(2023 - 2050)	26,000t	0t	26,000t
④ : Reduction of CO ₂ emissions from base year (2050) (①-② + ③)	37,000t	11,000t	48,000t
⑤ : Reduction rate (④／①)	100%	3.3%	12.8%

* 1 Only figures for container terminals are reported.

* 2 The outgoing and incoming vessels include CO₂ emissions from vessels at anchor (including anchorages). CO₂ emissions from inbound and outbound vehicles are not reported because measures such as electrification and modal shift are qualitative at this time.

In the future, this plan will be reviewed and added to the Port Decarbonization Promotion Project as the private sector and others take concrete steps to decarbonize their operations, thereby promoting the project and achieving its goals.

4-1-3. Efforts to create a rich ocean

The project to promote decarbonization of ports and harbors (initiatives to create a rich ocean) at the Port of Yokohama and its implementing entities are defined as shown in the table below.

(1) Short to medium term (FY2030)

Table 33: Efforts to create a rich ocean (short-to-medium term)

Name (Business Name)	Position	Scale	Implementing Entity	implementation period	Effects of the Project (CO ₂ absorption)	Note
Preservation, reproduction and creation of blue infrastructure	Harbor area, etc.	Seawalls, wave dissipating blocks, shallow areas, etc.	City of Yokohama,etc.	~FY2030	Approx.150t- CO ₂ /year	

(2) Medium term (FY2040)

Table 34: Efforts to create a rich ocean (medium term)

Name (Business Name)	Position	Scale	Implement Entity	Implementation period	Effects of the Project (CO ₂ absorption)	Note
Preservation, reproduction and creation of blue infrastructure	Harbor area, etc.	Seawalls, wave dissipating blocks, shallow areas, etc.	City of Yokohama,etc.	~FY2040	Approx. 200t- CO ₂ /year	

(3) Long-term (FY2050)

Table 35: Efforts to create a rich ocean (long-term)

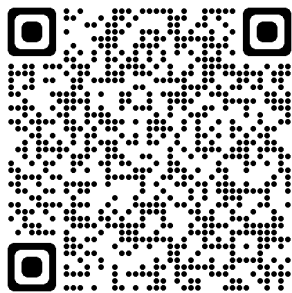
Name (Business Name)	Position	Scale	Implementing Entity	Implementation period	Effects of the Project(CO ₂ absorption)	Note
Preservation, reproduction and creation of blue infrastructure	Harbor area, etc.	Seawalls, wave dissipating blocks, shallow areas, etc.	City of Yokohama,etc.	~FY2050	Approx. 250t- CO ₂ /year	

(4) CO₂ absorption effect

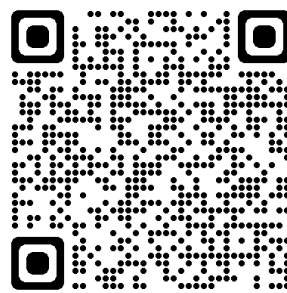
Table 36: Effects of increased CO₂ absorption through efforts to create a rich ocean

	① : CO ₂ Absorption (FY2024)	② : Cumulative amount of CO ₂ absorption (Cumulative amount by FY2050)	③ : rate of increase (②/①)
Total	Approx. 100t/year	Approx. 250t/year	2.5times

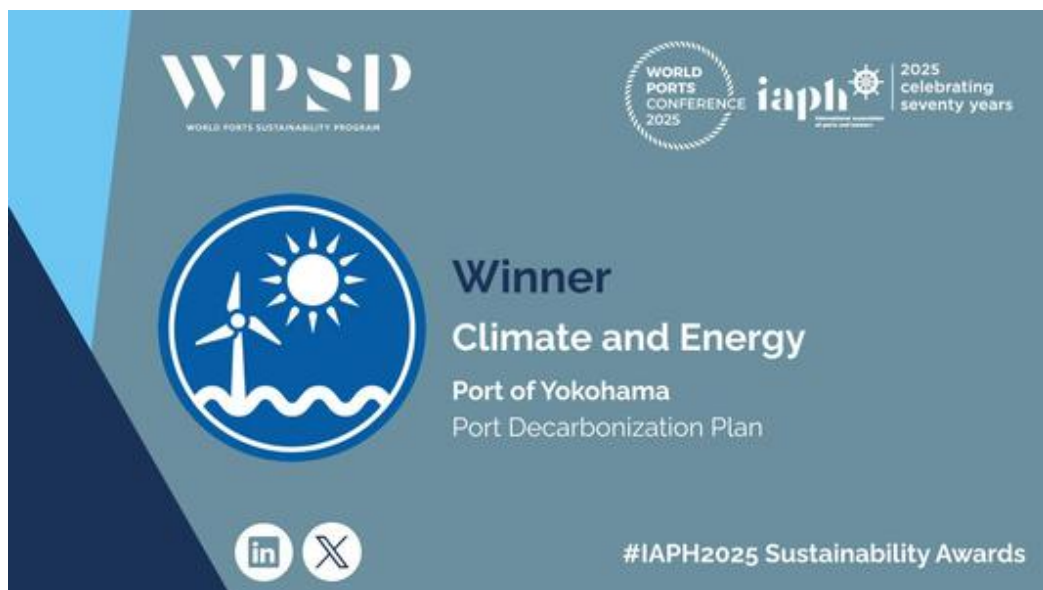
Carbon-Neutral Port Initiatives of the Port of Yokohama



Japanese



English



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